Note

Before using this information and the product it supports, read the information in “Notices” on page 917.
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ISSUER=IEFAB4GA, ERRCSECT=csect, COMPID=5752-SC1B4, COMPON=DEVICE ALLOCATION=ssss.sss
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ISTAPCM - ACF/VTAM ABEND IN MEMORY TERMINATION
ISTATM00 - ACF/VTAM TERMINATION TASK INIT|TERM|ESTAE
ISTINCS - ACF/VTAM STAE EXIT AND RECOVERY
ISTORMMG - ACF/VTAM FRR DUMP
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JES3 SNA FRR IATNSDF
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About this document

This formation is divided into two sections:

- The section about Part 1, “System Reference,” on page 1 provides system reference material useful for diagnosing system problems. It also contains pointers to other documents that contain more information.
- The section about Part 2, “Component Reference,” on page 427 consists of component-specific information that describes diagnostic tools and information available for that component.

For information about Predictive Failure Analysis, and Runtime Diagnostics, see z/OS V2R2 Problem Management.

Who should use this information

This information is for anyone who diagnoses software problems that occur on the operating system. This person is usually a system programmer for the installation. This information is also for application programmers who are testing their programs.

This information assumes that the reader:

- Understands basic system concepts and the use of system services
- Codes in Assembler language, and reads Assembler and linkage editor output
- Codes JCL statements for batch jobs and cataloged procedures
- Understands the commonly used diagnostic tasks and aids, such as message logs, dumps, and the interactive problem control system (IPCS)
- Understands how to search the problem reporting databases
- Understands the techniques for reporting problems to IBM®

Where to find more information

Where necessary, this information references information in other documents, using shortened versions of the information title. For complete titles and order numbers of the documents for all products that are part of z/OS, see z/OS V2R2 Information Roadmap.
How to send your comments to IBM

We appreciate your input on this documentation. Please provide us with any feedback that you have, including comments on the clarity, accuracy, or completeness of the information.

Use one of the following methods to send your comments:

**Important:** If your comment regards a technical problem, see instead “If you have a technical problem.”

- Send an email to mhvrdfs@us.ibm.com
- Send an email from the Contact z/OS

Include the following information:

- Your name and address
- Your email address
- Your phone or fax number
- The publication title and order number:
  - z/OS V2R2 MVS Diagnosis: Reference
  - GA32-0904-05
- The topic and page number or URL of the specific information to which your comment relates
- The text of your comment.

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- Visit the IBM Support Portal (support.ibm.com)
- Contact your IBM service representative.
- Call IBM technical support.
Summary of changes

This information includes terminology, maintenance, and editorial changes. Technical changes or additions to the text and illustrations for the current edition are indicated by a vertical line to the left of the change.

Summary of changes for z/OS MVS Diagnosis: Reference for Version 2 Release 2 (V2R2) as updated September 2016

The following changes are made for z/OS Version 2 Release 2 (V2R2) as updated September 2016. In this revision, all technical changes for z/OS V2R2 are indicated by a vertical line to the left of the change.

The following content is new, changed, or no longer included in V2R2.

New

- Module prefix IEAHxxx was added. For more information, see Chapter 1, "Identifying modules, components, and products," on page 3.

Changed

- SVC 18 (0A12) is updated to clarify the FIND parameter list for PDSE generations. For more information, see "SVC 18 (0A12)" on page 119.
- The STRDATA report was updated to show additional data that is returned for list structures. For more information, see "STRDATA for a list structure" on page 861.

Summary of changes for z/OS MVS Diagnosis: Reference for Version 2 Release 2 (V2R2) as updated December 2015

The following changes are made for z/OS Version 2 Release 2 (V2R2) as updated December 2015. In this revision, all technical changes for z/OS V2R2 are indicated by a vertical line to the left of the change.

New

- SVC 122 was updated to add decimal code 17 to the SVC descriptions. See "SVC 122 (0A7A)" on page 194.
- The ENQ/DEQ summary table was updated for IEFOPZxx data. See "ENQ/DEQ summary" on page 218.
- The LRBEDC3 field was modified in Table 30 on page 271.

Summary of changes for Version 2 Release 2

The following changes are made for z/OS Version 2 Release 2 (V2R2).

New

- New outputs X'04', X'0C', and X'10' were added to SYSEVENT 51. For more information, see "Summary of system events" on page 45.
- Macros RACXTRT and ICHEINTY are now associated with SVC 132. For more information, see "SVCs and associated macros" on page 97.
• New SYS1.SAMPLIB JCL procedures IXGLOGRF and IXGLOGRP were added for LOGR. For more information, see “Sample JCL procedures and functions in SYS1.SAMPLIB” on page 669.
• Information about freemained frames has been added in “RSMDATA REALFRAME subcommand output” on page 624 and “RSMDATA SUMMARY subcommand output” on page 642.
• A new dump title has been added in “ERROR IN SUBSYSTEM EVENT RTN, COMPON=SSI, COMPID=5752SC1B6, ISSUER=IEFJSCMD, ABEND=hhh” on page 390.
• A new XESDATA report, the XESDATA TRACE DETAIL report, has been added. See “XESDATA TRACE DETAIL report” on page 858.

**Changed**

• The content in the COMCHECK UCME subcommand output changed. For more information, see “COMCHECK UCME subcommand output” on page 509.
• The following content in the XESDATA FACILITY DETAIL report changed. For more information, see “XESDATA FACILITY DETAIL report” on page 848.
  – Installed receiver paths
  – Installed sender paths
  – Queued request information
• The IXCMIAPlU output was updated for LS_ALLOCAHEAD and ADV_CURRENT. For more information, see “Interpreting IXCMIAPlU output” on page 682.
• The list of logger control blocks for IPCS command IP CBF address STR(control block) was updated. For more information, see “Relevant IPCS commands” on page 705.
• The output of the IPCS SSIDATA subcommand has been updated to indicate the presence of a subsystem event notification routine in “SSIDATA subcommand output” on page 707.
• The COUPLE GROUP DETAIL report has been updated. See “COUPLE GROUP DETAIL report” on page 826.

**Deleted**

• SYSEVENT 51 output X’12’ was removed. For more information, see “Summary of system events” on page 45.
• SYSEVENT 83 input Reg 0, bytes 0-1 was removed. For more information, see “Summary of system events” on page 45.

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**Summary of changes for z/OS Version 2 Release 1 (V2R1) as updated February 2015**

The following changes are made for z/OS Version 2 Release 1 (V2R1) as updated February 2015. In this revision, all technical changes for z/OS V2R1 are indicated by a vertical line to the left of the change.

**Changed**

• The XESDATA FACILITY DETAIL report is updated. For details, see “XESDATA FACILITY DETAIL report” on page 848.
Summary of changes for z/OS Version 2 Release 1 (V2R1) as updated March 2014

The following changes are made for z/OS Version 2 Release 1 (V2R1) as updated March 2014. In this revision, all technical changes for z/OS V2R1 are indicated by a vertical line to the left of the change.

New

• Various new and changed topics document support for the new XCF Note Pad Service function. The XCF Note Pad Service is a new application programming interface that allows programs to manipulate notes in an XCF note pad. A note pad is an abstraction layered on top of the existing coupling facility list structure interfaces. You can use the new IXCNOTE macro to manipulate data in a coupling facility list structure, provided the note pad abstraction meets the needs of the application.

z/OS Version 2 Release 1 summary of changes

See the following publications for all enhancements to z/OS Version 2 Release 1 (V2R1):

• z/OS Migration
• z/OS Planning for Installation
• z/OS Summary of Message and Interface Changes
• z/OS Introduction and Release Guide
Part 1. System Reference
Chapter 1. Identifying modules, components, and products

This topic contains information to help you identify module, component, and product information related to where an error is occurring. The three tables contain the same information, indexed three different ways. Use the tables as follows:

- "Relating a module prefix to component and product" on page 4
- "Relating component name to module, component, and product" on page 17
- "Relating component ID to component name, module prefix, and product" on page 25.

Each table contains the following sections:

- **Module prefix**: The module prefix is the first three or more characters in:
  - CSECT name
  - Entry point name
  - Macro name
  - Module name
  The name of a module or macro owned by IBM usually begins with the characters A through I. There are a few exceptions beginning with S or X.

- **Component name**: The component name shows the component associated with the module prefix. In some cases, this section shows the name of a command or macro.

- **Product ID**: The product ID is a number identifying the product that a component is associated with. Each separately orderable product has a unique product ID.

- **Component ID**: The component ID is an alphanumeric identifier unique for each component. For component identifiers of products not shown in this table, see the programming support manual for the product or subsystem or use SMP/E reports.

- **Product or subsystem name**: The products and subsystems are:
  - **BTAM** Basic Telecommunications Access Method
  - **DFSMS**
    - DFSMS includes the following functional components:
      - **DFSMSdfp**: Data Facility System Managed Storage DFP
      - **DFSMSdss**: DFSMS Data Set Services
      - **DFSMShsm**: DFSMS hierarchical storage manager
      - **DFSMSrmm**: DFSMS removable media manager
  - **EREP** Environmental Record Editing and Printing program
  - **GAM/SP** Graphics Access Method
  - **JES2** JES2 of legacy MVS™
  - **JES3** JES3 of legacy MVS
  - **MVS** Control program for MVS
## Modules, Components, and Products

RACF®  
Resource Access Control Facility  

RMF™  
Resource Management Facility  

SMP/E  
System Modification Program Extended  

TSO/E  
Time Sharing Option Extensions  

VTAM®  
Virtual Telecommunications Access Method  

### Relating a module prefix to component and product

Use [Table 1](#) to relate a module prefix to its component name, product identifier (ID), component ID, and product name. If a prefix is not listed in the table, check the SMP/E data base. It has information on other IBM products, such as application programs. See [SMP/E for z/OS User’s Guide](#) for information on using SMP/E.

#### Table 1. Relating a module prefix to component and product

<table>
<thead>
<tr>
<th>Module prefix</th>
<th>Component name</th>
<th>Product ID</th>
<th>Component ID</th>
<th>Product, element name, or optional feature</th>
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<tbody>
<tr>
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<td>566528505</td>
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<td>Language Environment®</td>
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<td>Generalized trace facility (GTF)</td>
<td>5650-ZOS</td>
<td>5752SC111</td>
<td>MVS</td>
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<td>AMLMF - AHLW</td>
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## Modules, Components, and Products

### Table 1. Relating a module prefix to component and product (continued)

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### Modules, Components, and Products

Table 1. Relating a module prefix to component and product (continued)

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# Modules, Components, and Products

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### Modules, Components, and Products

**Table 1. Relating a module prefix to component and product (continued)**

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Chapter 1. Identifying modules, components, and products
### Modules, Components, and Products

Table 1. Relating a module prefix to component and product (continued)

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### Table 1. Relating a module prefix to component and product (continued)

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Table 1. Relating a module prefix to component and product (continued)

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### Table 1. Relating a module prefix to component and product (continued)

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<td>SGKJ0 - SGKJ4EB</td>
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<td>TSO/E scheduler</td>
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<td>SGILDWT</td>
<td>Loadwait/Restart</td>
<td>5650-ZOS</td>
<td>5752SLCLWT</td>
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<td>SGISPI</td>
<td>Service processor interface (SPI)</td>
<td>5650-ZOS</td>
<td>5752SCSPI</td>
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<td>SGS</td>
<td>Stand-alone dump</td>
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<td>5752SCL15</td>
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### Relating component name to module, component, and product

Use **Table 2** to relate a component name to its module prefix, product ID, component ID, and product name.

#### Table 2. Relating Component Name to Module, Component, and Product

<table>
<thead>
<tr>
<th>Component name</th>
<th>Module prefix</th>
<th>Product ID</th>
<th>Component ID</th>
<th>Product or subsystem</th>
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<tr>
<td>ABDUMP (See ABEND dump)</td>
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<td>ABEND dump</td>
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<td>MVS</td>
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<td>Access Method Services (AMS)</td>
<td>IDC</td>
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<td>28430</td>
<td>DFSMSdfp</td>
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<tr>
<td>ACR (See alternate CPU recovery)</td>
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<tr>
<td>Address space control; includes:</td>
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<td>5650-ZOS</td>
<td>SC1CU</td>
<td>MVS</td>
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<td>• Address space initialization</td>
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<td>• Region control task (RCT)</td>
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<td>• Started task control</td>
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<td>Address space services</td>
<td>ASE</td>
<td>5650-ZOS</td>
<td>SCASE</td>
<td>MVS</td>
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<tr>
<td>Advanced Program-to-Program Communication (APPC)</td>
<td>ATB, ASB</td>
<td>5650-ZOS</td>
<td>SCACB</td>
<td>MVS</td>
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<td>Allocation/unallocation</td>
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<td>SC1B4</td>
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<td>Alternate CPU recovery (ACR)</td>
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<td>5650-ZOS</td>
<td>SCACR</td>
<td>MVS</td>
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<td>AMATERSE service aid</td>
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<td>AMDPRDMP (See macros for GTF)</td>
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<td>AMDSADMP (See stand-alone dump)</td>
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<td>APPC (See Advanced Program-to-Program Communication)</td>
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<td>ASM (See auxiliary storage manager)</td>
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### Modules, Components, and Products

#### Table 2. Relating Component Name to Module, Component, and Product (continued)

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<td>5650-ZOS</td>
<td>SCAVM</td>
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<td>DFSMS</td>
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<td>SC120, 97801</td>
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<td>SC1BC</td>
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<td>EDC</td>
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<td>MVS</td>
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<td>Checkpoint/restart</td>
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<td>• Reconfiguration</td>
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<td>See also operations services (OPS)</td>
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<td>5650-ZOS</td>
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<td>Common volume table of contents (VTOC) access facility (CVAF)</td>
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<td>DF133</td>
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<td>EZA, EZB, EZY, EZZ</td>
<td>5647-A01</td>
<td>5655HAL00</td>
<td>Communication Server for z/OS IP Services</td>
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<td>SC1CK SCIC4</td>
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<tr>
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<td>Context services including Registration services</td>
<td>CTX, CRG</td>
<td>5650-ZOS</td>
<td>SCCTX</td>
<td>MVS</td>
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<td>Contents supervision; includes library lookaside (LLA)</td>
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<td>Cross-system coupling facility (XCF)</td>
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<td>SCIXL</td>
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<td>CVA</td>
<td>5695–DF1</td>
<td>DF133</td>
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<td>DAE (See dump analysis and elimination)</td>
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<tr>
<td>DAM (See Direct Access Method)</td>
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<tr>
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<td>SCDIV</td>
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<td>Data management</td>
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<td>5695</td>
<td>DF107</td>
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## Modules, Components, and Products

### Table 2. Relating Component Name to Module, Component, and Product (continued)

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<th>Component name</th>
<th>Module prefix</th>
<th>Product ID</th>
<th>Component ID</th>
<th>Product or subsystem</th>
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<td>DDR (See dynamic device reconfiguration)</td>
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<td>28463</td>
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<td>Device Support: DASD (ERP)</td>
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<td>DF111</td>
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<td>Device Support Facilities</td>
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<td>5655-257</td>
<td>565899201</td>
<td>ICKDSF</td>
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<td>DF113</td>
<td>DFSMS</td>
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<td>DYNOUT (See scheduler services)</td>
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<td>EREP</td>
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<td>EREP (See Environmental Record Editing and Printing)</td>
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<td>EREP</td>
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<td>Language Environment</td>
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<td>SCSDS</td>
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<td>Initial program load (IPL)</td>
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<td>MVS</td>
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<td>Initiator/terminator</td>
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<td>5650-ZOS</td>
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<td>Input/output configuration program (IOCP)</td>
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<td>5650-ZOS, 5665</td>
<td>BB130, BB136, 29101, 29102</td>
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<td>Input/output supervisor (IOS), includes IOS unit information module (UIM)</td>
<td>CBP, IEA, IEC, IGC, IGE, IOS</td>
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<td>Integrated Cryptographic Service Facility (ICSF)</td>
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<td>Interactive problem control system (IPCS)</td>
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<td>Interactive storage management facility (ISMF) and Hardware Configuration Definition (HCD)</td>
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<td>5650-ZOS</td>
<td>DF161</td>
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**Interrupt handlers (See supervisor control)**
- First level interrupt handlers (FLIH)
- Second level interrupt handlers (SLIH)

**IOCP (See input/output configuration program)**

**IOS (See input/output supervisor)**

**IPCS (See interactive problem control system)**

**IPL (See initial program load)**
## Modules, Components, and Products

Table 2. Relating Component Name to Module, Component, and Product (continued)

<table>
<thead>
<tr>
<th>Component name</th>
<th>Module prefix</th>
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<td>5650-ZOS</td>
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<td>JES2</td>
<td>HAS, IAS, IGC</td>
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<td>Macros for GTF (formerly AMDPRDMP macros)</td>
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<td>MSI (See master subsystem/subsystem interface)</td>
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<td>SAM (See Sequential Access Method or System Availability Management)</td>
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Table 2. Relating Component Name to Module, Component, and Product (continued)

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<td>Stand alone dump (SADMP)</td>
<td>AMD, SGS</td>
<td>5650-ZOS</td>
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<td>MVS</td>
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<td>Started task control (See address space control)</td>
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<td>Start I/O (SIO) exits</td>
<td>IEC</td>
<td>5650-ZOS</td>
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<td>System data mover</td>
<td>ANT</td>
<td>5650-ZOS</td>
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<td>System macros</td>
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<td>System SSL</td>
<td>GSK</td>
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<td>565506805</td>
<td>Cryptographic Services</td>
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<td>Storage management subsystem (SMS)</td>
<td>IEA, IGD</td>
<td>5695</td>
<td>DF101 28462</td>
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<td>Supervisor control; includes:</td>
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<td>• Dispatcher</td>
<td>IEA, IGC</td>
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<td>• First level interrupt handlers (FIH)</td>
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<td>• Second level interrupt handlers (SLIH)</td>
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<td>SVC dump</td>
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<td>SWA manager (See scheduler work area manager)</td>
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<td>Symptom record (SYMREC) services</td>
<td>ASR</td>
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<td>MVS</td>
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<td>SYMREC (See symptom record)</td>
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<td>IXG</td>
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<td>SCLOG</td>
<td>MVS</td>
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<tr>
<td>System management facilities (SMF); includes SMF scheduler</td>
<td>IEA, IEE, IEF, IFA, IGG</td>
<td>5650-ZOS</td>
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<td>System resources manager (SRM)</td>
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<td>SC1CX</td>
<td>MVS</td>
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<td>System Availability Management (SAM) of the Resource Measurement Facility (RMF)</td>
<td>AMS</td>
<td>5665</td>
<td>27404</td>
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### Modules, Components, and Products

Table 2. Relating Component Name to Module, Component, and Product (continued)

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<th>Component name</th>
<th>Module prefix</th>
<th>Product ID</th>
<th>Component ID</th>
<th>Product or subsystem</th>
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<td>Tape error recovery program/volume error statistics (ERP/VES)</td>
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<td>Timer supervision</td>
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<td>Time Sharing Option (TSO)</td>
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<td>XT600</td>
<td>TSO/E</td>
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<td>TIOC (See TSO terminal input output controller)</td>
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<td>Transaction trace</td>
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<td>TSO (See Time Sharing Option)</td>
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<td>TSO and TSO/E EDIT</td>
<td>IKJ</td>
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<td>SC1T0 28501</td>
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<td>28507</td>
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<td>TSO/E interactive data transmission facility</td>
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<td>TSO and TSO/E scheduler (ALLOCATE, CANCEL, OUTPUT, STATUS, and SUBMIT commands)</td>
<td>IEE, IGC, IHA, IKJ, [BB, SGKJ]</td>
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<td>SC1T4 28502</td>
<td>TSO/E</td>
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<td>TSO terminal input output controller (TIOC)</td>
<td>IED, IGC, IGG, IKJ</td>
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<td>SC1T3</td>
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<td>TSO Virtual Telecommunications Access Method (VTAM)</td>
<td>IKT, IST</td>
<td>5746 - A01</td>
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<td>Communication Server for z/OS Services</td>
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<td>UIM (See device independent display operator control support and input/output supervisor)</td>
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<td>Unit record error recovery program (ERP)</td>
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<td>Utilities</td>
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<td>Utilities (3800 Offline Utility)</td>
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<td>5650-ZOS</td>
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<td>VBP (See virtual I/O (VIO))</td>
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<td>5650-ZOS</td>
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<td>MVS</td>
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<td>Virtual Storage Access Method (VSAM)</td>
<td>IDA, IFG, IGC, IGG</td>
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<td>Virtual storage management (VSM)</td>
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<td>5650-ZOS, 5685</td>
<td>28901, 08501</td>
<td>VTAM</td>
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<td>VLF (See virtual lookaside facility)</td>
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<td>VSAM (See Virtual Storage Access Method)</td>
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<td>VSAM block processor</td>
<td>IDA</td>
<td>5650-ZOS</td>
<td>28419</td>
<td>DFSMSdfp</td>
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<td>VSAM/Media manager and VIO</td>
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<td>VSAM open/close/EOV (end-of-volume)</td>
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<td>VSM (See virtual storage management)</td>
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### Modules, Components, and Products

**Table 2. Relating Component Name to Module, Component, and Product (continued)**

<table>
<thead>
<tr>
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<th>Component ID</th>
<th>Product or subsystem</th>
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<td>VTAM (See Virtual Telecommunications Access Method)</td>
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<td>XES (See cross-system extended services)</td>
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<td>XCF (See cross-system coupling facility)</td>
<td>CNN</td>
<td>5694–A01</td>
<td>56551210A</td>
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<td>XL C/C++ Compiler</td>
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<td>XML Toolkit for z/OS</td>
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<td>XWTR (See external writer)</td>
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<td>z/OS Distributed File Service</td>
<td>IOE</td>
<td>5650-ZOS</td>
<td>569694200</td>
<td>Distributed File Service SMB Server</td>
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<tr>
<td>z/OS Shell and Utilities</td>
<td>FSUM</td>
<td>5695</td>
<td>SCPX2</td>
<td>MVS</td>
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<td>z/OS UNIX Debugger</td>
<td>FDBX</td>
<td>5695</td>
<td>SCPX3</td>
<td>MVS</td>
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<td>z/OS UNIX application services</td>
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<td>5650-ZOS</td>
<td>5696EFS00</td>
<td>z/OS File System (zFS)</td>
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<td>3505/3525 reader/punch</td>
<td>IGG</td>
<td>5650-ZOS</td>
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<td>DFSMSdfp</td>
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<td>3800 offline utility</td>
<td>CIP, GRAF, GRF, XTB</td>
<td>5650-ZOS</td>
<td>28450</td>
<td>DFSMSdfp</td>
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<td>3890 document processor</td>
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<td>5650-ZOS</td>
<td>SC1DF</td>
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**Relating component ID to component name, module prefix, and product**

Use Table 3 to relate a component ID to its component name, module prefix, product ID and product name.

**Table 3. Relating Component ID to Component Name, Module Prefix, and Product**

<table>
<thead>
<tr>
<th>Component ID</th>
<th>Component name</th>
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<th>Product ID</th>
<th>Product or subsystem</th>
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<tr>
<td>BB1CS</td>
<td>Dynamic device reconfiguration (DDR)</td>
<td>IEF, IGC, IGE, IGF</td>
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<td>MVS</td>
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<tr>
<td>BB1CT</td>
<td>Machine check handler (MCH)</td>
<td>IGF</td>
<td>5650-ZOS</td>
<td>MVS</td>
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</table>
| BB131        | Scheduler services:  
• Event notification facility (ENF)  
• Dynamic output  
• Scheduler JCL facility (SJF) | IEA, IEF | 5650-ZOS | MVS |
| DF101        | Storage management subsystem (SMS) | IGD | 5695 | DFSMSdfp |
| DF102        | Basic Access Methods (VIO)  
• Basic Access Methods (SAM) | • IDD  
• IEC | 5650-ZOS | DFSMS |
| DF104        | DFSMS Common Services | IGB | 5650-ZOS | DFSMS |
| DF105        | Virtual Storage Access Method (VSAM) | IBD, IEF, IGF, IGC, IGG | 5650-ZOS | DFSMS |
| DF106        | Virtual I/O | IBD, IDD | 5650-ZOS | DFSMS |
| DF106        | Virtual Storage Access Method (VSAM)  
• open/close/E0V (end-of-volume)  
• VSAM/media manager and VIO | ICD, IDA, IGF | 5650-ZOS | DFSMS |
### Table 3. Relating Component ID to Component Name, Module Prefix, and Product (continued)

<table>
<thead>
<tr>
<th>Component ID</th>
<th>Component name</th>
<th>Module prefix</th>
<th>Product ID</th>
<th>Product or subsystem</th>
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<td>DF106</td>
<td>Virtual Storage Access Method (VSAM) record management</td>
<td>IDA</td>
<td>5695</td>
<td>DFSMSdfp</td>
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<tr>
<td>DF106</td>
<td>Virtual Storage Access Method (VSAM) block processor</td>
<td>IDA, IGC</td>
<td>5695</td>
<td>DFSMSdfp</td>
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<td>DF106</td>
<td>Media manager</td>
<td>IGC</td>
<td>5695</td>
<td>DFSMSdfp</td>
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<td>DF107</td>
<td>• Data Management Support (CVAF)</td>
<td>CVA, ICV,</td>
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<td>DFSMS</td>
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<td></td>
<td>• Data Management Support (OPEN/CLOSE/EOV)</td>
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<td>DF108</td>
<td>• Linkage editor</td>
<td>AKJ, AMB, HEW, IEW</td>
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<td>DFSMS</td>
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<td></td>
<td>• LINK/LOADGO prompter</td>
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<td>• Loader</td>
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<td></td>
<td>• LIST service aid (AMBLIST)</td>
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<td>• Program management</td>
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<td>DF109</td>
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<td>5650-ZOS,</td>
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<td>• Device Support: DASD (SIO Exits)</td>
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<td>DF114</td>
<td>• Utilities</td>
<td>IEB, IEH, CIP</td>
<td>5650-ZOS</td>
<td>DFSMS</td>
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<td>DF161</td>
<td>Interactive storage management facility (ISMF) and Hardware Configuration Definition (HCD)</td>
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<td>ARC</td>
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<td>SCDMP</td>
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<td>Loadwait/Restart</td>
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<td>ISG</td>
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<td>Component trace</td>
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<td>5650-ZOS</td>
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<td>Transaction trace</td>
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<td>Cross-system coupling facility (XCF)</td>
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<td>5685</td>
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<td>SC1BH</td>
<td>JES2</td>
<td>HAS, IAS, IGC</td>
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<td>Security access facility (SAF)</td>
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<td>SC1BZ</td>
<td>Reconfiguration</td>
<td>IEE</td>
<td>5650-ZOS</td>
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<td>SC1B2</td>
<td>External writer (XWTR)</td>
<td>IASX, IEF, IGC</td>
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<td>SC1B3</td>
<td>Scheduler restart</td>
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<td>SC1B4</td>
<td>Allocation/unallocation</td>
<td>IEA, IEF, IPL</td>
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<td>MVS</td>
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<td>Scheduler work area (SWA) manager</td>
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<td>IEF</td>
<td>5650-ZOS</td>
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<td>SC1B7</td>
<td>Initiator/terminator</td>
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<td>SC1B8</td>
<td>Command processing: Includes:</td>
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<td>SC1B9</td>
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<td>SC1CE</td>
<td>Dynamic device reconfiguration (DDR)</td>
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<td>5650-ZOS</td>
<td>MVS</td>
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<td>SC1CH</td>
<td>Virtual storage management (VSM)</td>
<td>IEA, IGV</td>
<td>5650-ZOS</td>
<td>MVS</td>
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<tr>
<td>SC1CJ</td>
<td>Contents supervisor, includes library looksaside (LLA)</td>
<td>CSV, IEA</td>
<td>5650-ZOS</td>
<td>MVS</td>
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<tr>
<td>SC1CK</td>
<td>Communications task (COMMTASK); includes:</td>
<td>IEF, IEZ, CNZ</td>
<td>5650-ZOS</td>
<td>MVS</td>
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</table>

Chapter 1. Identifying modules, components, and products 27
## Modules, Components, and Products

Table 3. Relating Component ID to Component Name, Module Prefix, and Product (continued)

<table>
<thead>
<tr>
<th>Component ID</th>
<th>Component name</th>
<th>Module prefix</th>
<th>Product ID</th>
<th>Product or subsystem</th>
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<tbody>
<tr>
<td>SC1CL</td>
<td>System macros</td>
<td>IHB</td>
<td>5650-ZOS</td>
<td>MVS</td>
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<tr>
<td>SC1CL</td>
<td>Task management</td>
<td>IEA</td>
<td>5650-ZOS</td>
<td>MVS</td>
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<tr>
<td>SC1CP</td>
<td>Extended floating point</td>
<td>IEA</td>
<td>5650-ZOS</td>
<td>MVS</td>
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<tr>
<td>SC1CR</td>
<td>Real storage manager (RSM)</td>
<td>IAR</td>
<td>5650-ZOS</td>
<td>MVS</td>
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</tbody>
</table>
| SC1CU        | Address space control; includes:  
\- Address space initialization  
\- Region control task (RCT)  
\- Started task control | IEA | 5650-ZOS | MVS |
| SC1CV        | Timer supervision | IEA, IEE | 5650-ZOS | MVS |
| SC1CW        | Auxiliary storage manager (ASM) | ILR | 5650-ZOS | MVS |
| SC1CX        | System resources manager (SRM) | IEA, IEE, IRA | 5650-ZOS | MVS |
| SC1CZ        | Reconfiguration of command processing | IEA, IEE | 5650-ZOS | MVS |
| SC1C3        | Input/output supervisor (IOS) | IEA | 5650-ZOS | MVS |
| SC1C4        | Device Independent Display Operator Console Support (DIDOCS) | IEE | 5650-ZOS | MVS |
| SC1C5        | Supervisor control; includes:  
\- Interrupt handlers  
\- Dispatcher | IEA, IGC | 5650-ZOS | MVS |
| SC1C6        | Execute channel program (EXCP) processor | IEC | 5650-ZOS | MVS |
| SC1C8        | Nucleus initialization program (NIP) | IEA | 5650-ZOS | MVS |
| SC1C9        | Initial program load (IPL) | IEA | 5650-ZOS | MVS |
| SC1DF        | 3890 document processor | IGE, IGG | 5650-ZOS | |
| SC1D5        | OCR | IGG | 5650-ZOS | |
| SC1G0        | Graphics Access Method (GAM) | GAB, IFF, IGC, IGG | 5650-ZOS, GAM/SP | |
| SC1T0        | TSO Edit | 5665 | TSO/E | |
| SC1T9        | TSO Virtual Telecommunications Access Method (VTAM) | IKT | 5650-ZOS | TSO/E |
| SC1XL        | Hardware configuration definition (HCD) | CBD | 5695 | MVS |
| SC100        | System management facilities (SMF); includes SMF scheduler | IEA, IEE, IEF, IFA, IGG | 5650-ZOS | MVS |
| SC101        | Common mapping macros of supervisor control | IEA, IHA | 5650-ZOS | MVS |
| SC102        | System management facilities (SMF) | IEA | 5650-ZOS | MVS |
| SC106        | Online test executive program (OLTEP) | IFD, IGC | 5650-ZOS | MVS |
| SC111        | Generalized trace facility (GTF) | AHL, IEE, IGC | 5650-ZOS | MVS |
| SC112        | SPZAP service aid | AMA | 5650-ZOS | MVS |
| SC112        | AMATERSE service aid | AMA | 5650-ZOS | MVS |
| SC112        | Product Documentation Upload Utility (PDUU) | AMA | 5650-ZOS | MVS |
| SC113        | Macros for GTF (formerly AMDPRDMP macros) | AHL | 5650-ZOS | MVS |
| SC114        | LIST service aid | AMB | 5650-ZOS | MVS |
| SC115        | Stand-alone dump (SADMP) | AMD, SGS | 5650-ZOS | MVS |
| SC118        | GTFTRACE subcommand of IPCS | AHL | 5650-ZOS | MVS |
| SC120        | Basic Telecommunications Access Method (BTAM) | IEC, IGC, IGE, IGG | 5650-ZOS | BTAM |
| SC132        | Interactive problem control system (IPCS) | BLR, BLS | 5650-ZOS | MVS |
| SC141        | Functional subsystem interface (FSI) | IAZ | 5650-ZOS | JES2 |
| SC142        | System trace | IEA, IEE, ITR | 5650-ZOS | MVS |
### Table 3. Relating Component ID to Component Name, Module Prefix, and Product (continued)

<table>
<thead>
<tr>
<th>Component ID</th>
<th>Component name</th>
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<th>Product ID</th>
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<tr>
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<td>XXH00</td>
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<td>19801</td>
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<td>The CEQ prefix for Language Environment excludes CEQA, CEQL, and CEQN, which belong to Open Cryptographic Enhanced Plug-ins.</td>
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<td>Password protect</td>
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<td>Overlay supervisor</td>
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</table>
### Modules, Components, and Products

**Table 3. Relating Component ID to Component Name, Module Prefix, and Product (continued)**

<table>
<thead>
<tr>
<th>Component ID</th>
<th>Component name</th>
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<th>Product ID</th>
<th>Product or subsystem</th>
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<tr>
<td>28431</td>
<td>3505/3525 reader/punch</td>
<td>IGG</td>
<td>5665</td>
<td>DFSMSdfp</td>
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<td>TSO utilities</td>
<td>IKJ</td>
<td>5665</td>
<td>TSO/E</td>
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<td>IEBPTPCH utility</td>
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<td>5650-ZOS</td>
<td>DFSMSdfp</td>
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<td>5650-ZOS</td>
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<td>28446</td>
<td>IEBCOPY utility</td>
<td>IEB, IGG</td>
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<td>IEBGENER utility</td>
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<tr>
<td>28450</td>
<td>3800 offline utility</td>
<td>CIP, GRAF, GRF, XTB</td>
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<td>DFSMSdfp</td>
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<tr>
<td>28451</td>
<td>VSAM open/close/EOV (end-of-volume)</td>
<td>IDA</td>
<td>5650-ZOS</td>
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<td>28452</td>
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<tr>
<td>28461</td>
<td>Interactive storage management</td>
<td>DGT</td>
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<td>Device console services</td>
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<tr>
<td>28465</td>
<td>Asynchronous operations manager (AOM)</td>
<td>AOM, IEC, IGX</td>
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<td>DFSMSdfp</td>
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<tr>
<td>28484</td>
<td>Network File System Server (NFSS)</td>
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<td>28501</td>
<td>TSO/E EDIT</td>
<td>IKJ, SGI</td>
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<tr>
<td>28502</td>
<td>TSO and TSO/E scheduler</td>
<td>IEE, IGX, IHA, IKJ, JBB, SGIJK</td>
<td>5665</td>
<td>TSO/E</td>
</tr>
<tr>
<td>28503</td>
<td>TSO/E TEST</td>
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<td>5665</td>
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<td>TSO/E transmit/receive</td>
<td>INM</td>
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<td>TSO/E</td>
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<td>28505</td>
<td>TSO and TSO/E session manager</td>
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<td>28507</td>
<td>TSO/E cooperative processing</td>
<td>CHS</td>
<td>5665</td>
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<td>28508</td>
<td>TSO/E REXX</td>
<td>IRX</td>
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<td>285xx</td>
<td>CLIST</td>
<td>IKJ</td>
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<td>TSO/E</td>
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<tr>
<td>29101</td>
<td>Input/output configuration program (IOCP)</td>
<td>ICP</td>
<td>5665</td>
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<tr>
<td>29102</td>
<td>Input/output configuration program (IOCP)</td>
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<tr>
<td>29105</td>
<td>MVS configuration program (MVSCP)</td>
<td>CBPA - CBPN</td>
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<tr>
<td>32701</td>
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<td>MVS</td>
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<td>5655D4401, 5655D4403</td>
<td>XML Toolkit for z/OS</td>
<td>DXM</td>
<td>5655-J51</td>
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<tr>
<td>5655F9500</td>
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<td>HPD</td>
<td>5655-F95</td>
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<td>Component ID</td>
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<td>Module prefix</td>
<td>Product ID</td>
<td>Product or subsystem</td>
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<tr>
<td>5655HAL00</td>
<td>Communication Server for z/OS IP Services</td>
<td>EZA, EZB, EZY, EZZ</td>
<td>5647 - A01</td>
<td>Communication Server for z/OS IP Services</td>
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<tr>
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<td>GLD</td>
<td>5694 - A01</td>
<td>Integrated Security Server</td>
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<td>Open Cryptographic Services Facility</td>
<td>CDS</td>
<td>5694 - A01</td>
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<tr>
<td>565506807</td>
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<td>Integrated Security Services</td>
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<tr>
<td>565506809</td>
<td>Open Cryptographic Enhanced Plug-ins</td>
<td>CEQA, CEQL, CEQN</td>
<td>5694 - A01</td>
<td>Security Server</td>
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<tr>
<td>56551210D</td>
<td>Run-Time Library Extensions</td>
<td>CDA, CDA, CLB, CLE</td>
<td>5694 - A01</td>
<td>MVS</td>
</tr>
<tr>
<td>56551210A</td>
<td>XL C/C++ Compiler</td>
<td>CNN</td>
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<td>MVS</td>
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<td>GIM</td>
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<td>BCN</td>
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<td>SMP/E</td>
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<tr>
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<tr>
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<td>C++ Standard Library</td>
<td>CRT</td>
<td>5694 - A01</td>
<td>Language Environment</td>
</tr>
<tr>
<td>569511701</td>
<td>TSO Virtual Telecommunications Access Method (VTAM)</td>
<td>IKT, IST</td>
<td>5647-A01</td>
<td>Communication Server for z/OS SNA Services</td>
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<tr>
<td>569694200</td>
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<td>5694 - A01</td>
<td>Distributed File Service SMB Server</td>
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<td>ICT</td>
<td>5740 - XY5</td>
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<td>z/OS Batch Runtime</td>
<td>BCD</td>
<td>5650-ZOS</td>
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<td>IRR</td>
<td>5650-ZOS</td>
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<td>HZR</td>
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<td>IKY</td>
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<td>Cryptographic Services</td>
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<td>Graphics Access Method (GAM)</td>
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<td>574I, 5650-ZOS, 5665</td>
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<td>Device Support Facilities</td>
<td>ICK</td>
<td>5655</td>
<td>ICKDSF</td>
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Modules, Components, and Products
Chapter 2. Specifying symptoms

Table 4 shows the values for the KEY parameter of the VRADATA macro in relation to the MVS and RETAIN keywords. The keys are mapped by VRAMAP (IHAVRA mapping macro).

The table also shows the keywords for the MVS and RETAIN symptoms and explains the meanings of the symptoms. The MVS symptoms are used to describe dumps. The RETAIN symptoms are used to describe problems and to search the RETAIN problem database. Finally, the Fm column identifies the form of the source data:
E EBCDIC
F Flag
H Hexadecimal

Incorrect keys: The following keys are considered incorrect if used as a symptom:
VRADAE VRAMINSC VRADPT VRASKP VRAEND VRAMINSL VRAREQ

<table>
<thead>
<tr>
<th>Key Numbers</th>
<th>KEY Value</th>
<th>Source Data</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>MVS RETAIN Label Fm</td>
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<tr>
<td>DATA FROM FIXED AREAS OF SDWA MAIN STRUCTURE</td>
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<td></td>
<td></td>
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<tr>
<td>X'3E9'</td>
<td>EFABS</td>
<td>AB/S AB/S SDWACMPC H ABEND CODE-SYSTEM. The system obtains this data for all dumps, if the data is available.</td>
<td></td>
</tr>
<tr>
<td>X'3EA'</td>
<td>EFABU</td>
<td>AB/U AB/U SDWACMPC H ABEND CODE-USER</td>
<td></td>
</tr>
<tr>
<td>X'3EB'</td>
<td>EFLDMD</td>
<td>MOD/ RIDS/ name#I SDWAMODN E LOAD MODULE NAME</td>
<td></td>
</tr>
<tr>
<td>X'3EC'</td>
<td>EFCSCT</td>
<td>CSECT/ RIDS/ SDWACSCT E ASSEMBLY MODULE CSECT NAME</td>
<td></td>
</tr>
<tr>
<td>X'3ED'</td>
<td>EFEX</td>
<td>REXN/ RIDS/ name#R SDWAREX E RECOVERY ROUTINE CSECT NAME</td>
<td></td>
</tr>
<tr>
<td>X'3F3'</td>
<td>EFPSW</td>
<td>REGS/ REGS/ SDWAGRSV H REG/PSW DIFFERENCE. The system obtains this data for all dumps, if the data is available. The system can generate two or less PSW/REGISTER differences as symptoms, depending on the number of registers found within the range of X'0'-X'FFF'. For a failing PSW address less than 512, the symptom generated is REGS/FE00.</td>
<td></td>
</tr>
<tr>
<td>FROM SDWARC1 - DATA FROM EXTENSIONS OF SDWA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>X'44D'</td>
<td>EICDIC1</td>
<td>CID1/ VALU/C SDWACID E COMPONENT IDENTIFIER</td>
<td></td>
</tr>
<tr>
<td>X'44E'</td>
<td>EISUB1C</td>
<td>SUB1/ VALU/C SDWASC E COMPONENT SUBFUNCTION</td>
<td></td>
</tr>
<tr>
<td>X'451'</td>
<td>EIAMDI1C</td>
<td>AMDDI1/ VALU/C SDWAMDAT E MODULE ASSEMBLY DATE</td>
<td></td>
</tr>
<tr>
<td>X'452'</td>
<td>EI1VRS1C</td>
<td>VRS1/ VALU/C SDWAMVRS E VERSION-PTF/PRODUCT IDENTIFIER</td>
<td></td>
</tr>
<tr>
<td>X'454'</td>
<td>EIHR1C</td>
<td>HRC1/ PRCS/ SDWAHRC H ABEND REASON CODE. The system places the reason code in this field if the REASON keyword is used on the ABEND macro.</td>
<td></td>
</tr>
<tr>
<td>X'456'</td>
<td>E1RRL1C</td>
<td>RRL1/ FLDS/ SDWARRL E RECOVERY ROUTINE LABEL</td>
<td></td>
</tr>
<tr>
<td>X'45A'</td>
<td>E1CD1B</td>
<td>CD1/ VALU/C SDWACIDB E BASE COMPONENT ID</td>
<td></td>
</tr>
<tr>
<td>X'45C'</td>
<td>E1CCR1C</td>
<td>CCR1/ VALU/B SDWACCRC F REASON/COMPLETION CODE ALTERED. The system turns on this flag if the REASON keyword is used on the ABEND macro.</td>
<td></td>
</tr>
</tbody>
</table>
### Specifying symptoms

**Table 4. VRADATA macro KEY values related to symptoms (continued)**

<table>
<thead>
<tr>
<th>Key Numbers</th>
<th>KEY Value</th>
<th>Keyword</th>
<th>Source Data</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>X'45E'</td>
<td>E1HLH1C</td>
<td>HLH1/</td>
<td>VALU/H</td>
<td>SDWAHLHI</td>
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<tr>
<td>X'460'</td>
<td>E1SUP1C</td>
<td>SUP1/</td>
<td>VALU/H</td>
<td>SDWASUPR</td>
</tr>
<tr>
<td>X'464'</td>
<td>E1SPN1C</td>
<td>SPN1/</td>
<td>VALU/H</td>
<td>SDWASPN</td>
</tr>
<tr>
<td>X'466'</td>
<td>E1F1IC</td>
<td>F1/</td>
<td>VALU/H</td>
<td>SDWAFAIL</td>
</tr>
<tr>
<td>X'468'</td>
<td>E1FRR1C</td>
<td>FRR1/</td>
<td>VALU/H</td>
<td>SDWAFRRE</td>
</tr>
<tr>
<td>X'46A'</td>
<td>E1ASID1C</td>
<td>ASID1/</td>
<td>VALU/H</td>
<td>SDWAASID</td>
</tr>
<tr>
<td>X'46C'</td>
<td>E1ORCC1C</td>
<td>ORCC1/</td>
<td>PRCS/</td>
<td>SDWAOCMP</td>
</tr>
<tr>
<td>X'46E'</td>
<td>E1ORRC1C</td>
<td>ORRC1/</td>
<td>PRCS/</td>
<td>SDWAOCRC</td>
</tr>
<tr>
<td>X'470'</td>
<td>E1PIDSIC</td>
<td>PIDS/</td>
<td>PIDS/</td>
<td>SDWACID</td>
</tr>
</tbody>
</table>

**FROM SDWARC2 EXTENSION OF SDWA**

| X'483'      | E2MCIC    | MC1/    | VALU/H      | SDWAMCIC    | H MACHINE CHECK INTERRUPT CODE |

**FROM ABDUMP SYMPTOM AREA PRDHDR (See the AMDDATA macro.)**

| X'3E9'      | EFA8S     | AB/S    | AB/S        | PRDSMABD    | H ABEND CODE-SYSTEM. The system obtains this data for all dumps, if the data is available. |
| X'3EA'      | EFA8U     | AB/U    | AB/U        | PRDSMABD    | H ABEND CODE-USER |
| X'3EB'      | EFLDMD    | MOD/    | RIDS/       | PRDSMLMN    | E LOAD MODULE NAME |
| X'3EC'      | E1F1IC    | F1/     | VALU/H      | PRDSMPDA    | H FAILING INSTRUCTION AREA. The system obtains this data for all dumps, if the data is available. The failing instruction area is the 12 bytes around the failing instruction, which is pointed to by the failing PSW. |

| X'3ED'      | E1HRC1C   | HRC1/   | VALU/H      | PRDSMGR     | H REASON CODE |
| X'3F3'      | EFPSW     | REGS/   | REGS/       | PRDSMPSW    | H REG/PSW DIFFERENCE. The system obtains this data for all dumps, if the data is available. The system can generate two or less PSW/REGISTER differences as symptoms, depending on the number of registers found within the range of X’00’-X’FFF’. For a failing PSW address that is less than 512, the symptom generated is REGS/FE00. |

**FROM SDWAVRA - CREATED IN VRADATA MACRO FORMAT**

| X'01'       | VRACOM    | VCID/   | VALU/C      | E COMPONENT IDENTIFIER |
| X'02'       | VRASC     | VSC/    | VALU/C      | E SUBCOMPONENT IDENTIFIER |
| X'03'       | VRALVL    | VLVL/   | VALU/C      | E COMPONENT LEVEL |
| X'04'       | VRADT     | VDT/    | VALU/C      | E MODULE ASSEMBLY DATE |
| X'05'       | VRAPTF    | VPTF/   | PTF/        | E MODEU/PRODUCT PTF IDENTIFIER |
| X'06'       | VRARC     | VARC/   | PRCS/       | E ABEND REASON CODE or REASON CODE |
| X'07'       | VRADVOD   | VQVOD/  | VALU/H      | H QUEUE VERIFIER DATA. Defined by the IHAQVOD macro. |
| X'08'       | VRAQERR   | VQERR/  | VALU/H      | H QUEUE ERROR DATA |
### Specifying symptoms

#### Table 4. VRADATA macro KEY values related to symptoms (continued)

<table>
<thead>
<tr>
<th>Key Numbers</th>
<th>KEY Value</th>
<th>Keyword</th>
<th>Source Data</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>X'09'</td>
<td>VRALVLS</td>
<td>LVLS/</td>
<td>MVS</td>
<td>RELEASE or LEVEL. The release of the system or level of the program product or component on which the problem occurred.</td>
</tr>
<tr>
<td>X'10'</td>
<td>VRARRP</td>
<td>VALU/H</td>
<td>H</td>
<td>RECOVERY ROUTINE PARAMETER</td>
</tr>
<tr>
<td>X'11'</td>
<td>VRACBM</td>
<td>FLDS/</td>
<td>E</td>
<td>MAPPING MACRO NAME</td>
</tr>
<tr>
<td>X'12'</td>
<td>VRACB</td>
<td>VALU/H</td>
<td>H</td>
<td>CONTROL BLOCK DATA. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms.</td>
</tr>
<tr>
<td>X'13'</td>
<td>VRACBF</td>
<td>FLDS/</td>
<td>E</td>
<td>CONTROL BLOCK FIELD NAME</td>
</tr>
<tr>
<td>X'14'</td>
<td>VRACBA</td>
<td>ADRS/</td>
<td>H</td>
<td>CONTROL BLOCK ADDRESS</td>
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<td>X'15'</td>
<td>VRACBO</td>
<td>ADRS/</td>
<td>H</td>
<td>CONTROL BLOCK FIELD OFFSET</td>
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<td>X'16'</td>
<td>VRACBL</td>
<td>VALU/H</td>
<td>H</td>
<td>CONTROL BLOCK LENGTH</td>
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<td>X'18'</td>
<td>VRACBI</td>
<td>VALU/H</td>
<td>H</td>
<td>CONTROL BLOCK ID NUMBER</td>
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<td>X'19'</td>
<td>VRACBIA</td>
<td>VALU/H</td>
<td>H</td>
<td>CONTROL BLOCK ID AND ADDRESS</td>
</tr>
<tr>
<td>X'1A'</td>
<td>VRACBIA2</td>
<td>VALU/H</td>
<td>H</td>
<td>CONTROL BLOCK ID AND DATA</td>
</tr>
<tr>
<td>X'20'</td>
<td>VRAPLI</td>
<td>FLDS/</td>
<td>E</td>
<td>PARAMETER LIST ID. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom.</td>
</tr>
<tr>
<td>X'21'</td>
<td>VRAPL</td>
<td>VALU/H</td>
<td>H</td>
<td>PARAMETER LIST DATA. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms.</td>
</tr>
<tr>
<td>X'22'</td>
<td>VRAFPI</td>
<td>PCSS/</td>
<td>E</td>
<td>FOOTPRINT IDENTIFIER. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom.</td>
</tr>
<tr>
<td>X'23'</td>
<td>VRAFP</td>
<td>VALU/H</td>
<td>H</td>
<td>FOOTPRINT DATA. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms.</td>
</tr>
<tr>
<td>X'24'</td>
<td>VRAPA</td>
<td>VALU/C</td>
<td>E</td>
<td>EXECUTION PATH DATA. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom.</td>
</tr>
<tr>
<td>X'25'</td>
<td>VRAP2</td>
<td>VALU/C</td>
<td>E</td>
<td>EXECUTION PATH DATA. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom.</td>
</tr>
</tbody>
</table>
### Specifying symptoms

**Table 4. VRADATA macro KEY values related to symptoms (continued)**

<table>
<thead>
<tr>
<th>Key Numbers</th>
<th>KEY Value</th>
<th>Keyword</th>
<th>Source Data</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>X'26'</td>
<td>VRALK</td>
<td>VLK/</td>
<td>FLDS/</td>
<td>E NAME OF LOCK HELD. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom.</td>
</tr>
<tr>
<td>X'27'</td>
<td>VRAWAI</td>
<td>VWAI/</td>
<td>PCSS/</td>
<td>E WORK AREA ID. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom.</td>
</tr>
<tr>
<td>X'28'</td>
<td>VRAWA</td>
<td>VWA/</td>
<td>VALU/H</td>
<td>H WORK AREA DATA. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms.</td>
</tr>
<tr>
<td>X'29'</td>
<td>VRAWAP</td>
<td>VWAP/</td>
<td>ADRS/</td>
<td>H WORK AREA ADDRESS</td>
</tr>
<tr>
<td>X'30'</td>
<td>VRALBL</td>
<td>VLBL/</td>
<td>FLDS/</td>
<td>E LABEL RELATED TO FAILURE</td>
</tr>
<tr>
<td>X'31'</td>
<td>VRARRL</td>
<td>VRRL/</td>
<td>FLDS/</td>
<td>E RECOVERY ROUTINE LABEL</td>
</tr>
<tr>
<td>X'33'</td>
<td>VRAMID</td>
<td>VMID/</td>
<td>MSG/</td>
<td>E MESSAGE IDENTIFIER</td>
</tr>
<tr>
<td>X'34'</td>
<td>VRAMSG</td>
<td>VMSG/</td>
<td>MSG/</td>
<td>E MESSAGE TEXT. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom.</td>
</tr>
<tr>
<td>X'35'</td>
<td>VRAERR</td>
<td>VERR/</td>
<td>VALU/C</td>
<td>E ERROR INFORMATION. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom.</td>
</tr>
<tr>
<td>X'36'</td>
<td>VRAEHX</td>
<td>VEXH/</td>
<td>VALU/H</td>
<td>H ERROR INFORMATION. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms.</td>
</tr>
<tr>
<td>X'37'</td>
<td>VRAHID</td>
<td>VHID/</td>
<td>PCSS/</td>
<td>E HEADER FOR DATA. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom.</td>
</tr>
<tr>
<td>X'38'</td>
<td>VRAHEX</td>
<td>VHEX/</td>
<td>VALU/H</td>
<td>H HEX ERROR DATA. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms.</td>
</tr>
<tr>
<td>X'39'</td>
<td>VRAEBC</td>
<td>VEBC/</td>
<td>VALU/C</td>
<td>E ERROR DATA. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom.</td>
</tr>
<tr>
<td>X'3A'</td>
<td>VRAAID</td>
<td>VAID/</td>
<td>VALU/H</td>
<td>H CALLER'S ASID</td>
</tr>
<tr>
<td>X'3B'</td>
<td>VRCATC</td>
<td>VTCB/</td>
<td>ADRS/</td>
<td>H TCB ADDRESS</td>
</tr>
</tbody>
</table>
### Specifying symptoms

<table>
<thead>
<tr>
<th>Key Numbers</th>
<th>KEY Value</th>
<th>Key</th>
<th>Source Data</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>X'3C'</td>
<td>VRACA</td>
<td>VCA/ADR</td>
<td>Label H</td>
<td>CALLER'S ADDRESS</td>
</tr>
<tr>
<td>X'3D'</td>
<td>VRACAN</td>
<td>VCAN/RIDS/E</td>
<td>M</td>
<td>MODULE NAME OF CALLER</td>
</tr>
<tr>
<td>X'40'</td>
<td>VRAOA</td>
<td>VOA/PRCS/H</td>
<td>E</td>
<td>ORIGINAL ABEND CODE</td>
</tr>
<tr>
<td>X'41'</td>
<td>VRAPSW</td>
<td>VPSW/VALU/H</td>
<td>H</td>
<td>RELATED FAILING PSW</td>
</tr>
<tr>
<td>X'42'</td>
<td>VRAINS</td>
<td>VINS/VALU/H</td>
<td>H</td>
<td>FAILING INSTRUCTION AREA. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms.</td>
</tr>
<tr>
<td>X'43'</td>
<td>VRAREGS</td>
<td>VREGS/VALU/H</td>
<td>H</td>
<td>REGISTERS ASSOCIATED WITH ABEND. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms.</td>
</tr>
<tr>
<td>X'44'</td>
<td>VRAREGA</td>
<td>VREGA/ADR</td>
<td>H</td>
<td>REGISTER AREA ADDRESS</td>
</tr>
<tr>
<td>X'45'</td>
<td>VRAOR15</td>
<td>VOR15/PRCS/H</td>
<td>H</td>
<td>ORIGINAL CONTENTS OF REGISTER</td>
</tr>
<tr>
<td>X'46'</td>
<td>VRADSIN</td>
<td>VDSN/PCSS/E</td>
<td>E</td>
<td>DATA SET NAME. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom.</td>
</tr>
<tr>
<td>X'47'</td>
<td>VRADV</td>
<td>VDEV/PCSS/E</td>
<td>E</td>
<td>DEVICE NAME. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom.</td>
</tr>
<tr>
<td>X'48'</td>
<td>VRASN</td>
<td>VSN/VALU/H</td>
<td>H</td>
<td>I/O SENSE DATA. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms.</td>
</tr>
<tr>
<td>X'49'</td>
<td>VRAST</td>
<td>VST/VALU/H</td>
<td>H</td>
<td>I/O STATUS. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms.</td>
</tr>
<tr>
<td>X'4A'</td>
<td>VRAU</td>
<td>VU/VALU/C</td>
<td>H</td>
<td>DEVICE NUMBER OR NAME. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom.</td>
</tr>
<tr>
<td>X'4B'</td>
<td>VRACCW</td>
<td>VCCW/VALU/H</td>
<td>H</td>
<td>CCW</td>
</tr>
<tr>
<td>X'4C'</td>
<td>VRACSW</td>
<td>VCSW/VALU/H</td>
<td>H</td>
<td>CSW</td>
</tr>
<tr>
<td>X'4D'</td>
<td>VRADVT</td>
<td>VDVT/VALU/H</td>
<td>H</td>
<td>DEVICE TYPE. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms.</td>
</tr>
<tr>
<td>X'4E'</td>
<td>VRAVOL</td>
<td>VVOL/VALU/C</td>
<td>E</td>
<td>VOLUME SERIAL NUMBER. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom.</td>
</tr>
</tbody>
</table>
### Specifying symptoms

<table>
<thead>
<tr>
<th>Key Numbers</th>
<th>KEY Value</th>
<th>Keyword</th>
<th>Source Data</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>X'60'</td>
<td>VRAFREG</td>
<td>MFREG/</td>
<td>Valu/H</td>
<td>H FIRST REGISTER IN SAVE AREA. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms.</td>
</tr>
<tr>
<td>X'63'</td>
<td>VRACSCB</td>
<td>VSCB/</td>
<td>Valu/H</td>
<td>H CSCB CONTROL BLOCK. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms.</td>
</tr>
<tr>
<td>X'64'</td>
<td>VRACSCBA</td>
<td>VSCBA/</td>
<td>Adrs/</td>
<td>H CSCB CONTROL BLOCK ADDRESS</td>
</tr>
<tr>
<td>X'65'</td>
<td>VRAJOB</td>
<td>VJOB/</td>
<td>PCSS/</td>
<td>E FAILING JOB NAME</td>
</tr>
<tr>
<td>X'66'</td>
<td>VRASTP</td>
<td>VSTP/</td>
<td>PCSS/</td>
<td>E FAILING STEP NAME</td>
</tr>
<tr>
<td>X'67'</td>
<td>VRACMD</td>
<td>VCMD/</td>
<td>PCSS/</td>
<td>E FAILING COMMAND. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom.</td>
</tr>
<tr>
<td>X'68'</td>
<td>VRAJCL</td>
<td>VJCL/</td>
<td>PCSS/</td>
<td>E JCL STATEMENT. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom.</td>
</tr>
<tr>
<td>X'73'</td>
<td>VRAEPN</td>
<td>VEPN/</td>
<td>RIDS/</td>
<td>E ENTRY POINT NAME</td>
</tr>
<tr>
<td>X'77'</td>
<td>VRAETF</td>
<td>VETF/</td>
<td>Adrs/</td>
<td>H ENTRY POINT ADDRESS</td>
</tr>
<tr>
<td>X'78'</td>
<td>VRACTF</td>
<td>VCTF/</td>
<td>Adrs/</td>
<td>H FAILING CSECT ADDRESS</td>
</tr>
<tr>
<td>X'79'</td>
<td>VRALTFT</td>
<td>VLTF/</td>
<td>Adrs/</td>
<td>H FAILING LOAD MODULE ADDRESS</td>
</tr>
<tr>
<td>X'7A'</td>
<td>VRAMO</td>
<td>VMO/</td>
<td>Adrs/</td>
<td>H CSECT OFFSET IN LOAD MODULE</td>
</tr>
<tr>
<td>X'7B'</td>
<td>VRALO</td>
<td>VILO/</td>
<td>Adrs/</td>
<td>H OFFSET IN LOAD MODULE</td>
</tr>
<tr>
<td>X'7C'</td>
<td>VRALMO</td>
<td>VIMO/</td>
<td>Adrs/</td>
<td>H OFFSET IN ASSEMBLY MODULE</td>
</tr>
<tr>
<td>X'7D'</td>
<td>VRAFID</td>
<td>VFID/</td>
<td>PCSS/</td>
<td>E FEATURE IDENTIFIER. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom.</td>
</tr>
<tr>
<td>X'7E'</td>
<td>VRAPID</td>
<td>VPID/</td>
<td>PCSS/</td>
<td>E PRODUCT IDENTIFIER. If the original data in the SDWAVRA is in printable form, the system uses all the characters possible for symptoms. The total size, including the keyword and data, cannot exceed 50 characters for an MVS symptom or 15 characters for a RETAIN symptom.</td>
</tr>
<tr>
<td>X'A0'</td>
<td>VRALAP</td>
<td>VIAP/</td>
<td>RIDS/</td>
<td>E ANALYTIC PROCEDURE NAME</td>
</tr>
<tr>
<td>X'A1'</td>
<td>VRALAL</td>
<td>VIAL/</td>
<td>Valu/H</td>
<td>H PARAMETER LIST FOR PROCEDURE. The system converts the first 12 bytes to printable hexadecimal for MVS symptoms. It converts only the last 4 bytes of these 12 bytes to printable hexadecimal for RETAIN symptoms.</td>
</tr>
<tr>
<td>X'A2'</td>
<td>VRAJCL</td>
<td>VJCL/</td>
<td>Valu/H</td>
<td>H PARAMETER LIST FOR PROGRAM</td>
</tr>
<tr>
<td>X'A3'</td>
<td>VRALDP</td>
<td>VIDP/</td>
<td>RIDS/</td>
<td>E PROGRAM TO RUN</td>
</tr>
</tbody>
</table>
### Specifying symptoms

**Table 4. VRADATA macro KEY values related to symptoms (continued)**

<table>
<thead>
<tr>
<th>Key Numbers</th>
<th>KEY Value</th>
<th>Keyword</th>
<th>Source Data</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>X'C8'</td>
<td>VRARRK</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E DEVELOPER ASSIGNED SYMPTOM KEYS. A program assigns one of these symptom keys. The IHAVRA macro defines decimal keys 200 to 239 as assignable to any symptom desired by the programmer. The IHAVRA macro assigns all other keys. If programmer-assigned keys are used, a visible key, such as @204 for decimal key 204, is created by the system. The decimal keys are appropriate for the following forms of data:</td>
</tr>
<tr>
<td>X'C9'</td>
<td>VRARRK1</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E Keys 200-224</td>
</tr>
<tr>
<td>X'CA'</td>
<td>VRARRK2</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E EBCDIC data</td>
</tr>
<tr>
<td>X'CB'</td>
<td>VRARRK3</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E Keys 225-234</td>
</tr>
<tr>
<td>X'CC'</td>
<td>VRARRK4</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E Hexadecimal data</td>
</tr>
<tr>
<td>X'CD'</td>
<td>VRARRK5</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E Keys 235-239</td>
</tr>
<tr>
<td>X'CE'</td>
<td>VRARRK6</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E Flag data</td>
</tr>
<tr>
<td>X'CF'</td>
<td>VRARRK7</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E</td>
</tr>
<tr>
<td>X'D0'</td>
<td>VRARRK8</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E</td>
</tr>
<tr>
<td>X'D1'</td>
<td>VRARRK9</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E</td>
</tr>
<tr>
<td>X'D2'</td>
<td>VRARRK10</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E</td>
</tr>
<tr>
<td>X'D3'</td>
<td>VRARRK11</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E</td>
</tr>
<tr>
<td>X'D4'</td>
<td>VRARRK12</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E</td>
</tr>
<tr>
<td>X'D5'</td>
<td>VRARRK13</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E</td>
</tr>
<tr>
<td>X'D6'</td>
<td>VRARRK14</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E</td>
</tr>
<tr>
<td>X'D7'</td>
<td>VRARRK15</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E</td>
</tr>
<tr>
<td>X'D8'</td>
<td>VRARRK16</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E</td>
</tr>
<tr>
<td>X'D9'</td>
<td>VRARRK17</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E</td>
</tr>
<tr>
<td>X'DA'</td>
<td>VRARRK18</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E</td>
</tr>
<tr>
<td>X'DB'</td>
<td>VRARRK19</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E</td>
</tr>
<tr>
<td>X'DC'</td>
<td>VRARRK20</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E</td>
</tr>
<tr>
<td>X'DD'</td>
<td>VRARRK21</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E</td>
</tr>
<tr>
<td>X'DE'</td>
<td>VRARRK22</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E</td>
</tr>
<tr>
<td>X'DF'</td>
<td>VRARRK23</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E</td>
</tr>
<tr>
<td>X'EF'</td>
<td>VRARRK24</td>
<td>@nnn/</td>
<td>VALU/C</td>
<td>E</td>
</tr>
<tr>
<td>X'F1'</td>
<td>VRARRK25</td>
<td>@nnn/</td>
<td>VALU/H</td>
<td>H</td>
</tr>
<tr>
<td>X'F2'</td>
<td>VRARRK26</td>
<td>@nnn/</td>
<td>VALU/H</td>
<td>H</td>
</tr>
<tr>
<td>X'F3'</td>
<td>VRARRK27</td>
<td>@nnn/</td>
<td>VALU/H</td>
<td>H</td>
</tr>
<tr>
<td>X'F4'</td>
<td>VRARRK28</td>
<td>@nnn/</td>
<td>VALU/H</td>
<td>H</td>
</tr>
<tr>
<td>X'F5'</td>
<td>VRARRK29</td>
<td>@nnn/</td>
<td>VALU/H</td>
<td>H</td>
</tr>
<tr>
<td>X'F6'</td>
<td>VRARRK30</td>
<td>@nnn/</td>
<td>VALU/H</td>
<td>H</td>
</tr>
<tr>
<td>X'F7'</td>
<td>VRARRK31</td>
<td>@nnn/</td>
<td>VALU/H</td>
<td>H</td>
</tr>
<tr>
<td>X'F8'</td>
<td>VRARRK32</td>
<td>@nnn/</td>
<td>VALU/H</td>
<td>H</td>
</tr>
<tr>
<td>X'F9'</td>
<td>VRARRK33</td>
<td>@nnn/</td>
<td>VALU/H</td>
<td>H</td>
</tr>
<tr>
<td>X'EA'</td>
<td>VRARRK34</td>
<td>@nnn/</td>
<td>VALU/H</td>
<td>H</td>
</tr>
<tr>
<td>X'EB'</td>
<td>VRARRK35</td>
<td>@nnn/</td>
<td>VALU/B</td>
<td>F</td>
</tr>
<tr>
<td>X'EC'</td>
<td>VRARRK36</td>
<td>@nnn/</td>
<td>VALU/B</td>
<td>F</td>
</tr>
<tr>
<td>X'ED'</td>
<td>VRARRK37</td>
<td>@nnn/</td>
<td>VALU/B</td>
<td>F</td>
</tr>
<tr>
<td>X'EE'</td>
<td>VRARRK38</td>
<td>@nnn/</td>
<td>VALU/B</td>
<td>F</td>
</tr>
<tr>
<td>X'EF'</td>
<td>VRARRK39</td>
<td>@nnn/</td>
<td>VALU/B</td>
<td>F</td>
</tr>
</tbody>
</table>
Specifying symptoms
Chapter 3. SYSEVENT summary

This summary describes system events (SYSEVENTs) that are indicated by entry to system resources manager (SRM) through direct branch or SVC 95 (SVC X’5F’). These SYSEVENTs appear in the generalized trace facility (GTF) and system trace records.

Locking for SYSEVENTs

All issuers of enabled, branch-entry SYSEVENTs must hold the local lock when the SYSEVENT is issued. The following SYSEVENTs are serialized by the CPU lock:

<table>
<thead>
<tr>
<th>SYSEVENT</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>QSCEST</td>
<td>X’0C’</td>
</tr>
<tr>
<td>TGETTPUT</td>
<td>X’22’</td>
</tr>
</tbody>
</table>

SRM obtains the SRM lock on all SYSEVENT entries except the following:

<table>
<thead>
<tr>
<th>SYSEVENT</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>USERRDY</td>
<td>X’04’</td>
</tr>
<tr>
<td>SWOUTCMP</td>
<td>X’0F’</td>
</tr>
<tr>
<td>RSMCNSTS</td>
<td>X’16’</td>
</tr>
<tr>
<td>AVQLOW</td>
<td>X’17’</td>
</tr>
<tr>
<td>AVQOK</td>
<td>X’18’</td>
</tr>
<tr>
<td>SQALOW</td>
<td>X’19’</td>
</tr>
<tr>
<td>SQAOK</td>
<td>X’1A’</td>
</tr>
<tr>
<td>HOLD</td>
<td>X’32’</td>
</tr>
<tr>
<td>NOHOLD</td>
<td>X’33’</td>
</tr>
<tr>
<td>DIRECTPO</td>
<td>X’38’</td>
</tr>
<tr>
<td>MSCHECK</td>
<td>X’3A’</td>
</tr>
<tr>
<td>OMVSWAIT</td>
<td>X’3B’</td>
</tr>
<tr>
<td>SOUTSUSP</td>
<td>X’45’</td>
</tr>
<tr>
<td>AUXREQ</td>
<td>X’4C’</td>
</tr>
<tr>
<td>REQFASD</td>
<td>X’51’</td>
</tr>
<tr>
<td>SCTCNV</td>
<td>X’6C’</td>
</tr>
</tbody>
</table>

The issuer of any of these SYSEVENTs, with the exception of HOLD, NOHOLD, and DIRECTPO, must be disabled when issuing the SYSEVENT because SRM uses processor-related save areas while processing the SYSEVENTs. The issuer of HOLD, NOHOLD, and DIRECTPO must also be in key 0. Issuers of SYSEVENTs not in the preceding list must not hold the SRM lock or any global lock when they issue the SYSEVENT.

Table 5 lists all SYSEVENTs in alphabetical order with their associated codes.

<table>
<thead>
<tr>
<th>SYSEVENT</th>
<th>Code (in hexadecimal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALTCPREC</td>
<td>21</td>
</tr>
<tr>
<td>APPCREC</td>
<td>4D</td>
</tr>
<tr>
<td>AUXTREQ</td>
<td>4C</td>
</tr>
<tr>
<td>SYSEVENT</td>
<td>Code (in hexadecimal)</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>AVAILPUP</td>
<td>49</td>
</tr>
<tr>
<td>AVQLOW</td>
<td>17</td>
</tr>
<tr>
<td>AVQOK</td>
<td>18</td>
</tr>
<tr>
<td>CANCEL</td>
<td>7F</td>
</tr>
<tr>
<td>CHANNEL</td>
<td>48</td>
</tr>
<tr>
<td>CHKSWIN</td>
<td>50</td>
</tr>
<tr>
<td>CLSFYENC</td>
<td>5A</td>
</tr>
<tr>
<td>CMDEND</td>
<td>40</td>
</tr>
<tr>
<td>CMDSTART</td>
<td>3F</td>
</tr>
<tr>
<td>CONFIGCH</td>
<td>1D</td>
</tr>
<tr>
<td>COPYDMDT</td>
<td>28</td>
</tr>
<tr>
<td>COPYTXSH</td>
<td>6D</td>
</tr>
<tr>
<td>CPUTCONV</td>
<td>4A</td>
</tr>
<tr>
<td>DDR</td>
<td>47</td>
</tr>
<tr>
<td>DEVALLOC</td>
<td>1C</td>
</tr>
<tr>
<td>DIRECTPO</td>
<td>38</td>
</tr>
<tr>
<td>DONTSWAP</td>
<td>29</td>
</tr>
<tr>
<td>EASINIT</td>
<td>1B</td>
</tr>
<tr>
<td>ENCASSOC</td>
<td>6A</td>
</tr>
<tr>
<td>ENCCREAT</td>
<td>57</td>
</tr>
<tr>
<td>ENCDELETE</td>
<td>58</td>
</tr>
<tr>
<td>ENCEWLM</td>
<td>7D</td>
</tr>
<tr>
<td>ENCREADY</td>
<td>71</td>
</tr>
<tr>
<td>ENCREG</td>
<td>79</td>
</tr>
<tr>
<td>ENCSTATE</td>
<td>65</td>
</tr>
<tr>
<td>ENCS97</td>
<td>6F</td>
</tr>
<tr>
<td>ENCXSYS</td>
<td>70</td>
</tr>
<tr>
<td>ENQHOLD</td>
<td>14</td>
</tr>
<tr>
<td>ENQRLSE</td>
<td>15</td>
</tr>
<tr>
<td>FREEAUX</td>
<td>6E</td>
</tr>
<tr>
<td>FULLPRE</td>
<td>81</td>
</tr>
<tr>
<td>HOLD</td>
<td>32</td>
</tr>
<tr>
<td>HSPCQRY</td>
<td>66</td>
</tr>
<tr>
<td>INITATT\</td>
<td>0A</td>
</tr>
<tr>
<td>INITDET</td>
<td>0B</td>
</tr>
<tr>
<td>INITID</td>
<td>4E</td>
</tr>
<tr>
<td>IODEL</td>
<td>75</td>
</tr>
<tr>
<td>IOVIOLAT</td>
<td>74</td>
</tr>
<tr>
<td>IWMRESET</td>
<td>6B</td>
</tr>
<tr>
<td>JOBSLELC</td>
<td>08</td>
</tr>
</tbody>
</table>
### Table 5. SYSEVENT list (continued)

<table>
<thead>
<tr>
<th>SYSEVENT</th>
<th>Code (in hexadecimal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>JOBTERM</td>
<td>09</td>
</tr>
<tr>
<td>LPARMGMT</td>
<td>72</td>
</tr>
<tr>
<td>MEMCREAT</td>
<td>06</td>
</tr>
<tr>
<td>MEMDELET</td>
<td>07</td>
</tr>
<tr>
<td>MIGCNSTR</td>
<td>42</td>
</tr>
<tr>
<td>MIGPURGE</td>
<td>43</td>
</tr>
<tr>
<td>MIGSWAP</td>
<td>44</td>
</tr>
<tr>
<td>MSCHECK</td>
<td>3A</td>
</tr>
<tr>
<td>NEWOPT</td>
<td>34</td>
</tr>
<tr>
<td>NEWSTSI</td>
<td>76</td>
</tr>
<tr>
<td>NIOWAIT</td>
<td>03</td>
</tr>
<tr>
<td>NOHOLD</td>
<td>33</td>
</tr>
<tr>
<td>OKSWAP</td>
<td>2A</td>
</tr>
<tr>
<td>OMYSWaits</td>
<td>3B</td>
</tr>
<tr>
<td>PBGDD</td>
<td>82</td>
</tr>
<tr>
<td>PPMODE</td>
<td>00</td>
</tr>
<tr>
<td>QRYCONT</td>
<td>83</td>
</tr>
<tr>
<td>QSCECMP</td>
<td>0D</td>
</tr>
<tr>
<td>QSCFEL</td>
<td>12</td>
</tr>
<tr>
<td>QSCEST</td>
<td>0C</td>
</tr>
<tr>
<td>QVS</td>
<td>77</td>
</tr>
<tr>
<td>RCVPADAT</td>
<td>56</td>
</tr>
<tr>
<td>REALSWAP</td>
<td>78</td>
</tr>
<tr>
<td>REQASCL</td>
<td>5B</td>
</tr>
<tr>
<td>REQASD</td>
<td>52</td>
</tr>
<tr>
<td>REQFASD</td>
<td>51</td>
</tr>
<tr>
<td>REQPGDAT</td>
<td>27</td>
</tr>
<tr>
<td>REQSERVC</td>
<td>26</td>
</tr>
<tr>
<td>REQSRMST</td>
<td>55</td>
</tr>
<tr>
<td>REQSVDAT</td>
<td>31</td>
</tr>
<tr>
<td>RSTORFL</td>
<td>2B</td>
</tr>
<tr>
<td>RESETPG</td>
<td>1F</td>
</tr>
<tr>
<td>RSMCNSTS</td>
<td>16</td>
</tr>
<tr>
<td>RSTORCMP</td>
<td>13</td>
</tr>
<tr>
<td>SCTCNV</td>
<td>6C</td>
</tr>
<tr>
<td>SADBWSTR</td>
<td>4F</td>
</tr>
<tr>
<td>SETDMN</td>
<td>25</td>
</tr>
<tr>
<td>SOUTSUSP</td>
<td>45</td>
</tr>
<tr>
<td>SQALOW</td>
<td>19</td>
</tr>
<tr>
<td>SQAOK</td>
<td>1A</td>
</tr>
</tbody>
</table>
## SYSEVENT Summary

### Table 5. SYSEVENT list (continued)

<table>
<thead>
<tr>
<th>SYSEVENT</th>
<th>Code (in hexadecimal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATEXIT</td>
<td>59</td>
</tr>
<tr>
<td>STGIFAIL</td>
<td>3E</td>
</tr>
<tr>
<td>STGTEST</td>
<td>4B</td>
</tr>
<tr>
<td>SUBSSORT</td>
<td>73</td>
</tr>
<tr>
<td>SWINFL</td>
<td>11</td>
</tr>
<tr>
<td>SWINSTAT</td>
<td>10</td>
</tr>
<tr>
<td>SWOUTCMP</td>
<td>0F</td>
</tr>
<tr>
<td>TERMWAIT</td>
<td>02</td>
</tr>
<tr>
<td>TGETTPUT</td>
<td>22</td>
</tr>
<tr>
<td>TIME</td>
<td>05</td>
</tr>
<tr>
<td>TIMEREXP</td>
<td>01</td>
</tr>
<tr>
<td>TRANSWAP</td>
<td>0E</td>
</tr>
<tr>
<td>TRAXERPT (or EVENT53)</td>
<td>35</td>
</tr>
<tr>
<td>TRAXFRPT (or EVENT54)</td>
<td>36</td>
</tr>
<tr>
<td>TRAXRPT (or EVENT55)</td>
<td>37</td>
</tr>
<tr>
<td>UCBCHG</td>
<td>46</td>
</tr>
<tr>
<td>USERRDY</td>
<td>04</td>
</tr>
<tr>
<td>VERIFYPG</td>
<td>1E</td>
</tr>
<tr>
<td>VIOVSAV</td>
<td>39</td>
</tr>
<tr>
<td>WKLDCHG</td>
<td>41</td>
</tr>
<tr>
<td>WLMCOll</td>
<td>54</td>
</tr>
<tr>
<td>WLMQUEUE</td>
<td>69</td>
</tr>
<tr>
<td>WLMSTCHG</td>
<td>53</td>
</tr>
</tbody>
</table>
### Summary of system events

The [Table 6](#) table lists the SYSEVENTs in order by hexadecimal code.

#### Table 6. SYSEVENTs listed in order by hexadecimal code

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>00</strong></td>
<td></td>
</tr>
<tr>
<td>Mnemonic:</td>
<td>PPMODE</td>
</tr>
<tr>
<td>Meaning:</td>
<td>A time sharing command, or a subcommand of EDIT or TEST, is to be run.</td>
</tr>
<tr>
<td>Circumstances:</td>
<td>The TSO/E terminal monitor program or the EDIT/TEST command processor issues this SYSEVENT when the command or subcommand is about to be run. It causes no action on the part of SRM.</td>
</tr>
<tr>
<td>Locks Required:</td>
<td>Local</td>
</tr>
<tr>
<td>Inputs:</td>
<td>Reg 0, bytes 0-1: ASID.</td>
</tr>
<tr>
<td></td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td></td>
<td>Reg 1, bytes 0-3: Contains the first 4 characters of the command or subcommand name.</td>
</tr>
<tr>
<td></td>
<td>Reg 15: Contains the last 4 characters of the command or subcommand name.</td>
</tr>
<tr>
<td>Outputs:</td>
<td>None.</td>
</tr>
<tr>
<td><strong>01</strong></td>
<td></td>
</tr>
<tr>
<td>Mnemonic:</td>
<td>TIMEREXP</td>
</tr>
<tr>
<td>Meaning:</td>
<td>Time of day (TOD) clock initialized.</td>
</tr>
<tr>
<td>Purpose:</td>
<td>At TOD clock initialization, the SYSEVENT schedules SRM time-driven routines. Subsequent scheduling is done through SYSEVENT 05 (Time).</td>
</tr>
<tr>
<td>Circumstances:</td>
<td>TOD clock initialized.</td>
</tr>
<tr>
<td>Locks Required:</td>
<td>Local</td>
</tr>
<tr>
<td>Inputs:</td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td></td>
<td>Reg 1, byte 3: Contains X'01' to indicate entry from system TOD clock initialization.</td>
</tr>
<tr>
<td>Outputs:</td>
<td>None.</td>
</tr>
</tbody>
</table>
## SYSEVENT Summary

*Table 6. SYSEVENTs listed in order by hexadecimal code (continued)*

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| 02         | Mnemonic: **TERMWAIT**  
             | Meaning: Terminal wait.  
             | Purpose: Indicates that a TSO/E session is in a terminal wait state.  
             | Circumstances: A TSO/E session is in terminal wait after the issuance of a TGET or a TPUT. Receiving the TERMWAIT SYSEVENT is an indicator for SRM that the current transaction for a TSO/E address space must end, if the address space is in long wait status and is swappable. The occurrence of this system event does not always mean that the entire address space is in a long wait status. Use the quiesce function for proper determination.  
             | Locks Required: Local  
             | Inputs:  
             | Reg 0, bytes 0-1: ASID.  
             | Reg 0, byte 3: SYSEVENT code.  
             | Reg 1, byte 0: contains:  
             | X'00' If for an input terminal wait.  
             | X'80' If for an output terminal wait.  
             | Outputs: None. |
| 03         | Mnemonic: **NIOWAIT**  
             | Meaning: An address space is suspected of being in long wait.  
             | Purpose: Indicates to SRM when an address space is suspected of entering a long wait.  
             | Circumstances: Some task in the address space entered long wait. Occurrence of this SYSEVENT does not mean that the entire address space is in a long wait status. This determination can be made only by the quiesce function. The time that is spent by a swappable address space in long wait is not considered part of the current transaction for that address space.  
             | Locks Required: Local  
             | Inputs:  
             | Reg 0, bytes 0-1: ASID or zero.  
             | Reg 0, byte 3: SYSEVENT code.  
             | Outputs: None. |
Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| 04 | Mnemonic: USERRDY  
Meaning: User ready.  
Purpose: Indicates that a swapped out address space in a wait state or an address space for which the quiesce function is running has at least one dispatchable unit, (SRB) that is ready to run.  
Circumstances: Something is causing a dispatchable unit (SRB) to be scheduled to this address space.  
Locks Required: Dispatcher Note that the dispatcher lock might not always be held.  
Inputs: Reg 0, bytes 0-1: ASID.  
Reg 0, byte 3: SYSEVENT code.  
Outputs: None. |
| 05 | This SYSEVENT is not traced by GTF.  
Mnemonic: TIME  
Meaning: The SRM timer interval expired.  
Purpose: Invokes the time slice dispatching algorithm if it is active and is to run. Schedules all other SRM algorithms that are due. Calculates the time of the next invocation of this SYSEVENT and informs the timer routine.  
Circumstances: The time routines recognize that the SRM time interval elapsed. When the SYSEVENT is issued, the SRM timer queue element is removed from the queue.  
Locks Required: Local  
Inputs: Reg 0, byte 3: SYSEVENT code.  
Outputs: None. |
### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>06</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Mnemonic:</strong></td>
<td>MEMCREAT</td>
</tr>
<tr>
<td><strong>Meaning:</strong></td>
<td>Address space create.</td>
</tr>
<tr>
<td><strong>Purpose:</strong></td>
<td>Indicates that a new address space is about to be created. Indicates the type of origin of the new address space (for example, START, LOGON, MOUNT). Gives SRM a chance to prohibit the creation of the address space.</td>
</tr>
<tr>
<td><strong>Circumstances:</strong></td>
<td>At the earliest point where the ASID is known and the space for the ASCB is obtained.</td>
</tr>
<tr>
<td><strong>Locks Required:</strong></td>
<td>Local</td>
</tr>
<tr>
<td><strong>Inputs:</strong></td>
<td>Reg 0, bytes 0-1: ASID.</td>
</tr>
<tr>
<td></td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td></td>
<td>Reg 1, byte 3: contains: X'01' If START. X'02' If LOGON. X'03' If MOUNT.</td>
</tr>
<tr>
<td><strong>Outputs:</strong></td>
<td>Reg 1, byte 0: contains: X'00' If the address space creation can proceed. X'80' If the address space creation cannot proceed because of a resource shortage that is determined by SRM.</td>
</tr>
<tr>
<td><strong>07</strong></td>
<td>Mnemonic: MEMDELE</td>
</tr>
<tr>
<td><strong>Meaning:</strong></td>
<td>Address space deletes.</td>
</tr>
<tr>
<td><strong>Purpose:</strong></td>
<td>Indicates the deletion of an address space to SRM, allowing SRM to release resources that are assigned to that address space.</td>
</tr>
<tr>
<td><strong>Circumstances:</strong></td>
<td>The memory delete function is about to free the storage for the ASCB and unassign the ASID.</td>
</tr>
<tr>
<td><strong>Locks Required:</strong></td>
<td>Local</td>
</tr>
<tr>
<td><strong>Inputs:</strong></td>
<td>Reg 0, bytes 0-1: ASID.</td>
</tr>
<tr>
<td></td>
<td>Reg 0, byte 2: Contains X'80' indicating that no more swap-ins are to be started until the next MEMDEL SYSEVENT.</td>
</tr>
<tr>
<td></td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td><strong>Outputs:</strong></td>
<td>Reg 1, byte 3: contains X'00' indicating that the memory delete function can proceed.</td>
</tr>
</tbody>
</table>
### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>08</strong></td>
<td><strong>Mnemonic:</strong> JOBSELECT</td>
</tr>
<tr>
<td></td>
<td><strong>Meaning:</strong> Job selection.</td>
</tr>
<tr>
<td></td>
<td><strong>Purpose:</strong> Indicates that an address space started by using system services on behalf of a new job, START or MOUNT command, or a TSO/E session.</td>
</tr>
<tr>
<td></td>
<td><strong>Locks Required:</strong> Local</td>
</tr>
<tr>
<td></td>
<td><strong>Inputs:</strong></td>
</tr>
<tr>
<td></td>
<td>Reg 0, bytes 0-1: ASID or zero.</td>
</tr>
<tr>
<td></td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td></td>
<td>Reg 1, bytes 0-3: Contains the address of a serialized parameter list. The parameter list is mapped by the IRAICSP mapping macro.</td>
</tr>
<tr>
<td></td>
<td><strong>Outputs:</strong> None.</td>
</tr>
<tr>
<td><strong>09</strong></td>
<td><strong>Mnemonic:</strong> JOBTERM</td>
</tr>
<tr>
<td></td>
<td><strong>Meaning:</strong> Job termination.</td>
</tr>
<tr>
<td></td>
<td><strong>Purpose:</strong> Indicates that an address space completed using system services on behalf of a job, START or MOUNT command, or a TSO/E session.</td>
</tr>
<tr>
<td></td>
<td><strong>Locks Required:</strong> Local</td>
</tr>
<tr>
<td></td>
<td><strong>Inputs:</strong></td>
</tr>
<tr>
<td></td>
<td>Reg 0, bytes 0-1: ASID or zero.</td>
</tr>
<tr>
<td></td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td></td>
<td>Reg 1, bytes 0-3: pointer to an 8-byte area that contains the job name or user ID.</td>
</tr>
<tr>
<td></td>
<td><strong>Outputs:</strong> None.</td>
</tr>
<tr>
<td><strong>0A</strong></td>
<td><strong>Mnemonic:</strong> INITATT</td>
</tr>
<tr>
<td></td>
<td><strong>Meaning:</strong> Attached by initiator.</td>
</tr>
<tr>
<td></td>
<td><strong>Purpose:</strong> Indicates that an initiator attached a task; this SYSEVENT is related to a JOBSELECT SYSEVENT (code 8).</td>
</tr>
<tr>
<td></td>
<td><strong>Locks Required:</strong> Local</td>
</tr>
<tr>
<td></td>
<td><strong>Inputs:</strong></td>
</tr>
<tr>
<td></td>
<td>Reg 0, bytes 0-1: ASID or zero.</td>
</tr>
<tr>
<td></td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td></td>
<td>Reg 1, bytes 0-3: contains the address of a serialized parameter list. The parameter list is mapped by the IRAICSP mapping macro.</td>
</tr>
<tr>
<td></td>
<td><strong>Outputs:</strong> None.</td>
</tr>
</tbody>
</table>
## SYSEVENT Summary

**Table 6. SYSEVENTs listed in order by hexadecimal code (continued)**

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>0B</strong></td>
<td></td>
</tr>
<tr>
<td>Mnemonic:</td>
<td>INITDET</td>
</tr>
<tr>
<td>Meaning:</td>
<td>Detach by initiator.</td>
</tr>
<tr>
<td>Purpose:</td>
<td>Indicates that an initiator detached a task.</td>
</tr>
<tr>
<td>Locks Required:</td>
<td>Local</td>
</tr>
</tbody>
</table>
| Inputs:    | Reg 0, bytes 0-1: ASID or zero.  
            | Reg 0, byte 3: SYSEVENT code. |
| Outputs:   | None. |

| **0C**     |         |
| Mnemonic:  | QSCEST  |
| Meaning:   | Quiesce started. |
| Purpose:   | Permits an initial assessment of whether an address space, which is suspected of being in long wait, is in fact in long wait. Provides for reversing the quiesce of an address space. |
| Circumstances: | SRM recently posted quiesce. |
| Locks Required: | Local |
| Inputs:    | Reg 0, bytes 0-1: ASID or zero.  
            | Reg 0, byte 3: SYSEVENT code.  
            | Reg 1, byte 0: contains:  
            | X'00'  If the address space is not in a long wait.  
            | X'80'  If all tasks in the address space are in a long wait. |
| Outputs:   | Reg 1, byte 3: contains:  
            | X'00'  When the region control task (RCT) is to continue with the quiesce.  
            | X'08'  When the address space should be restored to its original status. |
## SYSEVENT Summary

### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| 0D         | Mnemonic: QSCECMP  
             | Meaning: Quiesce completed.  
             | Purpose: Permits a final assessment of whether the address space is to be swapped out. If between QSCEST (code 0C) and QSCECMP, a USERRDY (code 04) has been received for the address space, the quiesce function will be notified that the address space is not in true long wait status. Also allows SRM to determine if the address space should be logically or physically swapped.  
             |        | Note: The swapped in interval is defined to end with this SYSEVENT.  
             |        | Circumstances: The region control task (RCT) has completed quiesce processing for an address space.  
             |        | Locks Required: Local  
             |        | Inputs:  
             |        | Reg 0, bytes 0-1: ASID or zero.  
             |        | Reg 0, byte 3: SYSEVENT code.  
             |        | Reg 1, byte 0: contains:  
             |        | X'00' If the address space is not in a long wait.  
             |        | X'80' If the address space is in long wait.  
             |        | Reg 1, byte 1: contains:  
             |        | X'40' Indicates a successful In-Real-Swap for a logically swapped address space.  
             |        | X'80' Indicates a failure (RSM returned with an error).  
             |        | Outputs:  
             |        | Reg 1, byte 0: contains X'00' if USERRDY (code 04) was just received; unchanged by SRM if no USERRDY received since QSCEST (code 0C).  
             |        | Reg 1, byte 2: Contains the swap reason code. The swap reason code values and descriptors are mapped by the IRASRCD mapping macro.  
             |        | Reg 1, byte 3: contains:  
             |        | X'00' If the RCT is to schedule swap-out.  
             |        | X'04' If the RCT is to wait while the address space is logically swapped.  
             |        | X'08' If the address space is to be restored.  
             |        | X'0C' Indicates a TRANSWAP.  
             |        | X'10' Indicates a REALSWAP.  

Chapter 3. SYSEVENTs 51
### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| 0E         | **Mnemonic:** TRANSWAP  
**Meaning:** Transition swap an address space.  
**Purpose:** Causes the transition of an address space from swappable to non-swappable.  
**Note:** If you specify an ASID with DONTSWAP, OKSWAP, or TRANSWAP, that ASID must specify the home address space. In other words, you can only control swapping in the address space in which the SYSEVENT is issued. If you specify a different address space, the request will fail.  
**Circumstances:** A TRANSWAP is issued for a V=R job step or a non-swappable program to force a swap out. After the subsequent swap in, frames are allocated from preferred storage and the address space is marked non-swappable. TRANSWAP prevents these programs from being assigned frames in reconfigurable storage.  
**Locks Required:** Local  
**Inputs:** Reg 0, bytes 0-1: ASID or zero.  
Reg 0, byte 3: SYSEVENT code.  
Reg 1, bytes 0-3: Address of the ECB to be posted, or zero if there is no dependency on the transition.  
(Note: An ECB can only be specified if the request is for the current address space.)  
**Outputs:** Reg 1, byte 3: contains:  
X'00' Transition request accepted.  
X'04' Transition was done previously.  
**Post codes:**  
X'00' Transition is complete. The post is issued by SYSEVENT SWOUTCMP (0F).  
X'04' The address space became non-swappable before it could be swapped out. The post is issued by SYSEVENT QSCEST (0C) or QSCECMP (0D). |
### SYSEVENT Summary

**Table 6. SYSEVENTs listed in order by hexadecimal code (continued)**

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>0F</strong></td>
<td></td>
</tr>
<tr>
<td><em>Mnemonic:</em></td>
<td>SWOUTCMP</td>
</tr>
<tr>
<td><em>Meaning:</em></td>
<td>Swap-out completed.</td>
</tr>
<tr>
<td><em>Purpose:</em></td>
<td>Indicates that swap-out processing has completed.</td>
</tr>
<tr>
<td><em>Circumstances:</em></td>
<td>All I/O needed to swap-out this address space has just completed.</td>
</tr>
<tr>
<td><em>Locks Required:</em></td>
<td>RSMAD</td>
</tr>
<tr>
<td><em>Inputs:</em></td>
<td>Reg 0, bytes 0-1: ASID or zero.</td>
</tr>
<tr>
<td></td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td></td>
<td>Reg 1, bytes 0-3: Address of a parameter list. The format is as follows:</td>
</tr>
<tr>
<td></td>
<td><strong>Word 1</strong> The number of pages swapped out</td>
</tr>
<tr>
<td></td>
<td><strong>Word 2</strong> The working set size (the number of pages to be swapped in)</td>
</tr>
<tr>
<td></td>
<td><strong>Word 3, bytes 0-2</strong> Reserved</td>
</tr>
<tr>
<td></td>
<td><strong>Word 3, byte 3</strong> Flag byte:</td>
</tr>
<tr>
<td></td>
<td><em>Bits 0-6</em> Reserved</td>
</tr>
<tr>
<td></td>
<td><em>Bit 7</em> Contains 0 if the address space is in long wait; contains 1 if the address space is waiting for an unfinished real storage manager service.</td>
</tr>
<tr>
<td><em>Outputs:</em></td>
<td>None.</td>
</tr>
<tr>
<td><strong>10</strong></td>
<td></td>
</tr>
<tr>
<td><em>Mnemonic:</em></td>
<td>SWINSTAT</td>
</tr>
<tr>
<td><em>Meaning:</em></td>
<td>Swap-in status.</td>
</tr>
<tr>
<td><em>Circumstances:</em></td>
<td>Swap-in processing for an address space that has just started, or just completed.</td>
</tr>
<tr>
<td><em>Locks Required:</em></td>
<td>None</td>
</tr>
<tr>
<td><em>Inputs:</em></td>
<td>Reg 0, bytes 0-1: ASID or zero.</td>
</tr>
<tr>
<td></td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td></td>
<td>Reg 1, byte 3: contains:</td>
</tr>
<tr>
<td></td>
<td><em>'00'</em> Swap-in is starting.</td>
</tr>
<tr>
<td></td>
<td><em>'01'</em> Resources needed to perform the swap-in were obtained.</td>
</tr>
<tr>
<td></td>
<td><em>'02'</em> Swap-in is complete.</td>
</tr>
<tr>
<td><em>Outputs:</em></td>
<td>None.</td>
</tr>
</tbody>
</table>
## SYSEVENT Summary

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>11</strong></td>
<td></td>
</tr>
<tr>
<td>Mnemonic:</td>
<td>SWINFL</td>
</tr>
<tr>
<td>Meaning:</td>
<td>Swap-in failed.</td>
</tr>
<tr>
<td>Circumstances:</td>
<td>Swap-in processing failed to obtain or initialize the LSQA and fixed pages for the specified address space.</td>
</tr>
<tr>
<td>Locks Required:</td>
<td>Local</td>
</tr>
<tr>
<td>Inputs:</td>
<td>Reg 0, bytes 0-1: ASID or zero.</td>
</tr>
<tr>
<td></td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td></td>
<td>Reg 1, byte 3: contains:</td>
</tr>
<tr>
<td></td>
<td>'X'01' Swap-in failed because there are not enough page control blocks (PCBs) available to complete the swap-in.</td>
</tr>
<tr>
<td></td>
<td>'X'02' Swap-in failed because there are not enough frames available for the working set.</td>
</tr>
<tr>
<td></td>
<td>'X'03' Swap-in failed because swapping in this address space would cause the number of fixed frames to exceed the limit that SRM passed to RSM on the swap-in request.</td>
</tr>
<tr>
<td></td>
<td>'X'04' Swap-in failed because there are not enough frames available for the address space's segment table.</td>
</tr>
<tr>
<td>Outputs:</td>
<td>None.</td>
</tr>
</tbody>
</table>

| **12**    |         |
| Mnemonic: | QSCEFL  |
| Meaning:  | Quiesce failed. |
| Purpose:  | Notifies SRM that during an attempt to quiesce an address space the quiesce function has failed. The address space has been restored when the SYSEVENT is issued. |
| Circumstances: | Region control task failed to complete quiesce processing due to an abnormal situation. |
| Locks Required: | Local |
| Inputs: | Reg 0, bytes 0-1: ASID or zero. |
| | Reg 0, byte 3: SYSEVENT code. |
| Outputs: | None. |
Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td></td>
</tr>
<tr>
<td><strong>Mnemonic:</strong></td>
<td></td>
</tr>
<tr>
<td>RSTORCMP</td>
<td></td>
</tr>
<tr>
<td><strong>Meaning:</strong></td>
<td></td>
</tr>
<tr>
<td>Restore completed.</td>
<td></td>
</tr>
<tr>
<td><strong>Purpose:</strong></td>
<td></td>
</tr>
<tr>
<td>Permits an assessment of whether an address space, suspected of having left long wait status, is in fact ready.</td>
<td></td>
</tr>
<tr>
<td><strong>Note:</strong> The swapped in interval is defined to begin with this SYSEVENT.</td>
<td></td>
</tr>
<tr>
<td><strong>Circumstances:</strong></td>
<td></td>
</tr>
<tr>
<td>Region control task has completed restore processing for an address space. The circumstances giving rise to the restoring of an address space still in long wait stem from not knowing that the address space is waiting on more than one event.</td>
<td></td>
</tr>
<tr>
<td><strong>Locks Required:</strong></td>
<td></td>
</tr>
<tr>
<td>Local</td>
<td></td>
</tr>
<tr>
<td><strong>Inputs:</strong></td>
<td></td>
</tr>
<tr>
<td>Reg 0, bytes 0-1: ASID or zero.</td>
<td></td>
</tr>
<tr>
<td>Reg 0, byte 3: SYSEVENT code.</td>
<td></td>
</tr>
<tr>
<td>Reg 1, byte 0: contains:</td>
<td></td>
</tr>
<tr>
<td>X'00' If the address space is ready.</td>
<td></td>
</tr>
<tr>
<td>X'80' If the address space is in a long wait.</td>
<td></td>
</tr>
<tr>
<td><strong>Outputs:</strong></td>
<td></td>
</tr>
<tr>
<td>None.</td>
<td></td>
</tr>
</tbody>
</table>
### SYSEVENT Summary

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| 14        | **Mnemonic:**  
|           | ENQHOLD  
|           | **Meaning:** ENQ contention occurred.  
|           | **Purpose:** Identifies a holder of a resource causing contention. SRM may boost the service to the holder (enclave or address space) of the resource to resolve the contention.  
|           | **Circumstances:** Application dependent.  
|           | **Locks Required:** Local and CMSEQDQ  
| Inputs for Type 0 Callers: |  
| Reg 0, bytes 0-1: ASID of address space holding the resource. If the high order bit of the ASID is set to 1, then this ENQHOLD is for an enclave, and access registers 0-1 contain the 8-byte enclave token.  
| Reg 0, byte 2, bits 0-6: Reserved.  
| Reg 0, byte 2, bit 7: Set to 0 for Type 0 callers.  
| Reg 0, byte 3: SYSEVENT code.  
| Access Registers 0-1: Contains the enclave token or 0.  
| Inputs for Type 2 Callers: |  
| Reg 0, bytes 0-1: ASID of address space holding the resource.  
| Reg 0, byte 2, bits 0-6: Reserved.  
| Reg 0, byte 2, bit 7: Set to 2 for Type 2 callers.  
| Reg 0, byte 3: SYSEVENT code.  
| Reg 1, bytes 0-3: Contains the address of a parameter list. The parameter list is mapped by the IRAEVPL macro.  
| Inputs for Type 3 Callers: |  
| Reg 0, bytes 0-1: ’8000’X .  
| Reg 0, byte 2: Set to 3 for Type 3 callers.  
| Reg 0, byte 3: SYSEVENT code.  
| Reg 1, bytes 0-3: Contains the address of a parameter list. The parameter list is mapped by the IRAEVPL macro.  
| Outputs: | None.  

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<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

Mnemonic:
- ENQRLSE

Meaning:
- Notify SRM that a resource causing contention has been released

Purpose:
- Notify SRM that the holder of a resource causing contention has released the resource.

Circumstances:
- Application dependent.

Locks Required:
- Local and CMSEQDQ

Inputs for Type 0 Callers:
- Reg 0, bytes 0-1: ASID of address space holding the resource. If the high order bit of the ASID is set to 1, then this ENQRLSE is for an enclave, and access registers 0-1 contain the 8-byte enclave token.
- Reg 0, byte 2, bits 0-6: Reserved.
- Reg 0, byte 2, bit 7: Set to 0 for Type 0 callers.
- Reg 0, byte 3: SYSEVENT code.
- Access Registers 0-1: Contains the enclave token or 0.

Inputs for Type 2 Callers:
- Reg 0, bytes 0-1: ASID of address space holding the resource.
- Reg 0, byte 2, bits 0-6: Reserved.
- Reg 0, byte 2, bit 7: Set to 2 for Type 2 callers.
- Reg 0, byte 3: SYSEVENT code.
- Reg 1, bytes 0-3: Contains the address of a parameter list. The parameter list is mapped by the IRAEVPL macro.

Inputs for Type 3 Callers:
- Reg 0, bytes 0-1: ‘8000’x.
- Reg 0, byte 2: Set to 3 for Type 3 callers.
- Reg 0, byte 3: SYSEVENT code.
- Reg 1, bytes 0-3: Contains the address of a parameter list. The parameter list is mapped by the IRAEVPL macro.

Outputs:
- None.
### SYSEVENT Summary

**Table 6. SYSEVENTs listed in order by hexadecimal code (continued)**

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Mnemonic:</td>
<td>RSMCNSTS</td>
</tr>
<tr>
<td>Meaning:</td>
<td>Real storage manager constants</td>
</tr>
<tr>
<td>Purpose:</td>
<td>Notifies SRM that the amount of online real storage has changed and that SRM should calculate new storage threshold values.</td>
</tr>
<tr>
<td>Circumstances:</td>
<td>Issued when the amount of online real storage has changed.</td>
</tr>
<tr>
<td>Locks Required:</td>
<td>RSMGL (under certain conditions)</td>
</tr>
<tr>
<td>Inputs:</td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td></td>
<td>Reg 1, byte 3: contains:</td>
</tr>
<tr>
<td></td>
<td>X'00' If the RSM frame counts are not being initialized.</td>
</tr>
<tr>
<td></td>
<td>X'04' If the RSM frame counts are being initialized.</td>
</tr>
<tr>
<td></td>
<td>X'08' If expanded storage reconfiguration is underway.</td>
</tr>
<tr>
<td></td>
<td>X'0C' If expanded storage reconfiguration is complete.</td>
</tr>
<tr>
<td>Outputs:</td>
<td>None.</td>
</tr>
</tbody>
</table>

| 17         |         |
| Mnemonic:  | AVQLOW |
| Meaning:   | Available frame queues below limit. |
| Purpose:   | Notifies SRM that the number of frames on the available frame queues has dropped below predefined limits. |
| Circumstances: | Issued whenever allocation of a frame causes the number left on the available frame queues to drop below one of the predefined limits. |
| Locks Required: | RSMGL |
| Inputs:    | Reg 0, byte 3: SYSEVENT code. |
|            | Reg 1, byte 3: contains: |
|            | X'01' If the number of frames on the available frame queues has dropped below the limit. |
|            | X'02' If the number of frames on the available frame queues has dropped to zero. |
|            | X'03' If a frame is needed and there are no frames on the available frame queues. |
|            | X'04' If the ratio of fixed frames to total frames has increased above the allowable value. |
|            | X'05' If a frame from the SQA reserve queue must be used to satisfy a SQA GETMAIN request. |
| Outputs:   | None. |
### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td></td>
</tr>
<tr>
<td><strong>Mnemonic:</strong></td>
<td>AVQOK</td>
</tr>
<tr>
<td><strong>Meaning:</strong></td>
<td>Available frame queue above limit.</td>
</tr>
<tr>
<td><strong>Purpose:</strong></td>
<td>Notifies SRM that the number of frames on the available frame queues has risen above a predefined limit.</td>
</tr>
<tr>
<td><strong>Circumstances:</strong></td>
<td>Is issued whenever unallocation of a frame causes the number left on the available frame queues to rise above the predefined limit. This SYSEVENT is issued only when the number of frames rises above the predefined limit after the “available frame queues below limit” SYSEVENT (code 17) was issued.</td>
</tr>
<tr>
<td><strong>Locks Required:</strong></td>
<td>RSMGL</td>
</tr>
<tr>
<td><strong>Inputs:</strong></td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td><strong>Outputs:</strong></td>
<td>None.</td>
</tr>
</tbody>
</table>

| 19         |         |
| **Mnemonic:** | SQALOW |
| **Meaning:** | Unallocated SQA and CSA below threshold. |
| **Purpose:** | Indicates that the amount of unallocated virtual SQA and CSA has dropped below one of two predefined thresholds. |
| **Circumstances:** | Virtual storage manager has just satisfied an SQA or CSA allocation request which resulted in the amount of unallocated SQA and CSA dropping below one of the two predefined thresholds. |
| **Locks Required:** | VSMFIX |
| **Inputs:** | Reg 0, byte 3: SYSEVENT code. |
| Reg 1, byte 3: contains: | |
| X'01' | If the first (less serious) threshold is passed. |
| X'02' | If the second threshold is passed. |
| **Outputs:** | None. |
### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td></td>
</tr>
<tr>
<td><strong>Mnemonic:</strong></td>
<td>SQAOK</td>
</tr>
<tr>
<td><strong>Meaning:</strong></td>
<td>Unallocated SQA and CSA above threshold.</td>
</tr>
<tr>
<td><strong>Purpose:</strong></td>
<td>Indicates that the amount of unallocated SQA has risen above one of two predefined thresholds.</td>
</tr>
<tr>
<td><strong>Circumstances:</strong></td>
<td>Virtual storage manager has just handled an SQA or CSA unallocation request which resulted in the amount of unallocated SQA and CSA rising above one of the two predefined thresholds.</td>
</tr>
<tr>
<td><strong>Locks Required:</strong></td>
<td>VSMFIX</td>
</tr>
<tr>
<td><strong>Inputs:</strong></td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td></td>
<td>Reg 1, byte 3: contains:</td>
</tr>
<tr>
<td></td>
<td>X'01' If the first (less serious) threshold is passed.</td>
</tr>
<tr>
<td></td>
<td>X'02' If the second threshold is passed.</td>
</tr>
<tr>
<td><strong>Outputs:</strong></td>
<td>None.</td>
</tr>
<tr>
<td>1B</td>
<td></td>
</tr>
<tr>
<td><strong>Meaning:</strong></td>
<td>A system component address space is initiated for operation.</td>
</tr>
<tr>
<td><strong>Mnemonic:</strong></td>
<td>EASINIT</td>
</tr>
<tr>
<td><strong>Purpose:</strong></td>
<td>Indicates that a system component address space is initialized, but is not allowed to contend for system resources yet. Accumulation of its residency time and active time needs to be started.</td>
</tr>
<tr>
<td><strong>Circumstances:</strong></td>
<td>Before the completion of the master scheduler initialization, a system component address space is initialized for the operation.</td>
</tr>
<tr>
<td><strong>Locks Required:</strong></td>
<td>Local</td>
</tr>
<tr>
<td><strong>Inputs:</strong></td>
<td>Reg 0, bytes 0 and 1: The ASID of the address space that is initialized.</td>
</tr>
<tr>
<td></td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td></td>
<td>Reg 1, byte 2: A flag byte identifying attributes of the address space that is initialized. The flag is:</td>
</tr>
<tr>
<td></td>
<td>X'80' An address space that is defined as privileged. (If using ASCRE to create the address space, this corresponds to the PRIV attribute).</td>
</tr>
<tr>
<td></td>
<td>X'01' An address space in which high-priority system services execute (if using ASCRE to create the address space, this corresponds to the HIPRI attribute).</td>
</tr>
<tr>
<td></td>
<td>other An address space in which high priority system services do not execute.</td>
</tr>
<tr>
<td><strong>Outputs:</strong></td>
<td>None.</td>
</tr>
<tr>
<td>Code (hex)</td>
<td>Meaning</td>
</tr>
<tr>
<td>-----------</td>
<td>---------</td>
</tr>
</tbody>
</table>
| 1C        | **Mnemonic:** DEVALLOC  
**Meaning:** Device allocation request.  
**Purpose:** Provides SRM with necessary data for making a device allocation decision where two or more candidates exist.  
**Locks Required:** Local  
**Inputs:**  
Reg 0, bytes 0-1: ASID or zero.  
Reg 0, byte 3: SYSEVENT code.  
Reg 1, bytes 0-3: Address of a list of three full-word addresses. The first points to a list of candidate UCB addresses. The second points to a list of addresses of UCBs already allocated to the requesting jobstep. The third points to a 2-word return area. The first word in the list of candidate UCBs contains a count of the number of candidates in the list. The first word of the list of addresses of already allocated UCBs contains a count of the number of addresses in the list. All input and output data areas must be fixed.  
**Outputs:**  
Reg 1, bytes 0-3: Contains the same address present at input.  
Return area 1st word: Contains the address of the candidate list entry which was selected.  
Reg 15, byte 3: contains:  
X'00' If allocation selection was successfully made.  
X'08' If allocation selection was unsuccessfully made. |
| 1D        | **Mnemonic:** CONFIGCH  
**Meaning:** System configuration change.  
**Purpose:** Indicates that a central processor is to be removed from or added to the system. Also can indicate whether the system is to bring online or take offline the Vector Facility attached to a central processor.  
**Circumstances:** The system operator has issued a CONFIG central processor (online or offline) command.  
**Locks Required:** None  
**Inputs:**  
Reg 0, byte 3: SYSEVENT code.  
Reg 1, bytes 0-3: Contains the address of the PCCA for the central processor being removed from or added to the system.  
**Outputs:** None. |
| 1E        | **Mnemonic:** VERIFYPG  
**Meaning:** Not valid in goal mode. |
| 1F        | **Mnemonic:** RESETPG  
**Note:** This SYSEVENT is obsolete. Issuance results in a return code of 16. It has been replaced by the WLM service IWMRESET. See [z/OS MVS Programming: Workload Management Services](https://www.ibm.com/support/knowledgecenter/en/SSLTBW_2.2.0.com.ibm.zos.webproducts/fh/zosattach.html) for more information on IWMRESET. |
### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| 21         | Mnemonic: ALTCPREC  
|            | Meaning: Alternate central processor recovery (ACR)  
|            | Purpose: Notifies SRM that one central processor has been removed from the configuration.  
|            | Circumstances: As a result of some error, ACR has had to reconfigure one central processor out of the system.  
|            | Locks Required: None  
|            | Inputs: Reg 0, byte 3: SYSEVENT code.  
|            | Reg 1, bytes 0-3: Contains the address of the PCCA for the failed central processor.  
|            | Outputs: None. |
| 22         | Mnemonic: TGETTPUT  
|            | Meaning: TGET/TPUT satisfied.  
|            | Purpose: Indicates a change in the status of the current TSO/E transaction.  
|            | Circumstances: TGET or TPUT completed.  
|            | Locks Required: Local  
|            | Inputs: Reg 0, bytes 0-1: ASID or zero.  
|            | Reg 0, byte 3: SYSEVENT code.  
|            | Reg 1, byte 0: - Flag byte, as follows:  
|            | Bit 0 - Contains 0 if TGET was satisfied. Contains 1 if TPUT was satisfied.  
|            | Bit 1 - (Applies to TGET satisfied only.) Contains 0 if all the data in the TSO/E input message was transferred by the TGET. Contains 1 if part of the data in the TSO/E input message was not yet transferred by this TGET (at least one more TGET is required to obtain the rest of the data in the TSO/E input message).  
|            | Bits 2-7 - Reserved  
|            | Outputs: None. |
| 25         | Mnemonic: SETDMN  
|            | Meaning: Not valid in goal mode. |
### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>26</td>
<td></td>
</tr>
</tbody>
</table>

- **Mnemonic:**
  - REQSERC

- **Meaning:**
  - Request for service data.

- **Purpose:**
  - Permits service-related data to be obtained for a given address space from SRM.

- **Circumstances:**
  - TSO/E TIME command will also use the REQSERC SYSEVENT to obtain service data.
  - The output area does not have to be fixed, and the issuer is not required to be authorized.

- **Locks Required:**
  - Local

- **Inputs:**
  - Reg 0, bytes 0-1: ASID or zero.
  - Reg 0, byte 3: SYSEVENT code.
  - Reg 1, bytes 0-3: Contains the address of a 3-word area where the service data is to be stored.

- **Outputs:**
  - Service data supplied by SRM:
    - In the case of a TSO/E address space, the 3-word area contains:
      - **Word 1** Total service for the job
      - **Word 2** Total transaction active time
      - **Word 3** Contents are as follows:
        - **Bytes 0-1** Performance group number last assigned to the address space
        - **Bytes 2-3** For TSO/E users, the total number of transactions.
    - In the case of a non-TSO/E address space, the 3-word area contains:
      - **Word 1** Total service for the session
      - **Word 2** Total active time for all transactions
      - **Word 3** Contents are as follows:
        - **Bytes 0-1** Performance group number last assigned to the address space
        - **Bytes 2-3** Zeros.

- **Reg 15, byte 3:** contains:
  - X'04' If data was lost due to accumulation control block error.
  - X'00' Otherwise
## SYSEVENT Summary

### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| 27         | Mnemonic: REQPGDAT  
Meaning: Request by SMF for job paging data.  
Purpose: Permits SMF to obtain paging data for a given address space from SRM.  
Circumstances: SMF issues REQPGDAT during step termination.  
Locks Required: Local  
Inputs: Reg 0, bytes 0-1: ASID or zero.  
Reg 0, byte 2, bit 0: 0 indicates that this paging data request is for the end of a job step; 1 indicates that this paging data request is for an SMF accounting interval.  
Reg 0, byte 3: SYSEVENT code.  
Reg 1, bytes 0-3: Contains the address of a fixed area where the paging data is to be stored.  
Outputs: Reg 1 contains the same address as on input.  
Reg 15, byte 3: contains:  
X'00' Data successfully returned.  
X'04' Data not returned. |
| 28         | Mnemonic: COPYDMDT  
Meaning: Not valid in goal mode. |
| 29         | Mnemonic: DONTSWAP  
Meaning: Address space is now not swappable.  
Purpose: Indicates to SRM that the issuing address space must not be swapped until further notice.  
Note: If you specify an ASID with DONTSWAP, OKSWAP, or TRANSWAP, that ASID must specify the home address space. In other words, you can only control swapping in the address space in which the SYSEVENT is issued. If you specify a different address space, the request will fail.  
Circumstances: Application dependent.  
Locks Required: Local  
Inputs: Reg 0, bytes 0-1: ASID of issuing address space, or zero.  
Reg 0, byte 3: SYSEVENT code.  
Outputs: Reg 1, byte 3: contains:  
X'00' If the request to mark the address space as non-swappable was honored.  
X'04' If request is not for the current address space.  
X'08' If request was not authorized, or if the outstanding count of DONTSWAP requests (code 29) has reached its maximum value. |
Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A</td>
<td></td>
</tr>
<tr>
<td><strong>Mnemonic:</strong></td>
<td>OKSWAP</td>
</tr>
<tr>
<td><strong>Meaning:</strong></td>
<td>Address space is now swappable.</td>
</tr>
<tr>
<td><strong>Purpose:</strong></td>
<td>Indicates to SRM that the issuing address space can now be swapped.</td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td>If you specify an ASID with DONTSWAP, OKSWAP, or TRANSWAP, that ASID must specify the home address space. In other words, you can only control swapping in the address space in which the SYSEVENT is issued. If you specify a different address space, the request will fail.</td>
</tr>
<tr>
<td><strong>Circumstances:</strong></td>
<td>Application dependent.</td>
</tr>
<tr>
<td><strong>Locks Required:</strong></td>
<td>Local</td>
</tr>
<tr>
<td><strong>Inputs:</strong></td>
<td>Reg 0, bytes 0-1: ASID of issuing address space, or zero.</td>
</tr>
<tr>
<td></td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td><strong>Outputs:</strong></td>
<td>Reg 1, byte 3: contains:</td>
</tr>
<tr>
<td></td>
<td>X'00' If the request to mark the address space as swappable was honored.</td>
</tr>
<tr>
<td></td>
<td>X'04' If the request is not for the current address space.</td>
</tr>
<tr>
<td></td>
<td>X'08' If the request was not authorized.</td>
</tr>
</tbody>
</table>

| 2B         |         |
| **Mnemonic:** | RSTORFL |
| **Meaning:** | Restore of an address space failed. |
| **Purpose:** | When it is not possible to restore an address space, the region control task (RCT) issues a RSTORFL SYSEVENT to inform SRM. |
| **Circumstances:** | This SYSEVENT gets issued by the region control task (RCT), when it is currently not possible to restore the address space. SRM tells the region control task (RCT) how to continue. |
| **Locks Required:** | Local |
| **Inputs:** | Reg 0, bytes 0-1: ASID or zero. |
| | Reg 0, byte 2: SYSEVENT type. |
| | Reg 0, byte 3: SYSEVENT code. |
| **Outputs:** | Reg 1, byte 3: contains: |
| | X'00' RCT continues to wait on the ASCBQECB. |
| | X'08' RCT cancels the address space. |
### SYSEVENT Summary

#### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| 30         | Mnemonic: None.  
  Purpose: Issued by SRM itself in order to invoke its control routine immediately without waiting for a SYSEVENT issued by another component.  
  Locks Required: None  
  Inputs: Reg 0, bytes 0-1: ASID or zero.  
  Reg 0, byte 3: SYSEVENT code.  
  Reg 1, bytes 0-3: Address of the service request block under which this SYSEVENT is issued.  
  Outputs: None. |
| 31         | Mnemonic: REQSVDAT  
  Meaning: Request service data.  
  Purpose: Permits SMF to obtain service-related data for a given address space.  
  Circumstances: SMF issues REQSVDAT during job or session completion processing.  
  Locks Required: Local  
  Inputs: Reg 0, bytes 0-1: ASID or 0.  
  Reg 0, byte 3: SYSEVENT code.  
  Reg 1, bytes 0-3: The address of a fixed area where the service data is to be stored.  
  Outputs: The contents of the area are mapped by the IRARQSRV macro in SYS1.MODGEN. |
| 32         | This SYSEVENT is not traced by GTF.  
  Mnemonic: HOLD  
  Meaning: Hold the address space from being swapped out.  
  Purpose: Notify SRM that the issuing address space must not be swapped out until a SYSEVENT NOHOLD (X'33') occurs.  
  Circumstances: The running program has a short instruction sequence during which the address space cannot be swapped out.  
  Locks Required: None  
  Inputs: Reg 0, bytes 0-1: ASID or zero.  
  Reg 0, byte 3: SYSEVENT code.  
  Outputs: None. |
<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>33</td>
<td>This SYSEVENT is not traced by GTF.</td>
</tr>
<tr>
<td></td>
<td>Mnemonic: NOHOLD</td>
</tr>
<tr>
<td></td>
<td>Meaning: No longer hold the address space from being swapped out.</td>
</tr>
<tr>
<td></td>
<td>Purpose: Notify SRM that the issuing space which has previously issued a HOLD (SYSEVENT X'32'), can be considered for swapping.</td>
</tr>
<tr>
<td></td>
<td>Circumstances: The issuing program no longer has a requirement that its address space be non-swappable.</td>
</tr>
<tr>
<td></td>
<td>Locks Required: None</td>
</tr>
<tr>
<td></td>
<td>Inputs: Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td></td>
<td>Outputs: None.</td>
</tr>
</tbody>
</table>

| 34        | Mnemonic: NEWOPT |
|           | Meaning: Set new OPT. |
|           | Purpose: Change the OPT currently in use by SRM. |
|           | Circumstances: The system operator has entered a SET command with the OPT keyword. To synchronize the setting of the new OPT values, all values established by the old OPT are replaced under the SRM lock. The SET command processor is responsible for obtaining and releasing the OPT parameter list. |
|           | Locks Required: Local |
|           | Inputs: Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Contains the address of the OPT parameter list (IRAOLST) that describes the new OPT. |
|           | Outputs: None. |
## Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>This SYSEVENT is not traced by GTF.</td>
</tr>
<tr>
<td>Mnemonic:</td>
<td>TRAXERPT or EVENT53</td>
</tr>
<tr>
<td>Meaning:</td>
<td>Report the start time and service data for a completed transaction.</td>
</tr>
<tr>
<td>Purpose:</td>
<td>Allows a subsystem to use RMF to report transaction data.</td>
</tr>
<tr>
<td>Circumstances:</td>
<td>At the completion of a transaction, the subsystem provides the data needed for RMF to report the number of transactions, the average elapsed time per transaction, and the service used.</td>
</tr>
<tr>
<td>Locks Required:</td>
<td>None</td>
</tr>
</tbody>
</table>
| Inputs:    | Reg 0, byte 3: SYSEVENT code.  
Reg 1, bytes 0-3: Contains the address of a serialized parameter list. The parameter list is mapped by the IHATREPL mapping macro. |
| Outputs:   | Reg 15, byte 3: Contains one of the following return codes:  
X'00' The data for the transaction has been reported correctly.  
X'08' Processing could not be completed at this time. No queue elements are available for recording data. No statistics are reported, but a retry could be successful.  
X'0C' Reporting is temporarily suspended. RMF is not running online reports, or the TOD clock is stopped. No statistics are reported, but a later retry might be successful.  
X'10' Reporting is inoperative. The clock is in error, or the reporting facility is not installed. No statistics can be reported. |
<p>| SYSEVENT Summary | 68 z/OS V2R2 MVS Diagnosis: Reference |</p>
<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>This SYSEVENT is not traced by GTF.</td>
</tr>
</tbody>
</table>

**Mnemonic:**
- TRAXFRPT or EVENT54

**Meaning:**
Report the elapsed time for a completed transaction.

**Purpose:**
Allows a subsystem to use RMF to report transaction data.

**Circumstances:**
At the completion of a transaction, the subsystem provides SRM with the data RMF needs to report the number of transactions and the average elapsed time per transaction.

**Locks Required:**
None

**Inputs:**
- Reg 0, byte 3: SYSEVENT code.
- Reg 1, bytes 0-3: Contains the address of a serialized parameter list. The parameter list is mapped by the IHATRBPL mapping macro.

**Outputs:**
- Reg 15, bytes 0-3: Contains one of the following return codes:
  - X'00': The data for the transaction has been reported correctly.
  - X'08': Processing could not be completed at this time. No queue elements are available for recording data. No statistics are reported, but a retry could be successful.
  - X'0C': Reporting is temporarily suspended. RMF is not running online reports, or the TOD clock is stopped. No statistics are reported, but a later retry might be successful.
  - X'10': Reporting is inoperative. The clock is in error, or the reporting facility is not installed. No statistics can be reported.
### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>This SYSEVENT is not traced by GTF.</td>
</tr>
<tr>
<td></td>
<td><strong>Mnemonic:</strong> TRAXRPT or EVENT55</td>
</tr>
<tr>
<td></td>
<td><strong>Meaning:</strong> Report the start time for a completed transaction.</td>
</tr>
<tr>
<td></td>
<td><strong>Purpose:</strong> Allows a subsystem to use RMF to report transaction data.</td>
</tr>
<tr>
<td></td>
<td><strong>Circumstances:</strong> At the completion of a transaction, the subsystem provides SRM with the data RMF needs to report the number of transactions and the average elapsed time per transaction.</td>
</tr>
<tr>
<td></td>
<td><strong>Locks Required:</strong> None</td>
</tr>
<tr>
<td></td>
<td><strong>Inputs:</strong> Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Contains the address of a serialized parameter list. The parameter list is mapped by the IHATRBP1 mapping macro.</td>
</tr>
<tr>
<td></td>
<td><strong>Outputs:</strong> Reg 15, bytes 0-3: Contains one of the following return codes:</td>
</tr>
<tr>
<td></td>
<td>X'00' The data for the transaction has been reported correctly.</td>
</tr>
<tr>
<td></td>
<td>X'08' Processing could not be completed at this time. No queue elements are available for recording data. No statistics are reported, but a retry could be successful.</td>
</tr>
<tr>
<td></td>
<td>X'0C' Reporting is temporarily suspended. RMF is not running online reports. There currently is no report performance group (RPGN) specified for non-TSO/E users, or the TOD clock is stopped. No statistics are reported, but a later retry might be successful.</td>
</tr>
<tr>
<td></td>
<td>X'10' Reporting is inoperative. The clock is in error, or the reporting facility is not installed. No statistics can be reported.</td>
</tr>
</tbody>
</table>

| 38         | This SYSEVENT is not traced by GTF. |
|            | **Mnemonic:** DIRECTPO |
|            | **Meaning:** Directions for a page-out. |
|            | **Purpose:** To determine where to send a page being removed from real storage. |
|            | **Circumstances:** RSM issues this SYSEVENT to determine whether a page-out page that is being removed from real storage is to be moved to expanded storage or to auxiliary storage. |
|            | **Locks Required:** RSM or higher must be held on entry to SRM. |
|            | **Inputs:** Reg 0, bytes 0-1: ASID of the address space that owns the page. **Note:** For common area pages, the ASID is X'FFFF'. Reg 0, byte 3: SYSEVENT code. Reg 1, byte 3: contains: |
|            | X'01' If the page is a page-out page. |
|            | X'03' If the page is a VIO page. |
|            | X'04' If the page is in a hiperspace (a block-addressable data page). |
|            | X'05' Self-steal. |
|            | **Outputs:** Reg 15, byte 3: Return code: |
|            | X'00' Send the page to expanded storage. |
|            | X'04' Send the page to auxiliary storage. |
### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td>This SYSEVENT is not traced by GTF.</td>
</tr>
<tr>
<td></td>
<td><strong>Mnemonic:</strong></td>
</tr>
<tr>
<td></td>
<td>VIOVSAV</td>
</tr>
<tr>
<td></td>
<td><strong>Meaning:</strong> Can SAVE processing be performed for a VIO data set.</td>
</tr>
<tr>
<td></td>
<td><strong>Purpose:</strong> Used by ASM to ask SRM if a job associated with a particular VIO data set is eligible for journaling and therefore eligible for SAVE processing.</td>
</tr>
<tr>
<td></td>
<td><strong>Circumstances:</strong> This SYSEVENT will be issued when ASM receives a SAVE request for data in expanded storage.</td>
</tr>
<tr>
<td></td>
<td><strong>Locks Required:</strong> None</td>
</tr>
<tr>
<td></td>
<td><strong>Inputs:</strong> Reg 0, byte 3: SYSEVENT code. Reg 13: Contains the address of a 72 byte save area that SRM will use.</td>
</tr>
<tr>
<td></td>
<td><strong>Outputs:</strong> Return code 0 in register 15 indicates that the job is eligible for restart (ASM should process the SAVE). Return code 4 in register 15 indicates that the job is not eligible for restart and the SAVE can be ignored.</td>
</tr>
<tr>
<td>3A</td>
<td>This SYSEVENT is not traced by GTF.</td>
</tr>
<tr>
<td></td>
<td><strong>Mnemonic:</strong> MSCHECK</td>
</tr>
<tr>
<td></td>
<td><strong>Meaning:</strong> Check migration swap directions.</td>
</tr>
<tr>
<td></td>
<td><strong>Purpose:</strong> RSM issues MSCHECK to determine whether or not a swapped out address space should be moved from expanded to auxiliary storage.</td>
</tr>
<tr>
<td></td>
<td><strong>Circumstances:</strong> RSM issues the MSCHECK SYSEVENT to determine if primary or secondary working set pages should be migrated.</td>
</tr>
<tr>
<td></td>
<td><strong>Locks Required:</strong> RSM lock</td>
</tr>
<tr>
<td></td>
<td><strong>Inputs:</strong> Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td></td>
<td><strong>Output:</strong> Reg 15, bytes 0-3: Contains one of the following return codes: X'00': Page should be migrated X'04': Page should not be migrated</td>
</tr>
</tbody>
</table>
### SYSEVENT Summary

#### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3B</strong></td>
<td></td>
</tr>
<tr>
<td>Mnemonic:</td>
<td>OMVSWAIT</td>
</tr>
<tr>
<td>Meaning:</td>
<td>z/OS UNIX System Services wait.</td>
</tr>
<tr>
<td>Purpose:</td>
<td>Signal to SRM that z/OS UNIX System Services is changing status with respect to either an input or output wait.</td>
</tr>
<tr>
<td>Circumstances:</td>
<td>z/OS UNIX System Services indicates that the address space is either running in non-canonical mode and is waiting for input, or the z/OS UNIX System Services address space is waiting for output.</td>
</tr>
</tbody>
</table>
| Inputs:    | Reg 0, bytes 0-1: ASID.  
Reg 0, bytes 3: SYSEVENT code  
Reg 1, bytes 0-3: Contain the function code for the OMVSWAIT SYSEVENT as follows:  
1: OMVSWAIT address space is waiting for input  
2: OMVSWAIT address space is no longer waiting for input  
3: OMVSWAIT address space is waiting for output  
4: OMVSWAIT address space is no longer waiting for output |
| Outputs:   | Reg 15, bytes 0-3 contain one of the following return codes:  
X'00' SYSEVENT is successful  
X'04' The function code in register 1 is not valid |
| **3E**     |         |
| Mnemonic:  | STGIFAIL |
| Meaning:   | SYS1.STGINDEX data set inactive. |
| Purpose:   | Used by ASM to inform SRM that the SYS1.STGINDEX data set is not present or has become unusable. |
| Circumstances: | This SYSEVENT will be invoked either at master scheduler initiation, or later during VIO mainline processing when a SYS1.STGINDEX failure is detected. |
| Locks Required: | None |
| Inputs:    | Reg 0, byte 3: SYSEVENT code.  
Reg 13: Contains the address of a 72 byte save area that SRM will use. |
| Outputs   | None |
### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3F</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Mnemonic:</strong></td>
<td>CMDSTART</td>
</tr>
<tr>
<td><strong>Meaning:</strong></td>
<td>Command start.</td>
</tr>
<tr>
<td><strong>Purpose:</strong></td>
<td>Notify SRM that the current transaction is the first transaction for a TSO/E command.</td>
</tr>
<tr>
<td><strong>Circumstances:</strong></td>
<td>A TSO/E command was invoked by the terminal monitor program. SRM is not notified for subcommand invocation or commands invoked by processors other than the terminal monitor program.</td>
</tr>
<tr>
<td><strong>Locks Required:</strong></td>
<td>Local</td>
</tr>
<tr>
<td><strong>Inputs:</strong></td>
<td>Reg 0, bytes 0-1: ASID.</td>
</tr>
<tr>
<td></td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td></td>
<td>Reg 1, bytes 0-3: Contains the address of a fixed parameter list. The format of the parameter list is:</td>
</tr>
<tr>
<td></td>
<td><strong>Word</strong></td>
</tr>
<tr>
<td></td>
<td>Word 1, byte 0</td>
</tr>
<tr>
<td></td>
<td>Word 1, bytes 1-3</td>
</tr>
<tr>
<td></td>
<td>Words 2-3</td>
</tr>
<tr>
<td></td>
<td><strong>Outputs:</strong></td>
</tr>
<tr>
<td><strong>40</strong></td>
<td>This SYSEVENT is not traced by GTF.</td>
</tr>
<tr>
<td><strong>Mnemonic:</strong></td>
<td>CMDEND</td>
</tr>
<tr>
<td><strong>Meaning:</strong></td>
<td>Command end.</td>
</tr>
<tr>
<td><strong>Purpose:</strong></td>
<td>Notify SRM that the transaction is the last transaction for the current command.</td>
</tr>
<tr>
<td><strong>Circumstances:</strong></td>
<td>A TSO/E command processor has just ended and control is returned to the terminal monitor program.</td>
</tr>
<tr>
<td><strong>Locks Required:</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Inputs:</strong></td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td></td>
<td>Reg 1, byte 0: Contains X'80' if this command put the next command on an in-storage list.</td>
</tr>
<tr>
<td></td>
<td>Reg 1, bytes 1-3: Reserved.</td>
</tr>
</tbody>
</table>
### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| 41         | Mnemonic: WKLDCHG  
Meaning: Workload change.  
Purpose: Requests the SRM to perform fast workload acceptance (FWA).  
Circumstances: In an extended recovery facility (XRF) environment, an address space associated with an alternate subsystem issues this SYSEVENT to indicate that a takeover is in progress.  
Locks Required: None  
Inputs: Reg 0, bytes 0-1: ASID of the address space for which FWA is requested, or zero to indicate the current ASID.  
Reg 0, bytes 1-3: SYSEVENT code.  
Outputs: None. |
| 42         | Mnemonic: MIGCNSTR  
Meaning: Migration constraint.  
Purpose: Either indicates that there is a shortage of expanded storage frames eligible for migration on a least-recently-used (LRU) basis, or indicates that this shortage is relieved.  
Circumstances: RSM initially issues this SYSEVENT when there is a shortage of expanded storage frames eligible for migration on an LRU basis, and subsequently when this shortage is relieved.  
Locks Required: None  
Inputs: Reg 0, byte 3: SYSEVENT code.  
Reg 1, byte 3: contains:  
X'00' If migration is constrained by a lack of expanded storage frames eligible for migration on an LRU basis.  
X'01' If migration is no longer constrained because enough expanded storage frames have been made available for migration.  
X'02' If expanded storage is not available due to a lack of frames eligible for migration.  
X'03' If expanded storage is not available due to a lack of real storage for migration.  
Outputs: Reg 15, byte 3: Return code (issued only when migration is constrained):  
X'00' Disregard the storage isolation working set targets. This causes pages to be migrated regardless of these targets.  
X'04' Continue to honor the storage isolation working set targets. |
<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>43</td>
<td></td>
</tr>
</tbody>
</table>

**Mnemonic:**
MIGPURGE

**Meaning:**
Migration purge.

**Purpose:**
Either indicates that there is a shortage of available expanded storage frames and affords SRM the opportunity to designate an address space whose pages residing on expanded storage should be migrated, or indicates that the designated address space's pages have been migrated.

**Circumstances:**
RSM initially issues this SYSEVENT when there is a shortage of available expanded storage frames. The issuing of this SYSEVENT affords SRM the opportunity to designate an address space whose pages on expanded storage should be migrated (that is, before they would be selected for migration on a least-recently-used (LRU) basis). RSM subsequently issues this SYSEVENT after the expanded storage frames of the designated address space have been successfully migrated.

**Locks Required:**
None

**Inputs:**
- Reg 0, byte 3: SYSEVENT code:
- Reg 1, bytes 1-3: Address of a 3-word parameter area. (SRM also uses this parameter area to return information.) In the parameter area, words 1-3 are reserved for output.

**Outputs:**
- Reg 1, bytes 1-3: Address of a 3-word parameter area as follows:
  - **Word 1** Zero or the address of the ASCB of the designated address space
  - **Word 2** Zero or the number of pages to migrate.
  - **Word 3** Zero or the number of non-working set pages that are to be converted to secondary pages and migrated.
- Reg 15: Return code:
  - X'00' The address of the ASCB has been returned in the first word of the parameter area.
  - X'04' There are no more address spaces that have pages to purge. The parameter area is set to zeroes.
### SYSEVENT Summary

**Table 6. SYSEVENTs listed in order by hexadecimal code (continued)**

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| 44         | Mnemonic: MIGSWAP  
             | Meaning: Migration swap in.  
             | Purpose: Indicates that a primary working set has been chosen to be migrated to auxiliary storage and that SRM must swap in the designated address space.  
             | Circumstances: RSM issues this SYSEVENT when it has migrated the non-working set and secondary set pages of an address space, and has then encountered a primary working set page. SRM determines whether the address space should be swapped in to real storage and swapped out to auxiliary storage, or remain in expanded storage.  
             | Locks Required: None  
             | Inputs: Reg 0, bytes 0-1: ASID of the address space chosen to be swapped out to auxiliary storage.  
                        Reg 0, byte 3: SYSEVENT code.  
                        Reg 1: Address of the input parameter list, which has the following format:  
                        **Word 1** Contains the type of migration code:  
                            0 This address space is being migrated to free expanded storage frames.  
                            1 This address space is being purged from expanded storage. (SRM returned this address space using a MIGPURGE SYSEVENT.)  
                            2 This address space is being migrated because it has resided in expanded storage too long.  
                        **Word 2** Contains the number of expanded storage frames that are being migrated.  
             | Outputs: Reg 1: Address of the parameter list, which contains the following:  
                        **Word 1** Reserved for input.  
                        **Word 2** If the return code is zero, this word contains the number of pages that are being migrated. Otherwise, this word contains zero.  
                        Reg 15, byte 3: Return code:  
                            X'00' The address space is to be migrated.  
                            X'04' The address space cannot be migrated at this time. |
### SYSEVENT Summary

#### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| 45         | **Mnemonic:** SOUTSUSP  
**Meaning:** Suspended swap out.  
**Purpose:** Indicates that an address space swap-out was suspended because of a shortage of expanded storage frames.  
**Circumstances:**  
RSM issues this SYSEVENT when an address space cannot be swapped out because there are not enough free frames in expanded storage. SRM determines whether to end the swap-out, or to defer it until enough expanded storage frames are freed.  
**Locks Required:** None  
**Inputs:**  
Reg 0, bytes 0-1: ASID of the address space being swapped out.  
Reg 0, byte 3: SYSEVENT code.  
**Outputs:**  
Reg 15, byte 3: Return code:  
x'00' Defer the swap-out until enough expanded storage frames are freed and the SRB can be rescheduled.  
x'04' End the swap-out. |
| 46         | **Mnemonic:** UCBCHG  
**Meaning:** UCB change.  
**Purpose:** Notify SRM that a device or a channel path was varied online or offline or that a device was boxed.  
**Locks Required:** Any locks lower than SRM  
**Inputs:**  
Reg 0, byte 3: SYSEVENT code.  
Reg 1, bytes 0-3: UCB address.  
**Outputs:** None. |
| 47         | **Mnemonic:** DDR  
**Meaning:** Dynamic device reconfiguration.  
**Purpose:** Notify SRM that a dynamic device reconfiguration (DDR) function occurred.  
**Locks Required:** Any locks lower than SRM  
**Inputs:**  
Reg 0, byte 3: SYSEVENT code.  
Reg 1, bytes 0-3: Address of the parameter list, which contains the addresses of the “to” and “from” UCBs.  
**Outputs:** None. |
### SYSEVENT Summary

#### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| 48         | **Mnemonic:** CHANNEL  
**Meaning:** Change in status of the channel measurement facility.  
**Purpose:** Notify SRM that there is a change in the status of the channel measurement facility.  
**Locks Required:** Any locks lower than SRM  
**Inputs:** Reg 0, byte 3: SYSEVENT code.  
Reg 1, bytes 0-3: Address of the channel facilities recovery block (IOSDCFRB).  
**Outputs:** None. |
| 49         | **Mnemonic:** AVAILPUP  
**Purpose:** Reserve or release storage for dumping purposes.  
**Circumstances:** DUMPSRV reserves frames during IPL. DUMPSRV releases frames when needed for capturing a dump.  
**Locks Required:** None  
**Inputs:** Reg 0, byte 3: SYSEVENT code.  
Reg 1, bytes 0-3: Number of frames reserved.  
**Outputs:** None. |
| 4A         | **Mnemonic:** CPUTCONV  
**Meaning:** central processor time conversion.  
**Purpose:** Return the conversion factor needed to convert central processor seconds into service units.  
**Locks Required:** None  
**Inputs:** Reg 0, byte 3: SYSEVENT code.  
Reg 1, bytes 0-3: Conversion factor.  
**Outputs:** None. |
### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>4B</td>
<td></td>
</tr>
<tr>
<td>Mnemonic:</td>
<td>STGTEST</td>
</tr>
<tr>
<td>Meaning:</td>
<td>Storage test.</td>
</tr>
<tr>
<td>Purpose:</td>
<td>Indicate a snapshot of storage utilization.</td>
</tr>
<tr>
<td>Circumstances:</td>
<td>Used as an aid in determining how much storage can be exploited by an application.</td>
</tr>
<tr>
<td>Locks Required:</td>
<td>None</td>
</tr>
<tr>
<td>Inputs:</td>
<td>Reg 0, byte 0-1: ASID</td>
</tr>
<tr>
<td></td>
<td>Reg 0, byte 2: Request type, as follows:</td>
</tr>
<tr>
<td></td>
<td>X'80' Request for addressable storage (read, expanded, and auxiliary)</td>
</tr>
<tr>
<td></td>
<td>X'00' Request for block addressable storage (expanded only)</td>
</tr>
<tr>
<td></td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td></td>
<td>Reg 1, bytes 0-3: Address of the return area.</td>
</tr>
<tr>
<td>Outputs:</td>
<td>The contents of the return area are as follows:</td>
</tr>
<tr>
<td>Word 1</td>
<td>The amount of processor storage available, with little or no exposure to system paging or as directed by the installation through storage isolation, in units of 4K bytes.</td>
</tr>
<tr>
<td>Word 2</td>
<td>The amount of processor storage available, with some increased paging or as directed by the installation through storage isolation, in units of 4K bytes.</td>
</tr>
<tr>
<td>Word 3</td>
<td>The amount of total virtual storage available including auxiliary in units of 4K bytes.</td>
</tr>
<tr>
<td></td>
<td>Reg 15, byte 3: Contains X'00' if processing was successful.</td>
</tr>
<tr>
<td>4C</td>
<td></td>
</tr>
<tr>
<td>Mnemonic:</td>
<td>AUXTREQ</td>
</tr>
<tr>
<td>Meaning:</td>
<td>Auxiliary storage shortage threshold request.</td>
</tr>
<tr>
<td>Purpose:</td>
<td>Obtain the auxiliary storage shortage threshold.</td>
</tr>
<tr>
<td>Locks Required:</td>
<td>None</td>
</tr>
<tr>
<td>Inputs:</td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td>Outputs:</td>
<td>Reg 1, bytes 0-3: Auxiliary storage shortage threshold.</td>
</tr>
</tbody>
</table>
### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>4D</td>
<td></td>
</tr>
<tr>
<td><strong>Mnemonic:</strong></td>
<td>APPCREQ</td>
</tr>
<tr>
<td><strong>Meaning:</strong></td>
<td>APPC Request.</td>
</tr>
<tr>
<td><strong>Purpose:</strong></td>
<td>Record APPC conversations.</td>
</tr>
<tr>
<td><strong>Circumstances:</strong></td>
<td>There is an APPC request that requires a corresponding verb complete signal.</td>
</tr>
<tr>
<td><strong>Locks Required:</strong></td>
<td>None</td>
</tr>
</tbody>
</table>
| **Inputs:** | Reg 0, bytes 0-1: ASID or 0.  
Reg 0, byte 3: SYSEVENT code.  
Reg 1, bytes 0-3: Address of parameter list that indicates the type of verb request. |
| **Outputs:** | Reg 15, byte 3: Return code:  
X'00' Request was recorded.  
X'04' Request was incorrect.  
X'08' Request was incorrect.  
X'0C' Request was not recorded because no storage is available.  
X'10' Request was not recorded because address space is no longer active. |
| 4E         |         |
| **Mnemonic:** | INITID |
| **Meaning:** | Initiator identified. |
| **Purpose:** | Initialize address space information pertaining to the initiator. |
| **Circumstances:** | A started task is recognized as an initiator. |
| **Locks Required:** | None |
| **Inputs:** | Reg 0, bytes 0-1: ASID or 0.  
Reg 0, byte 3: SYSEVENT code.  
Reg 1, byte 3: SYSEVENT code.  
Reg 1, bytes 0-3: Address of parameter list that indicates the type of verb request. |
<p>| <strong>Outputs:</strong> | None. |</p>
<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4F</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Mnemonic:</strong></td>
<td>SADBRSTR</td>
</tr>
<tr>
<td><strong>Meaning:</strong></td>
<td>System activity display block (SADB) restart.</td>
</tr>
<tr>
<td><strong>Purpose:</strong></td>
<td>Asynchronous notification of the completion of a SADB request.</td>
</tr>
<tr>
<td><strong>Circumstances:</strong></td>
<td>A SADB failure is encountered and a restart is attempted.</td>
</tr>
<tr>
<td><strong>Locks Required:</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Inputs:</strong></td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td></td>
<td>Reg 1, bytes 0-3: Address of a three word parameter list.</td>
</tr>
<tr>
<td><strong>Outputs:</strong></td>
<td>None.</td>
</tr>
<tr>
<td><strong>50</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Mnemonic:</strong></td>
<td>CHKSWIN</td>
</tr>
<tr>
<td><strong>Meaning:</strong></td>
<td>Check address space status.</td>
</tr>
<tr>
<td><strong>Purpose:</strong></td>
<td>Determine whether an address space is currently swapped in, is in the process of being swapped in, or is ready to be swapped in.</td>
</tr>
<tr>
<td><strong>Circumstances:</strong></td>
<td>Issued by SMF to avoid unnecessary system overload.</td>
</tr>
<tr>
<td><strong>Locks Required:</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Inputs:</strong></td>
<td>Reg 0, bytes 0-1: ASID.</td>
</tr>
<tr>
<td></td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td><strong>Outputs:</strong></td>
<td>Reg 15, byte 3: Return code:</td>
</tr>
<tr>
<td></td>
<td>X'00': Address space is swapped in, in the process of being swapped in, or ready to be swapped in.</td>
</tr>
<tr>
<td></td>
<td>X'04': Otherwise.</td>
</tr>
<tr>
<td>Code (hex)</td>
<td>Meaning</td>
</tr>
<tr>
<td>------------</td>
<td>---------</td>
</tr>
</tbody>
</table>
| 51         | Mnemonic: REQFASD  
Meaning: Request fast path address space data  
Purpose: Allows a caller to retrieve address space data. This SYSEVENT is not traced by GTF.  
Circumstances: Application dependent.  
Locks Required: None  
Note: No serialization is obtained, runs under the caller's recovery. If invoked while WLM is changing policies or modes, an abend may result. In this case, no dumping or recording should be done as part of the caller's recovery. SYSEVENT REQASD can be used if serialization to prevent possible abends is desired.  
Inputs:  
Reg 0, bytes 0-1: ASID  
Reg 0, byte 3: SYSEVENT code  
Reg 1, bytes 0-3: address of IRARASD parameter list  
Reg 13: address of workarea  
Outputs:  
Reg 15: Return code:  
X'00' Successful completion.  
X'04' Processing could not be completed at this time.  
A mode switch or policy activation is in progress.  
A later reissue might be successful.  
X'08' The parameter list is too small.  
X'0C' The ASID is not valid.  
X'10' Work area is too small (only issued by REQFASD). |
| 52         | Mnemonic: REQASD  
Meaning: Request address space data  
Purpose: Allows a caller to retrieve address space data.  
Circumstances: Application dependent.  
Locks Required: None  
Inputs:  
Reg 0, bytes 0-1: ASID  
Reg 0, byte 3: SYSEVENT code  
Reg 1, bytes 0-3: address of IRARASD parameter list  
Outputs:  
Reg 15: Return code:  
X'00' The IRARASD parameter list has been filled in correctly.  
X'08' The IRARASD parameter list is too small. |
### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>53</strong></td>
<td></td>
</tr>
<tr>
<td>Mnemonic:</td>
<td>WLMSTCHG</td>
</tr>
<tr>
<td>Meaning:</td>
<td>WLM state change</td>
</tr>
<tr>
<td>Circumstances:</td>
<td>Issued when reporting is impacted due to a change in the state of the system.</td>
</tr>
<tr>
<td>Locks Required:</td>
<td>WLM local lock</td>
</tr>
<tr>
<td>Inputs:</td>
<td>Reg 0, byte 3: SYSEVENT code</td>
</tr>
<tr>
<td>Outputs:</td>
<td>None</td>
</tr>
</tbody>
</table>

| **54**     |         |
| Mnemonic:  | WLMCOLL |
| Meaning:   | WLM collect workload information |
| Purpose:   | To collect the workload activity information to be provided when a caller issues the IWMRCOLL service. |
| Circumstances: | Application dependent. |
| Locks Required: | WLM local lock |
| Inputs: | Reg 0, byte 3: SYSEVENT code |
| Reg 1, bytes 0-3: address of output area parameter list (mapped by the IWMRCAA data area). |
| Outputs: | Reg 15: Return code: |
| X'00' | Successful completion. |
| X'08' | Insufficient space for data. |

| **55**     |         |
| Mnemonic:  | REQSRMST |
| Meaning:   | Request SRM status |
| Purpose:   | To provide information about the status of SRM on a system. |
| Circumstances: | Application dependent. |
| Locks Required: | None |
| Inputs: | Reg 0, byte 3: SYSEVENT code |
| Reg 1: address of IRASRMST parameter list |
| Outputs: | Reg 15: Return code: |
| X'00' | Successful completion. The IRASRMST parameter list has been filled in. |
| X'08' | The IRASRMST parameter list is too small. |
### SYSEVENT Summary

**Table 6. SYSEVENTs listed in order by hexadecimal code (continued)**

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| 56         | **Mnemonic:** RCVPADAT  
**Meaning:** Receive policy data  
**Purpose:** Provides the latest information to SRM about how well each system in the sysplex is processing towards goals in a service policy.  
**Locks Required:** None  
**Inputs:**  
Reg 0, byte 3: SYSEVENT code  
Reg 1: address of policy data.  
**Outputs:** None. |
| 57         | **Mnemonic:** ENCCREAT  
**Meaning:** Create enclave  
**Purpose:** Create an enclave, validate the service class token, classify the enclave work, register the enclave as active, start transaction processing for the enclave.  
**Locks Required:** None  
**Inputs:**  
Reg 0, byte 3: SYSEVENT code, byte 2: SYSEVENT type  
Reg 1: address of parameter list  
**Outputs:**  
Enclave token  
Reg 15, byte 3 contains:  
\[X'00'\] If successful completion.  
\[X'04'\] If successful completion, but ENVT was expanded.  
\[X'08'\] If service class token sequence is not valid, and the enclave is not created.  
\[X'12'\] The maximum amount of active enclaves in the system has been reached. The enclave was not created. |
### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| 58         | MNEMONIC: ENCDELETE  
Meaning: Delete enclave  
Purpose: Delete an enclave, validate the enclave token, and end the enclave transaction.  
Locks Required: None  
Inputs: Reg 0, byte 3: SYSEVENT code.  
Reg 1: address of parameter list.  
Outputs:  
Reg 15, byte 3 contains:  
X'00': If successful completion. The enclave token has been deleted.  
X'04': If enclave SRBs are active at the time of delete.  
X'08': If input enclave token is not valid.  
X'0C': If enclave token represents foreign enclave.  
X'10': If enclave is already deleted. |
| 59         | MNEMONIC: STATEEXIT  
Meaning: WLM sysplex management state change exit  
Purpose: WLM uses STATEEXIT when a state change occurs on a remote system.  
Circumstances: WLM uses STATEEXIT when a state change occurs on a remote system that requires an update to the VTAM generic, sysplex router, or ARM-related data used by SRM on the receiving system.  
Locks Required: SRM lock  
Inputs: Reg 0, byte 3: SYSEVENT code.  
Reg 1: address of parameter list.  
Output: None. |
| 5A         | MNEMONIC: CLSFYENC  
Meaning: Re-classify enclave transactions  
Purpose: Indicates when enclave transactions may be re-classified during policy activation.  
Locks Required: None  
Inputs: Reg 0, byte 3: SYSEVENT code.  
Reg 13: address of standard 72 byte savearea.  
Outputs: None. |
### SYSEVENT Summary

**Table 6. SYSEVENTs listed in order by hexadecimal code (continued)**

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>5B</td>
<td></td>
</tr>
<tr>
<td>Mnemonic:</td>
<td>REQASCL</td>
</tr>
<tr>
<td>Meaning:</td>
<td>Request address space classification attributes</td>
</tr>
<tr>
<td>Purpose:</td>
<td>To query classification attributes of an address space</td>
</tr>
<tr>
<td>Circumstances:</td>
<td>Application dependent.</td>
</tr>
<tr>
<td>Locks Required:</td>
<td>SRM lock</td>
</tr>
<tr>
<td>Inputs:</td>
<td>Reg 0, byte 3: SYSEVENT code.</td>
</tr>
<tr>
<td></td>
<td>Reg 1: address of parameter list mapped by IRARASC.</td>
</tr>
<tr>
<td>Output:</td>
<td>Reg 15, bytes 0-3: Contains one of the following return codes:</td>
</tr>
<tr>
<td></td>
<td>X'00' Normal completion.</td>
</tr>
<tr>
<td></td>
<td>X'04' Information returned, but address space may not be in the service class or PGN assigned in the classification rules. For example, the address space may have been moved by the RESET operator command into a different PGN or service class, or the address space is assigned the system defined service class (SYSTEM, or SYSSTC).</td>
</tr>
<tr>
<td></td>
<td>X'08' Input parameter list is not properly initialized (eyecatcher, version or size specified is too small)</td>
</tr>
<tr>
<td></td>
<td>X'12' Classification information is not available. This may be true for MASTER address space, for an address space that is starting up or ending.</td>
</tr>
</tbody>
</table>

| 65         |         |
| Mnemonic: | ENCTSTATE |
| Meaning:  | Enclave state change. |
| Purpose:   | Inform SRM of enclave state changes. |
| Locks Required: | None |
| Inputs:    | Reg 0, byte 3: SYSEVENT code. |
|           | Reg 1, bytes 0-3: Contains the address of IRAEVPL. |
|           | Reg 13, bytes 0-3: Contains the address of a 72 byte save area. |
| Outputs:   | Reg 15, bytes 0-3: Set to 0; no non-zero return codes. |
### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| 66         | Mnemonic: HSPCQRY  
Meaning: Request recommendations for expanded storage management  
Purpose: Based on WLM's expanded storage policy, WLM will attempt to make a recommendation on a caller's home address space hiperspace pages to:  
- Use expanded storage  
- Recommend the caller make its own decision  
- Not use expanded storage  
Locks Required: None  
Inputs: Reg 13, bytes 0-3: Contains the address of a 72 byte save area.  
Output: Reg 15, byte 3: Contains one of the following return codes:  
- X'00' Yes, use expanded storage to cache HSP  
- X'04' Maybe, caller is to make its own decision.  
- X'08' No, do not use expanded storage |
| 69         | Mnemonic: WLMQUEUE  
Meaning: WLM work queue management event.  
Purpose: Inform SRM of changes in WLM-managed work queues.  
Locks Required: WLMQ, WLMRES, WLM local may be held on entry; none required by SRM.  
Inputs: Reg 0, byte 3: SYSEVENT code.  
Reg 1, bytes 0-3: SYSEVENT code.  
Reg 1, bytes 0-3: Contains the address of the parameter list mapped by IRAWLMPL.  
Outputs: Return codes in IRAWLMPL. |
| 6A         | Mnemonic: ENCASSOC  
Meaning: Enclave is associated with an address space.  
Purpose: Indicates to SRM that an enclave and an address space are related for purposes of storage management. IWMEJOIN and IWMSTBGN register this same association.  
Locks Required: None  
Inputs: Reg 0, byte 0-1: The high order bit of byte 0-1 must be set and the 8-byte enclave token must be specified in access register 0-1.  
Reg 0, byte 2: Contains the function code. The values are documented in IRAEVPL.  
Reg 0, byte 3: SYSEVENT code.  
Reg 1, bytes 0-3: Contains the address of the parameter list mapped by IRAWLMPL.  
Outputs: Reg 15, bytes 0-3: Contains the return code. The values are documented in IRAEVPL. |
### SYSEVENT Summary

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| 6B         | Mnemonic: IWMRESET  
Meaning: Reset address space.  
Purpose: Issued by WLM to change the service class of an address space. This is called by the RESET operator command and by the IWMRESET programming interface.  
Locks Required: None  
Inputs: Reg 0, bytes 0-1: ASID  
Reg 0, byte 2: The request type documented in IRAWLMLP.  
Reg 0, byte 3: SYSEVENT code  
Reg 1, bytes 0-3: Contains the address of the parameter list mapped by IRAWLMLP.  
Outputs: Reg 1, byte 3: Contains the return code. The values are documented in IRAWLMLP. |
| 6C         | This SYSEVENT is not traced by GTF.  
Mnemonic: SCTCNV  
Meaning: Convert service class token.  
Purpose: To convert a service class token into the service class index and report class index.  
Locks Required: None  
Inputs: Reg 1, bytes 0-3: Pointer to service class token.  
Outputs: Reg 0, bytes 0-3: Report class index.  
Reg 15, bytes 0-3: Service class index. |
| 6D         | Mnemonic: COPYTXSH  
Meaning: Copy transaction server history.  
Purpose: To re-establish server history relationships after a policy switch.  
Locks Required: None  
Inputs: Reg 1, bytes 0-3: Contains the address of the old policy mapped by IRAWMST.  
Outputs: None. |
### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| 6E         | Mnemonic: FREEAUX  
             Meaning: Return recommendation for free available AUX storage  
             Locks Required: None  
             Inputs: None  
             Outputs: Reg 0: Recommended number of free AUX slots |
| 6F         | Mnemonic: ENCS97  
             Meaning: Multisystem enclave SMF97 recording |
| 70         | Mnemonic: ENCXSYS  
             Meaning: Multisystem enclave processing |
| 71         | Mnemonic: ENCREADY  
             Meaning: Move enclave from inactive enclave queue to active enclave queue |
| 72         | Mnemonic: LPARMGMT  
             Meaning: LPAR management processing (BCP-only, not for external use) |
| 73         | Mnemonic: SUBSSORT  
             Meaning: CHPID sort I/O subsystem |
| 74         | Mnemonic: IOVIOLAT  
             Meaning: CHPID IO violate |
| 75         | Mnemonic: IODEL  
             Meaning: I/O subsystem delete processing |
| 76         | Mnemonic: NEWSTSI  
             Meaning: Store system information |
<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| **77**    | Mnemonic: QVS  
Meaning: Query virtual server  
Purpose: Return capacity information for software licensing.  
Locks Required: None.  
Inputs: Register 1 contains the address of the parameter list mapped by IRAQVS. Field QvsLen must be filled in with the length of the parameter list.  
Outputs: Contains the return code. The values are documented in IRAQVS. |
| **78**    | Mnemonic: REALSWAP  
Meaning: Swap Real Frames processing  
Purpose: Inform SRM about the start of recovering fixed real storage from a swappable address space.  
Locks Required: None. |
| **79**    | Mnemonic: ENCREG  
Meaning: Enclave registration/deregistration  
Purpose: Register an enclave to avoid premature deletion of the enclave. Undo (deregister) a previous registration of the enclave.  
Locks Required: None  
Inputs: Reg 0, byte 3: SYSEVENT code.  
Reg 1: Address of parameter list.  
Outputs: Reg 15, byte 3: Contains one of the following:  
X'00'  Successful completion  
X'04'  Enclave is delete pending  
X'08'  Invalid function code  
X'0C'  Invalid enclave token  
X'10'  Invalid registration token  
X'14'  Internal error |
### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>7D</strong></td>
<td>SYSEVENT Code: 7D (hex)</td>
</tr>
<tr>
<td></td>
<td>Mnemonic: ENCEWLM</td>
</tr>
<tr>
<td></td>
<td>Meaning: Work request management</td>
</tr>
<tr>
<td></td>
<td>Purpose: This SYSEVENT is used by WLM when a work request is started or stopped.</td>
</tr>
<tr>
<td></td>
<td>Locks Required: None</td>
</tr>
<tr>
<td></td>
<td>Inputs: Reg 0, byte 0-1: SYSEVENT code</td>
</tr>
<tr>
<td></td>
<td>Reg 1: Address of parameter list</td>
</tr>
<tr>
<td></td>
<td>Outputs: Reg 15, byte 3: contains one of the following:</td>
</tr>
<tr>
<td></td>
<td>X'00' Successful completion</td>
</tr>
<tr>
<td></td>
<td>X'04' Work request was not found</td>
</tr>
<tr>
<td></td>
<td>X'08' Invalid function code</td>
</tr>
<tr>
<td></td>
<td>X'0C' Invalid enclave</td>
</tr>
<tr>
<td></td>
<td>X'10' Parent work request handle is zero</td>
</tr>
<tr>
<td></td>
<td>X'14' Dependent enclave</td>
</tr>
<tr>
<td></td>
<td>X'18' Failed to validate process ID</td>
</tr>
<tr>
<td></td>
<td>X'1C' Output buffer for this request code was too small</td>
</tr>
</tbody>
</table>

| **7F**     | Mnemonic: CANCEL |
|            | Meaning: Notify SRM that an address space is being cancelled. |
|            | Purpose: When the CANCEL command for an address space has been accepted by the command processor, the command processor notifies SRM that cancel processing is starting for the address space. |
|            | Locks Required: Local |
|            | Inputs: Reg 0, bytes 0-1: ASID or zero. |
|            | Reg 0, byte 3: SYSEVENT code. |
|            | Outputs: Reg 1, byte 3: contains: |
|            | X'00' The CANCEL request was honoured. |
|            | X'04' The CANCEL request was not successful. |
## SYSEVENT Summary

### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
</table>
| 81         | Mnemonic: FULLPRE  
  Meaning: Changes the preemption of an address space.  
  Purpose: Sysevent allows to switch full preemption on and off.  
  Locks Required: None  
  Inputs: Reg 0, bytes 0-1: zero.  
  Reg 0, byte 2 contains a function code:  
  X'00' Switch full preemption on  
  X'01' Switch full preemption off  
  Reg 0, byte 3: SYSEVENT code.  
  Outputs: None |
| 82         | Mnemonic: PBGDD  
  Meaning: Pass descriptions for generic PB delay states from WLM to SRM.  
  Purpose: Internal sysevent called by WLM to link the descriptions for the generic delay states to SRM control blocks.  
  Locks Required: None  
  Inputs: Reg 0, bytes 0-1: zero.  
  Reg 0, byte 2 contains a function code:  
  X'00' Define descriptions  
  X'01' Retrieve descriptions  
  Reg 0, byte 3: SYSEVENT code.  
  Reg 1, contains the address of the area that contains the descriptions for the delay states.  
  Outputs: Reg 1: contains X'00' or the address of a data area that contains descriptions for delay states, which can be the case for function:  
  retrieve In this case, the use is obvious.  
  define In this case, the area is not used by SRM anymore and can be freed by the caller. This case happens when descriptions are replaced, which means the old descriptions are not needed anymore and thus are returned to be disposed by the caller.  
  Note: The caller is WLM code, which means no external users. |
### Table 6. SYSEVENTs listed in order by hexadecimal code (continued)

<table>
<thead>
<tr>
<th>Code (hex)</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>83</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mnemonic: QRYCONT</td>
</tr>
<tr>
<td></td>
<td>Meaning: Query contention.</td>
</tr>
<tr>
<td></td>
<td>Purpose: Returns contention information about SRM managed contentions for address spaces or enclaves.</td>
</tr>
<tr>
<td></td>
<td>Circumstances: Application dependent</td>
</tr>
<tr>
<td></td>
<td>Locks Required: Local</td>
</tr>
<tr>
<td></td>
<td>Inputs: Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Contains the address of a parameter list. The parameter list is mapped by the IRAEVPL macro.</td>
</tr>
<tr>
<td></td>
<td>Outputs: None.</td>
</tr>
</tbody>
</table>
SYSEVENT Summary
Chapter 4. SVC summary

This summary covers the following:
• Defines the five types of SVC routines.
• Briefly describes the SVC table.
• Summarizes each system-defined SVC instruction.

SVC routines

If you are writing an SVC, use the information here in conjunction with “User-Written SVC Routines” in z/OS MVS Programming: Authorized Assembler Services Guide. There are five types of SVC routines, which are distinguished as follows:

Residence
• SVC types 1, 2, and 6 are part of the nucleus.
• SVC types 3 and 4 reside in the link pack area (LPA).
  A type 3 routine is a single load module, while a type 4 routine consists of two or more load modules.

Naming conventions for SVC routines

SVC routines are load modules which are named as follows:
• The routines for SVC types 1, 2 and 6 are named IGCxxx, where xxx is the SVC number (decimal).
• The routines for SVC types 3 and 4 are named IGC00xxx, where xxx is the SVC number.

If a type 4 SVC routine calls for multiple SVC loads, the naming convention is to identify each load by increasing 00 by one. For example, IGC03xxx indicates the third module loaded within a type 4 SVC routine.

For types 3 and 4 SVC routines, the internal format of the SVC number (xxx) is zoned decimal with a four-bit sign code (1100) in the four high-order bits of the low order byte. Any low-order digit in a type 3 or 4 SVC number that is between 1 and 9 will be an EBCDIC character between A and I in the load module name. For example, the load module name for SVC 51 (X'33') would be IGC0005A because the low order byte is 1100 0001, or A in zoned decimal. A low-order zero in the SVC number corresponds to a hexadecimal C0 in the load module name.

ESR type 3 routines have names in the format IGX00nnn, where nnn is the decimal code placed in register 15 when SVC 109 is issued.

Register conventions

SVC routines are entered with the following data in the general purpose registers:
• Registers 0, 1, 13, and 15 – Contents when the SVC instruction was processed.
• Register 3 – Address of the CVT.
• Register 4 – Address of the TCB.
• Register 5 – Address of the current RB (for type 1 or type 6 SVC), or address of the SVRB for SVC routine (for type 2, 3, or 4 SVC).
• Register 6 – Address of the SVC routine entry point.
SVC Summary

- Register 7 – Address of the ASCB.
- Register 14 – Return address.
- Other registers – Unpredictable.

Locks
Each SVC routine is entered with the locks specified for the routine in the SVC table. In addition, each type 1 SVC routine is entered with the LOCAL lock held; this lock must not be released by the SVC. The LOCAL lock should be specified on the SVCPARM statement in the appropriate IEASVCxx parmlib member. An SVC routine can acquire any lock(s), and runs enabled or disabled depending on the lock held. To avoid disabled page faults, a type 3 or 4 SVC routine must fix its pages in central storage before acquiring a disabled lock (any lock other than LOCAL, CMS, or CMSEQDQ). A type 6 SVC cannot be suspended for a lock request. For more information, see Chapter 6, “Serialization summary,” on page 215.

Page faults
An SVC routine can be restarted after a page fault, provided that the routine does not hold a disabled lock.

SVC instructions
An SVC routine can issue SVC instructions, provided that it does not hold any lock. (Note: A type 1 SVC routine cannot issue SVC instructions, because it always holds at least the LOCAL lock.)

Other characteristics
All SVC routines are entered in supervisor state with a zero storage protect key (other keys can be used during processing). The SVC table specifies whether or not the caller must have APF authorization. A type 6 SVC runs disabled and must not enable.

SVC table
The SVC table is a system data area that contains one eight-byte entry for each system-defined or user-defined SVC instruction. Locate the SVC table as follows:
1. Find the CVTABEND field in the CVT control block. This points to the SCVT control block.
2. The SCVT$SVCT field in the SCVT points to the SVC table.

References For the CVT and SCVT control block, see z/OS MVS Data Areas in http://www.ibm.com/systems/z/os/zos/bkserv/

Each word entry in the SVC table contains the following information:
- Byte 0, bit 0 contains the AMODE.
- Bytes 0-3 contain the SVC entry point address.
- Bytes 0-3 contain the SVC entry point address.
- Byte 4 contains the SVC type and authorization:

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>000.</td>
<td>is type 1</td>
</tr>
<tr>
<td>100.</td>
<td>is type 2</td>
</tr>
<tr>
<td>110.</td>
<td>is type 3 or 4</td>
</tr>
<tr>
<td>001.</td>
<td>is type 6</td>
</tr>
</tbody>
</table>
Type

.... 0... is an unauthorized SVC
.... 1... is an authorized SVC
.... .1.. is an extended SVC
.... ..1. is a non-preemptive SVC
.... ...1 SVC can be assisted.

• Byte 5 contains the SVC attributes:

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1... ....</td>
<td>SVC can be issued in access register mode.</td>
</tr>
</tbody>
</table>

• Byte 6 indicates which locks are to be obtained by the SVC first level interruption handler (FLIH) before the SVC routine is processed:
  - X'80' is LOCAL lock.
  - X'40' is CMS lock.
  - X'20' is SRM lock.
  - X'10' is SALLOC lock.
  - X'08' is DISP lock.

For more information about defining SVCs to the SVC Table, see z/OS MVS Initialization and Tuning Reference.

System SVC instructions

The rest of this topic provides a summary of each SVC, its associated macro, and the following information:

• The SVC instruction number in assembler language (decimal) and machine language (hexadecimal).
  Example: SVC 16 (0A10)
• The macro instructions that generate the SVC instruction.
• The SVC type (1, 2, 3, 4, or 6).
• Locks acquired by the SVC routine or by the SVC FLIH.
• Authorized program facility (APF) protected, if applicable. Unless otherwise noted, the SVC in question is not APF protected.
• Generalized trace facility (GTF) trace data:
  - Information passed to the SVC routine in general registers 15, 0, and 1. This includes the extended SVC routing codes for SVC 109, SVC 116, and SVC 122.
  - The PLIST for the SVC. This is information related to the request triggered by the SVC that is captured by GTF.
  - Additional information displayed in GTF comprehensive trace records (but omitted in GTF minimal trace records).

For the general format of an SVC GTF trace record, see the GTF section of z/OS MVS Diagnosis: Tools and Service Aids.

SVCs and associated macros

The following topic contains two tables that list SVCs with their associated macros.

• Table 7 on page 98 contains a list of decimal SVC numbers, showing the associated macros for each SVC.
Table 8 on page 103 contains a list of macros in alphabetical order showing the associated SVC number for each.

**Table 7. SVC numbers and associated macros**

<table>
<thead>
<tr>
<th>DEC</th>
<th>HEX</th>
<th>Macro</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>(00)</td>
<td>EXCP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>XDAP</td>
</tr>
<tr>
<td>1</td>
<td>(01)</td>
<td>PRTOV</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WAIT</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WAITR</td>
</tr>
<tr>
<td>2</td>
<td>(02)</td>
<td>POST</td>
</tr>
<tr>
<td>3</td>
<td>(03)</td>
<td>EXIT</td>
</tr>
<tr>
<td>4</td>
<td>(04)</td>
<td>GETMAIN (TYPE 1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(get storage below 16 megabytes - with R operand)</td>
</tr>
<tr>
<td>5</td>
<td>(05)</td>
<td>FREEMAIN (TYPE 1)</td>
</tr>
<tr>
<td>6</td>
<td>(06)</td>
<td>LINK</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LINKX</td>
</tr>
<tr>
<td>7</td>
<td>(07)</td>
<td>XCTL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>XCTLX</td>
</tr>
<tr>
<td>8</td>
<td>(08)</td>
<td>LOAD</td>
</tr>
<tr>
<td>9</td>
<td>(09)</td>
<td>DELETE</td>
</tr>
<tr>
<td>10</td>
<td>(0A)</td>
<td>FREEMAIN (free storage below 16 megabytes) GETMAIN (get storage below 16 megabytes - with R operand)</td>
</tr>
<tr>
<td>11</td>
<td>(0B)</td>
<td>TIME</td>
</tr>
<tr>
<td>12</td>
<td>(0C)</td>
<td>SYNCH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SYNCHX</td>
</tr>
<tr>
<td>13</td>
<td>(0D)</td>
<td>ABEND</td>
</tr>
<tr>
<td>14</td>
<td>(0E)</td>
<td>SPIE</td>
</tr>
<tr>
<td>15</td>
<td>(0F)</td>
<td>ERREXCP</td>
</tr>
<tr>
<td>16</td>
<td>(10)</td>
<td>PURGE</td>
</tr>
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|     |     | STFSMODE  
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|     |     | STSIZE  
|     |     | STTMPMD  
|     |     | STTRAN  
|     |     | TCLEARQ  |
| 95  | (5F) | SYSEVENT  |
| 96  | (60) | STAX  |
| 97  | (61) | No macro  |
| 98  | (62) | PROTECT  |
| 99  | (63) | DYNALLOC  |
| 100 | (64) | No macro  |
| 101 | (65) | QTIP  |
| 102 | (66) | AQCTL  |
| 103 | (67) | XLATE  |
| 104 | (68) | TOPCTL  |
| 105 | (69) | IMGLIB  |
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| 107 | (6B) | MODESET  |
| 108 | (6C) | Reserved  |
| 109 | (6D) | ESPIE  
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|     |     | MFDATA(RMF)  
|     |     | MFSTART(RMF)  
|     |     | MSGDISP  
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| 111 | (6F) | No Macro  |
| 112 | (70) | PGRLSE  |
| 113 | (71) | PGANY  
|     |     | PGFIX  
|     |     | PGFREE  
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| 118 | (76) | Reserved  |
| 119 | (77) | TESTAUTH  |
| 120 | (78) | FREEMAIN (free storage above 16 megabytes - TYPE 1)  
 | | | GETMAIN (get storage above 16 megabytes - TYPE 1) operand  |
| 121 | (79) | No Macro (for VSAM)  |
| 122 | (7A) | EVENTS(TYPE 2)  
 | | | Extended LINK  
 | | | Extended LOAD  
 | | | Extended XCTL  
 | | | LINK - Extended LINK  
 | | | LOAD - Extended LOAD  
 | | | Service Processor Call  
 | | | STIMERE  
 | | | VALIDATE  |
| 123 | (7B) | PURGEDQ  |
| 124 | (7C) | TPIO  |
| 125 | (7D) | EVENTS(TYPE 1)  |
| 126 | (7E) | Reserved  |
| 127 | (7F) | Reserved  |
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| 131 | (83) | RACINIT  |
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| 133 | (85) | RACDEF  |
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| 137 | (89) | ESR(TYPE 6)  |
| 138 | (8A) | PGSER  |
| 139 | (8B) | CVAF  
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### Table 7. SVC numbers and associated macros (continued)

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### Table 8. Macros and associated SVC number (continued)

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## Table 8. Macros and associated SVC number (continued)

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### Table 8. Macros and associated SVC number (continued)

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### SVC descriptions

**SVC 0 (0A00)**

EXCP/XDAP macro - is type 1, gets LOCAL lock.

Calls module IECVEXCP, entry point IGC000.

GTF data is:

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</table>
SVC Summary

R15  No applicable data.
R0   Address of the IOBE when IOBFLAG4 is on in the IOB.
R1   Address of the IOB associated with this request.

| DDNAME  | cccccccc | Name of the associated DD statement. |
| DCB     | xxxxxxxx | Address of the DCB associated with this I/O request. |
| DEB     | xxxxxxxx | Address of the DEB associated with this I/O request. |

SVC 1 (0A01)

WAIT/WAITR/PRTOV macro - is type 1, gets LOCAL lock.

Calls module IEAVEWAT, entry point IGC001.

GTF data is:
R15  No applicable data.
R0   Count of the number of events being waited for. If the count is zero, the wait is treated as a NOP. Bit 0 equals one indicates a long wait.
R1   If positive, the address of the ECB being used. If complemented, the address of a list of ECB addresses.
PLIST The list is a series of fullwords, each containing the address of an ECB.

SVC 2 (0A02)

POST macro - is type 1, gets LOCAL lock.

Calls module IEAVEPST, entry point IGC002.

GTF data is:
R15  No applicable data.
R0   For POST: The completion code to be placed in the ECB.
R1   For POST: The address of the ECB to be posted or (if the high-order bit is 1), the address of a parameter list as follows:

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<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
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<tbody>
<tr>
<td>0-3</td>
<td>Address of the ECB.</td>
</tr>
<tr>
<td>4-7</td>
<td>Address of the ASCB for the address space that contains the ECB</td>
</tr>
<tr>
<td>8-11</td>
<td>Address of the ERRET routine.</td>
</tr>
<tr>
<td>12</td>
<td>Bits 0-3 contain the storage protection key of the ECB if the high-order bit of R0 is on and the high-order bit of R1 is on.</td>
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</table>

SVC 3 (0A03)

EXIT macro - is type 1, gets LOCAL lock.

Calls module IEAVEOR, entry point IGC003.

GTF data is:
SVC Summary

R0,R1  No applicable data.
R15  The low order three bytes contain the system/user completion code, which is placed into the TCBCMPC when the exiting RB causes normal task ending.

SVC 4 (0A04)

GETMAIN macro - is type 1, gets LOCAL lock.

Calls module IGVVSM24, entry point IGC004.

Note: The GETMAIN/FREEMAIN interface provided by SVC 4 can be called in either 24- or 31-bit addressing mode. Storage area addresses and lengths are treated as 24-bit addresses and values. If the caller’s addressing mode is 31-bit, the parameter list address and the pointers to the length and address lists in the parameter list, if present, are treated as 31-bit addresses. Otherwise, they are treated as 24-bit addresses with the high byte of the address ignored.

GTF data is:
R15 and R0  No applicable data.
R1  Address of the parameter list passed when the SVC was called.

PLIST  10 bytes in length; bytes are as follows:

Bytes 0-3  a. Single area request - length requested.
       b. Variable request - address of a doubleword containing the minimum maximum length requested. Format is:
          Bytes
          0       Zero.
          1-3     Minimum length.
          4       Zero.
          5-7     Maximum length.
       c. List request - address of a list of lengths requested (one word per request); last word contains X’80’ in byte 0.
          4       Zero
          5-7     a. Single area request - address of a word GETMAIN initializes with the address of the area acquired.
                   b. Variable area request - address of a doubleword GETMAIN initializes with the address of the area acquired and the actual length allocated.
                   c. List request - address of a list of areas that GETMAIN initializes with the addresses of the areas allocated for each requested length in the length list.
          8       Flag byte, format is:
                   10     Request is for storage aligned on a page boundary.
                   00     Unconditional single area request.
                   20     Conditional single area request.
                   80     Unconditional list request.
                   A0     Conditional list request.
                   C0     Unconditional variable request.
                   E0     Conditional variable request.
          9       Subpool identification.
Register contents on return:

R1  unchanged.
R15

• 00, if storage is available.
• 04, if storage is not available.

**SVC 5 (0A05)**

FREEMAIN macro - is type 1, gets LOCAL lock.

Calls module IGVVSM24, entry point IGC005.

**Note:** The GETMAIN/FREEMAIN interface provided by SVC 5 can be called in either 24-bit or 31-bit addressing mode. Storage area addresses and lengths are treated as 24-bit addresses and values. If the caller's addressing mode is 31-bit, the parameter list address and the pointers to the length and address lists in the parameter list, if present, are treated as 31-bit addresses. Otherwise, they are treated as 24-bit addresses with the high byte of the address ignored.

GTF data is:

**R15 and R0**

No applicable data.

**R1** Address of the input parameter list.

**PLIST** 10 bytes, contents are:

**Bytes**

0-3  
  a. Single area request - length to be freed.
  b. List area request - address of a list of FREEMAIN length requests (1 word per request); last word contains X'80' in byte 0.
  c. Variable Request-zero

4-7  
  a. Single area request - address of a word containing the address of the area to be freed.
  b. List area request - address of a list of addresses of areas to be freed.
  c. Variable request-address of a doubleword containing the address to be freed in the first word and the length to be freed in the second word.

8  
  Flag byte, format is:
  00  Unconditional single area request.
  20  Conditional single area request.
  80  Unconditional list area request.
  A0  Conditional list area request.
  C0  Unconditional variable request.
  E0  Conditional variable request.

9  
  Subpool identification.

Register contents on return:

**R15** 00 if the storage was freed 04 if the status of the storage is unchanged.
SVC Summary

**SVC 6 (0A06)**

`LINK or LINKX` macro - is type 2, gets LOCAL and CMS locks.

Calls module CSVLINK, entry point IGC006.

GTF data is:

- **R15** Address of the parameter list.
- **R0** No applicable data.
- **R1** Address of the user optional parameter list.

**NAME** `ccccccc` entry point/directory entry (EP/DE) name of the module to be linked to or given control.

**PLIST** The parameter list is twelve bytes long; the format is:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>If the high-order bit of byte 0 is set to one, then bytes 0-3 contain the address of the directory entry list. If the high-order bit of byte 0 is set to zero, then bytes 0-3 contain the address of the entry point name.</td>
</tr>
<tr>
<td>4</td>
<td>Indicates an extended parameter list. If X'80'.</td>
</tr>
<tr>
<td>5</td>
<td>DCB address or zero.</td>
</tr>
<tr>
<td>8</td>
<td>Contains the address of routine to get control on error (ERRET parameter) if byte 4 is X'80'.</td>
</tr>
</tbody>
</table>

**SVC 7 (0A07)**

`XCTL or XCTLX` macro - is type 2, gets LOCAL and CMS locks.

Calls module CSVXCTL, entry point IGC007.

GTF data is:

- **R15** Address of the parameter list.
- **R0 and R1** No applicable data.

**NAME** `ccccccc` entry point/directory entry (EP/DE) name of the module to be linked to or given control.

**PLIST** The parameter list is eight bytes long; the format is:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>If the high-order bit of byte 0 is set to one, then bytes 0-3 contain the address of the directory entry list. If the high-order bit of byte 0 is set to zero, then bytes 0-3 contain the address of the entry point name.</td>
</tr>
<tr>
<td>4</td>
<td>No applicable data.</td>
</tr>
<tr>
<td>5</td>
<td>DCB address or zero.</td>
</tr>
</tbody>
</table>
SVC 8 (0A08)

**LOAD** macro - is type 2, gets LOCAL and CMS locks.

Calls module CSVLOAD, entry point IGC008.

GTF data is:

- **R15**: No applicable data.
- **R0**: For the macro instruction specifying the EP or EPLOC parameter, contains the 24- or 31-bit address of the entry point name.
  - For the macro instruction specifying the DE parameter, contains the address of the directory entry list in two's-complement form.
- **R1**: 24- or 31-bit DCB address. The high-order bit indicates whether a return was requested.

**NAME** cccccccc entry point/directory entry name of the module to be loaded.

Register contents on return:

- **R0**: Virtual storage address of the designated entry point
- **R1**: Bytes
  - 0: Authorization code of the loaded module
  - 1-3: Length of the loaded module in doublewords
- **R15**: If equal to 00 - LOAD function was successful. If greater than 00 - LOAD function was not successful.

SVC 9 (0A09)

**DELETE** macro - is type 2, gets LOCAL and CMS locks.

Calls module CSVDELET, entry point IGC009.

GTF data is:

- **R15** and **R1**: No applicable data.
- **R0**: Address of the entry point name.

**NAME** cccccccc entry point name of the module to be deleted.

Register contents on return:

- **R15**: 00 - successful completion of requested function
  - 04 - request was not issued by the task that issued the LOAD macro instruction or attempt was made to delete a system module.

SVC 10 (0A0A)

**GETMAIN/FREEMAIN** macro with R operand - is type 1, gets LOCAL lock.

Calls module IGVVSM24, entry point IGC010.
Note:

1. SVC 10 cannot be used to GETMAIN or FREEMAIN storage whose address is greater than 16 megabytes.

2. The GETMAIN/FREEMAIN interface provided by SVC 10 can be called in either 24-bit or 31-bit addressing mode. Storage area addresses and lengths are treated as 24-bit addresses and values. If the caller is in 31-bit addressing mode, and the caller passes a 31-bit address, the address is treated as a 24-bit address with the high-order byte of the address ignored.

GTF data is:

**R15** No applicable data.

**R0** Number of the subpool requested in the high-order byte, and the length of the area requested in bytes 1-3. (A zero length is required for a subpool FREEMAIN).

**R1** Any negative value if the request is for a GETMAIN. Address of the storage to be freed if the request is for a FREEMAIN. Zero if the request is for a FREEMAIN of an entire subpool.

Register contents on return:

**R1** Address of the allocated virtual storage area if the request was for a GETMAIN

**R15** 00 - storage available if the request was for a GETMAIN; storage freed if the request was for a FREEMAIN

04 - storage not available if request was for a GETMAIN; storage status unchanged if request was for a FREEMAIN

### SVC 11 (0A0B)

**TIME** macro - is type 3, gets no lock.

Calls module IEAVRT01, entry point IGC0001A.

GTF data is:

**R15** No applicable data.

**R0** Address of the area into which the microsecond elapsed time or the current TOD clock value is to be placed.

**R1** Low-order byte has flag bits that designate that the time will be returned in register 0, and in what format.

<table>
<thead>
<tr>
<th>Bits</th>
<th>Register 0 Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>....</td>
<td>0000 32-bit unsigned binary number representing the number of elapsed timer units.</td>
</tr>
<tr>
<td>....</td>
<td>0001 Elapsed time in hundredths of a second.</td>
</tr>
<tr>
<td>....</td>
<td>0010 Packed decimal digits representing elapsed time in hours, minutes, seconds,</td>
</tr>
<tr>
<td></td>
<td>tenths of a second, and hundredths of a second (HHHMMSShh).</td>
</tr>
<tr>
<td>....</td>
<td>0011 Elapsed time where bit 51 of doubleword is equivalent to one microsecond.</td>
</tr>
<tr>
<td>....</td>
<td>0100 The current TOD clock value is to be returned.</td>
</tr>
</tbody>
</table>
SVC 12 (0A0C)

**SYNCH** or **SYNCHX macro** is type 2, gets LOCAL and CMS locks.

Calls module CSVSYNC, entry point IGC012.

GTF data is:

**R15**  Address of the entry point for the processing program that is to be given control.

**R14**  Points to a parameter list if the low order bit of register 15 is set. The parameter list is in the following format:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Flag bits as follows:</td>
</tr>
</tbody>
</table>

| 1... | .... | Restore R2 - R12 at exit. |
| .000 | .0.  | Reserved (must be zero).  |
| .... | .0.  | Routine to receive control in 24-bit mode. |
| .... | .01  | Addressing mode of called routine is defined via R15; if the high order bit of R15 is set, the routine receives control in 31-bit mode: otherwise, 24 bit mode. |
| .... | .10  | Routine to receive control in 31-bit mode. |
| .... | .11  | Routine to receive control in the addressing mode of the caller. |

| 1     | Flag bits as follows: |

| 1... | .... | Key of called routine supplied via KEYADDR option. |
| .1... | .... | Called routine to receive control in supervisor state. |
| .00  | 0000 | Reserved (must be zero). |

| 2     | The high order 4 bits contain the key which is supplied via the KEYADDR option. The low order 4 bits must be zero. |

| 3     | Macro level - if byte 3 = 1, the parameter list includes 4 bytes for the KEYMASK field. |

| 4     | Address of a halfword containing the keymask value supplied via the KEYMASK option. |

**R0 and R1**
Optional user parameters.

SVC 13 (0A0D)

**ABEND** macro - is type 4, gets LOCAL lock.

Calls module IEAVTRT2, entry point IGC0101C.
SVC Summary

GTF data is:

**R15**  Contains a 4 byte reason code if the REASON parameter is specified. If the REASON parameter is not specified, then R15 contains no applicable data.

**R0**  If the DUMPOPT or DUMPOPTX parameter is specified, R0 contains the address of a parameter list valid for the SNAP or SNAPX macro.

**R1**  Applicable if SVC 13 was not called by the ABTERM routines; format is:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Flag byte</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1...</td>
<td>DUMP option.</td>
</tr>
<tr>
<td>..1.</td>
<td>STEP option.</td>
</tr>
<tr>
<td>...1</td>
<td>DUMPOPT specified.</td>
</tr>
<tr>
<td>....1</td>
<td>Entry to RTM for memory purge.</td>
</tr>
<tr>
<td>....1</td>
<td>Exit to RTM (normal end of task).</td>
</tr>
<tr>
<td>....1</td>
<td>REASON parameter specified.</td>
</tr>
<tr>
<td>....xx</td>
<td>Reserved.</td>
</tr>
</tbody>
</table>

1-3  ABEND Completion code.

**CMP CODE**

The ABEND completion code if SVC 13 was called by ABTERM routines. It is the content of the TCBRCMP field of the current TCB at the time the SVC interruption occurred. If ABEND recursion has occurred, this field contains the recursive completion code.

**SVC 14 (0A0E)**

SPIE macro - is type 3, gets LOCAL lock.

Calls module IEAVTESP, entry point IGC0001D.

GTF data is:

**R15 and R0**  No applicable data.

**R1**  Address of the PICA.

<table>
<thead>
<tr>
<th>PICA</th>
<th>Address</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>PICA</td>
<td>xxxxxxx</td>
<td>PICA from the associated SPIE macro instruction.</td>
</tr>
</tbody>
</table>

**SVC 15 (0A0F)**

ERREXCP macro - is type 1, gets LOCAL, IOSUCB, IOSYNCH, and CPU locks.

Calls module IECVPST, entry point IGC015.

APF protected via TESTAUTH. GTF data is:

**R15 and R0**  No applicable data.

**R1**  Address of the IOSB that was assigned to this I/O request by IOS.
DDNAME ccccccc  Name of the DD statement associated with this I/O request.
U/A        Indicates that the DDNAME was unavailable because the DEB
            address was verified as not valid.
********   A program check occurred trying to gather the DDNAME.

ERP flags:
• IOSFLA flags from IOSB assigned to this request by IOS.
• Format is:

<table>
<thead>
<tr>
<th>Flag</th>
<th>Comments</th>
</tr>
</thead>
</table>
| IOSERR | Error routine is in control of this SRB. If the ERP returns  
        with this bit on a retry is assumed. If the ERP returns with  
        this bit off, the error is considered to be permanent or  
        corrected depending on the setting of bit IOSEX. |
| IOSEX | Exceptional condition is set by IOS. Upon return from the  
        abnormal or normal exit with this bit on, ERP processing is  
        initiated if this is an initial error condition. If this bit is off,  
        it is assumed that the exit corrected the condition or did  
        not consider it an error. When the error routine returns  
        with this bit on and bit IOSERR is off, the error is  
        considered permanent. When the ERP returns with both  
        bits off, the error has been corrected. |
| x.x  | No meaning for ERREXCP. |

TCB  Address of the TCB associated with the SRB scheduled to handle this I/O request.

DCUU  Device number, in channel-unit form, of the device associated with this I/O request.

SVC 16 (0A10)

PURGE macro - is type 2, gets LOCAL, IOSUCB, CMS, and IOSYNCH locks.

Calls module IOSPURGA, entry point IGC016.

GTF data is:
R15 and R0  No applicable data.
R1  If positive, contains the address of the purge parameter list. If negative  
    (complemented), contains the address of the IPIB.

DDNAME ccccccc  Name of the DD statement associated with the requests being  
    purged.
U/A        Indicates that the DDNAME was unavailable because the DEB  
            address was unavailable.
********   Indicates that a program check interruption occurred while  
            trying to gather the DCB address or DDNAME.
DCB xxxx  Address of the DCB associated with the purge request.
U/A        Unavailable because PPLDSID was 0 or verified as an  
            incorrect DEB address.
****  Indicates that a program check interruption occurred while  
        trying to gather the DCB address.

PLIST  Purge parameter list. Format is:
Bytes

0  PLOPT1 Option byte 1. Bit settings are:
PPLDS  1...  .... If DSID purge was requested (bit 6), purge a single DSID (see PPLDSID). If zero, purge the DSID list.
PPLPOST  .1.  .... ECBs associated with I/O requests purged should be posted with X'48'.
PPLHIO  .1.  .... Halt the I/O requests and do not build a PIRL.
PPLREL  ...1  .... Purge only the I/O requests marked related and associated with the argument.
  ....  x...  Reserved; must be zero.
PPLRB  ....  .1.. Do not purge the RB chain for asynchronously scheduled routines.
PPLTASK  ....  ..1.  If ASID purge is not specified, purge a single TCB.
PPLEXR  ....  ...1  Option byte 2 is present and contains valid information.
1-3  PPLDSIDA  Address of the DEB, the argument used for DSID purge.
4  PPLCC  Completion code.
   If bit 7 of option byte 1 is 0, the only completion code is X'7F'. If bit 7 of option byte 1 is 1, the completion codes are as follows:
   X'7F'  Successful completion of the purge request.
   X'40'  Unsuccessful completion. Details in register 15.
5-7  PPLTCBA  Address of the TCB.
8  PPLDVRID  Driver ID for the DSID purge – X'00' implies EXCP is the owner.
9-11  PPLPIRL  This is the address of the anchor from which the purged I/O Request List (PIRL) will be chained. The anchor is a fullword whose right most 3 bytes are used for a pointer to the PIRL. If the address in the anchor is X'FFFFFF', no I/O request was purged.
12  PLOPT2  Option byte 2, present if PLOPT1, bit 7 is 1.
PPLCAN  1...  .... Cancel Command request.
  ....  ..x..  Reserved; must be zero.
PPLMEM  ..1.  .... Address space purge is specified.
  ..0.  .... Address space purge is not specified.
PPLVC  ...1  .... Perform the DSID validity check.
PLOTCB  ....  ...1  .... Purge the I/O requests so that when they are restored they will be associated with the TCB that originated them.
  ....  0...  .... Purge the I/O requests so that when they are restored they will be associated with the restoring TCB.
PPLTSKM  ....  .1..  Purge called by task ending.
PPLBSS  ....  ..1.  Purge was called by the RCT – bypass the status start SRBs.
PPLUCB  ....  ...1  Purge DSID by UCB only.
13  Reserved; must be zero.
14-15  PPLASID  ASID of address space with which I/O requests are associated.
SVC Summary

14-15  PPLOFSET  Offset of UCB within DEB for purge by UCB only. PPLUCB is on.

SVC 17 (0A11)
RESTORE macro - is type 3, gets no lock.

Calls module IGC0001G, entry point IGC017.

GTF data is:

R15 and R0
No applicable data.

R1  Address of the pointer to the PIRL created by PURGE or a pointer to the fullword of X'xxFFFFFF', which means there are no requests to RESTORE.

PLIST  Bytes, as follows:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PIROPT</td>
<td>Option byte, bits meaning:</td>
</tr>
<tr>
<td></td>
<td>PIROTCB</td>
<td>1... .... Restore the I/O requests to the TCB(s) that originally started them. If they were not purged with that possibility, restore them to the restoring TCB.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0... .... Restore the I/O requests to the restoring TCB.</td>
</tr>
<tr>
<td></td>
<td>PIRSUPCK</td>
<td>.1... .... Perform the RESTORE TCB validity check even though the caller can be in supervisor state.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.0... .... Perform the TCB validity check based on the state of the caller.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>..xx xxxx Reserved; must be zero.</td>
</tr>
<tr>
<td>2</td>
<td>PIRCNT</td>
<td>Number of PIRRSTR entries in the PIRL.</td>
</tr>
<tr>
<td>3-4</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>5-8</td>
<td>PIRRSTR</td>
<td>The pointer to the I/O request list in the form required by the appropriate driver.</td>
</tr>
<tr>
<td>9-C</td>
<td>PIRDVRU</td>
<td>The pointer to additional data the driver maintains.</td>
</tr>
</tbody>
</table>

Note: PIRRSTR and PIRDVRU are repeated the number of times specified in PIRCNT.

SVC 18 (0A12)
BLDL/FIND (Type D) macro - is type 2, gets no lock.

Calls module IGC018.

GTF data is:

R15  If bit 0 is on and bits 1–32 point to 8 bytes before the parameter list, then an 8-byte BLDL PLIST prefix exists.

R0  Address of the parameter list. If bit 0 is on, then R15 might point to a BLDL PLIST prefix.

R1  DCB address. If the address is positive, this request is a BLDL request. If negative, this request is a FIND request. If zero, this request is a BLDL request on TASKLIB, STEPLIB, or JOBLIB concatenated with SYS1.LINKLIB.
PLIST  12 bytes of the parameter list are traced. (The parameter list can be longer than 12 bytes.)

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Macro</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0,1</td>
<td>BLDL</td>
<td>Number of entries.</td>
</tr>
<tr>
<td>2,3</td>
<td>BLDL</td>
<td>Length of each entry</td>
</tr>
<tr>
<td>4-11</td>
<td>BLDL</td>
<td>Hexadecimal representation of the first member name for which the BLDL was issued.</td>
</tr>
<tr>
<td>0,1</td>
<td>FIND</td>
<td>Length of parameter list.</td>
</tr>
<tr>
<td>2,3</td>
<td>FIND</td>
<td>Must be zero</td>
</tr>
<tr>
<td>4-8</td>
<td>FIND</td>
<td>Length of the member name</td>
</tr>
<tr>
<td>9-16</td>
<td>FIND</td>
<td>Member name</td>
</tr>
<tr>
<td>17-20</td>
<td>FIND</td>
<td>Generation number</td>
</tr>
</tbody>
</table>

PREFIX  8 bytes, immediately preceding the PLIST and pointed to by register 15.

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Reserved</td>
</tr>
<tr>
<td>1</td>
<td>Start concatenation number</td>
</tr>
<tr>
<td>2</td>
<td>Stop concatenation number</td>
</tr>
<tr>
<td>3</td>
<td>Flags:</td>
</tr>
<tr>
<td></td>
<td>1... .....  BLDL NOCONNECT option specified.</td>
</tr>
<tr>
<td></td>
<td>.1... .....  BLDL BYPASSLLA option specified.</td>
</tr>
<tr>
<td></td>
<td>..1 .......  BLDL NODEBCHK option specified.</td>
</tr>
<tr>
<td></td>
<td>...1 .......  BLDL START= option specified.</td>
</tr>
<tr>
<td></td>
<td>.... 1...    BLDL STOP= option specified.</td>
</tr>
<tr>
<td>4-7</td>
<td>Length of prefix</td>
</tr>
</tbody>
</table>

SVC 19 (0A13)

OPEN macro - is type 4, gets LOCAL lock.

Calls module IGC0001I.

If MODE=24 (R1 not = 0), GTF data is:

R15  No applicable data.
R0   Address of parameter list if R1 contains zero. Otherwise, no applicable data.
R1   Address of parameter list or zero. Contains zero if ‘MODE=31’ was specified in the OPEN macro.

PLIST  Four to 40 bytes of OPEN parameter list, which has a maximum length of 1020 bytes. The list is a series of 4-byte entries in the following format:

0  Option byte; bit settings are:
   Bits
   1... ....  Last entry indicator.
   .000 ....  DISP.
   .011 ....  LEAVE.
   .001 ....  REREAD.
If MODE=31 (R1 = 0), GTF data is:

- **R15**: No applicable data.
- **R0**: Address of parameter list.
- **PLIST**: Eight to 80 bytes of OPEN parameter list, which has a maximum length of 1020 bytes. The list is a series of 8-byte entries in the following format:

<table>
<thead>
<tr>
<th>Bits</th>
<th>Option byte; bit settings are:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0011</td>
<td>LEAVE.</td>
</tr>
<tr>
<td>0110</td>
<td>OUTPUT.</td>
</tr>
<tr>
<td>0100</td>
<td>UPDAT.</td>
</tr>
<tr>
<td>1111</td>
<td>OUTPUT.</td>
</tr>
<tr>
<td>0011</td>
<td>INOUT.</td>
</tr>
<tr>
<td>0001</td>
<td>RDBACK.</td>
</tr>
<tr>
<td>0110</td>
<td>OUTINX.</td>
</tr>
</tbody>
</table>

1-3: ACB or DCB address.

4-7: Zeroes.

If MODE=24 (R1 not = 0), GTF data is:

- **R15**: No applicable data.
- **R0**: Address of parameter list if R1 contains zero. Otherwise, no applicable data.
- **R1**: Address of the parameter list or zero. Zero if "MODE=31" was specified in the CLOSE macro.
- **PLIST**: Four to 40 bytes of the CLOSE parameter list, which has a maximum length of 1020 bytes. The list is a series of 4-byte entries in the following format:

<table>
<thead>
<tr>
<th>Value</th>
<th>Option byte; bit settings are:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Bits</td>
</tr>
</tbody>
</table>
If MODE=31 (R1 = 0), GTF data is:

| R15 | No applicable data. |
| R0  | Address of parameter list. |

**PLIST** Eight to 80 bytes of CLOSE parameter list, which has a maximum length of 1020 bytes. The list is a series of 8-byte entries in the following format:

<table>
<thead>
<tr>
<th>Value</th>
<th>Option byte; bit settings are:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Bits</td>
</tr>
<tr>
<td>1...</td>
<td>Last entry indicator.</td>
</tr>
<tr>
<td>.000</td>
<td>DISP.</td>
</tr>
<tr>
<td>.100</td>
<td>REWIND.</td>
</tr>
<tr>
<td>.010</td>
<td>FREE.</td>
</tr>
<tr>
<td>.011</td>
<td>LEAVE.</td>
</tr>
<tr>
<td>.001</td>
<td>REREAD.</td>
</tr>
<tr>
<td>1-3</td>
<td>ACB or DCB address.</td>
</tr>
<tr>
<td>4-7</td>
<td>Zeroes.</td>
</tr>
<tr>
<td>1-3</td>
<td>ACB or DCB address.</td>
</tr>
</tbody>
</table>

**SVC 21 (0A15)**

STOW macro - is type 3, gets no lock.

Calls module IGC0002A.

GTF data is:

| R15 | No applicable data. |
| R0  | Address of the parameter list. |
| R1  | Address of the associated DCB. |

The sign of R0 and R1 indicate the directory action STOW is to take:

<table>
<thead>
<tr>
<th>R0</th>
<th>R1</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>+</td>
<td>ADD</td>
</tr>
<tr>
<td>+</td>
<td>-</td>
<td>REPLACE</td>
</tr>
<tr>
<td>-</td>
<td>+</td>
<td>DELETE</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>CHANGE</td>
</tr>
<tr>
<td>0</td>
<td>+</td>
<td>INIT</td>
</tr>
</tbody>
</table>

**DDNAME** cccccc Name of the associated DD statement.

**PLIST** The parameter list is of variable length, depending on the directory action being performed: For ADD or REPLACE — 12 bytes of the parameter list
will be dumped. The first 8 bytes contain the member name; the next 3 bytes contain the member's TTR; and the next byte contains the alias bit, number of TTRNs in the user data area, and the length of the user data area in halfwords. (The user data area varies from 0-62 bytes in length and does not appear.) For DELETE — 8 bytes long and contains the member name or alias of the PDS directory entry being acted upon. For CHANGE — 16 bytes long; first 8 bytes contain the old member name or alias; second 8 bytes contain the new member name or alias.

**SVC 22 (0A16)**

OPEN (TYPE=J) macro - is type 4, gets LOCAL lock.

Calls module IGC0002B.

GTF data is:

**R15 and R0**

No applicable data.

**R1**

Address of the parameter list.

**PLIST**

Four to 40 bytes of the OPEN parameter list, which has a maximum length of 1020 bytes. The list is a series of 4-byte entries in the following format:

- **0** Option byte; bit settings are:
  - Bits
  - 1... .... Last entry indicator.
  - .000 .... DISP.
  - .011 .... LEAVE.
  - .001 .... REREAD.
  - ....  0000 INPUT.
  - ....  1111 OUTPUT.
  - ....  0100 UPDAT.
  - ....  0111 OUTIN.
  - ....  0011 INOUT.
  - ....  0001 RDBACK.
  - ....  1110 EXTEND.
  - ....  0110 OUTINX.

- **1-3** DCB address.

**SVC 23 (0A17)**

CLOSE (TYPE=T) macro - is type 4, gets LOCAL lock.

Calls module IGC0002C.

GTF data is:

**R15**

No applicable data.

**R0**

Address of long-form parameter list if R1 contains zero. Otherwise, no applicable data.

**R1**

Address of the short-form parameter list or zero. Zero if "MODE=31" was specified in the CLOSE macro.

**PLIST**

Four to 40 bytes of the short-form CLOSE parameter list, which has a maximum length of 1020 bytes or 8 to 80 bytes of the long-form parameter list. The short-form list is a series of 4-byte entries in the following format:
SVC Summary

0 Option byte; bit settings are:
   Bits
   1... .... Last entry indicator.
   .011 .... LEAVE.
   .001 .... REREAD.
1-3 ACB or DCB address.

The long-form parameter list is in the following format:

Bytes

0 Option byte; bit settings are:
   Bits
   1... .... Last entry indicator.
   .011 .... LEAVE.
   .001 .... REREAD.
1-3 Zero
4-7 ACB or DCB address.

SVC 24 (0A18)

DEVTYPE macro - is type 3, gets no lock.

Calls module IGC0002D.

GTF data is:

R15 No applicable data.

R0 If positive, contains the address of 8-byte output area. If negative and R1 is positive, then contains the complemented address of 20-byte output area. If negative and R1 is negative, then contains the complemented address of 24-byte output area. If zero, then R1 contains the address of parameter list.

R1 If R0 is not zero, then contains the address of the DD name or the two's complement form of the address of the DD name. If R0 is zero, then contains the address of a parameter list in the following format:

PLIST Bytes

0 Parm list length code prior to DFSMS 1.1.0, this was a code of X'10', which represented a parameter list length of 20 bytes. As of DFSMS 1.1.0, the macro expands a 24-byte parameter list and stores the real length in this byte.
1 Version (X'01')
2 1... .... Offset 4 points to DD name, not UCB list
   .xxx xxxx reserved
3 Reserved
4-7 Address of UCB list or address of DD name
8-11 Number of words in UCB address list
12-15 Address of return area
16-19 Return area size
20-23 Address of INFO area or zero. Zero means to return 24 bytes per UCB or DD.

DDNAME cccccc DDNAME associated with this request.
**SVC 25 (0A19)**

TRKBAL macro - is type 3, gets no lock.

Calls module IGC0002E.

**R15 and R0**

No applicable data.

**R1**

Address of the associated DCB. If R1 is negative, the address is in complement form and the DCBFDAD and DCBTRBAL fields of the DCB are meaningless.

<table>
<thead>
<tr>
<th>DDNAME</th>
<th>cccccccc</th>
<th>Name of the associated DD statement.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCBFDAD</td>
<td>xxxxxxxx</td>
<td>Full direct access address (MBBCCHHR) from the DCB that is pointed to by R1.</td>
</tr>
<tr>
<td>DCBTRBAL</td>
<td>xxxx</td>
<td>Track balance (number of bytes remaining on the current track after a write; negative if no bytes remain).</td>
</tr>
</tbody>
</table>

**SVC 26 (0A1A)**

CATALOG/INDEX/LOCATE macro - is type 4, gets no lock.

Calls module IGC0002F.

GTF data is:

**R15 and R0**

No applicable data.

**R1**

Address of the parameter list when a SVC 26 is issued. The parameter list is in the format of an OS/VS CAMLST. The CAMLST macro is used to generate the CAMLST when the CATALOG, INDEX, or LOCATE macro issues the SVC call.

**CAMLST Bytes:**

<table>
<thead>
<tr>
<th>-4 - -1</th>
<th>CTGPLXPT</th>
<th>CPL prefix pointer</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

First option byte:

<table>
<thead>
<tr>
<th>Bits</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1...</td>
<td>...</td>
<td>CVOL specified. CVOLs are no longer supported.</td>
<td></td>
</tr>
<tr>
<td>.1..</td>
<td>....</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>..1.</td>
<td>....</td>
<td>CATALOG or CATBX specified.</td>
<td></td>
</tr>
<tr>
<td>...1</td>
<td>....</td>
<td>RECAT (re-catalog) specified.</td>
<td></td>
</tr>
<tr>
<td>....</td>
<td>1...</td>
<td>UNCAT or UCATDX specified.</td>
<td></td>
</tr>
<tr>
<td>....</td>
<td>.1..</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>....</td>
<td>..1.</td>
<td>LOCATE by TTR specified.</td>
<td></td>
</tr>
<tr>
<td>........</td>
<td>...1</td>
<td>Reserved.</td>
<td></td>
</tr>
</tbody>
</table>

Second option byte:

| Bits | | |
|---|---|
| 1... | .... | Do not allocate CVOL. |

**Note:** CVOLs are no longer supported.
CTGPLXPT - CPL prefix pointer

-4 -1  CTGPLXPT CPL prefix pointer
  ... ...1  DLTA specified.
2  Third option byte:
  Bits
  1... ....  DRPX specified.
  .1... ....  Indicate DELETE option.
  ..1. ....  RENAME specified.
  ...1 ....  SYSZTIOT is enqueued exclusively.
  ... 1...  Indicate the EMPTY option.
  ... .1.1.  Reserved.
  ... ...0  The caller supplied a CAMLST.
  ... ...1  The caller supplied a CTGPL.
3  Maximum generation count for GDG or zeroes.
4-7  Address of the name or TTR if byte 0, bit 6 is “on”.
8-11  Address of the CVOL volser or zeroes if byte 0, bit 0 is zero.
Note: CVOLs are no longer supported.
12-15  a.  When cataloging, the address of the volume list.
  b.  Address of an 8-byte area that contains an alias for a high-level index.
      Note: CVOL must also be specified.
  c.  When performing LNKX, the address of a 10-byte area that contains a
      4-byte device code followed by the 6-byte volume serial number of the
      CVOL to be connected.
  d.  When performing the LOCATE function, the address of a 265-byte work
      area that must be on a doubleword boundary. If the issuer of LOCATE
      has a non-zero protect key, then the work area must have a matching
      storage protect key.
16-19  Address of the DSCB TTR when cataloging it.

CTGPLX - CPL extension. The CPL extension contains additional fields that
define the catalog management request and its options. It is pointed to by
CTGPLXPT of the CPL.

<table>
<thead>
<tr>
<th>Offset</th>
<th>Bytes/Bits</th>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (0)</td>
<td>48</td>
<td>CTGPLX</td>
<td>CPL extension.</td>
</tr>
<tr>
<td>0 (0)</td>
<td>10</td>
<td>CTGXHDR</td>
<td>Extension header.</td>
</tr>
<tr>
<td>0 (0)</td>
<td>6</td>
<td>CTGXID</td>
<td>Extension ID ‘CPLEXT’.</td>
</tr>
<tr>
<td>6 (6)</td>
<td>2</td>
<td>CTGXVERN</td>
<td>Extension version number.</td>
</tr>
<tr>
<td>8 (8)</td>
<td>2</td>
<td>CTGXLEN</td>
<td>Extension length.</td>
</tr>
<tr>
<td>10 (A)</td>
<td>2</td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>12 (C)</td>
<td>4</td>
<td>CTGXFLD</td>
<td>Extension fields.</td>
</tr>
<tr>
<td>12 (C)</td>
<td>1</td>
<td>CTG2FUNC</td>
<td>Secondary function byte.</td>
</tr>
<tr>
<td>13 (D)</td>
<td>1</td>
<td>CTGXFG01</td>
<td>Extension flag byte 1.</td>
</tr>
<tr>
<td>1...</td>
<td>...</td>
<td>CTGNBCS</td>
<td>No BCS update.</td>
</tr>
<tr>
<td>.1...</td>
<td>...</td>
<td>CTGNVVDS</td>
<td>No VVDS update.</td>
</tr>
<tr>
<td>..1...</td>
<td>...</td>
<td>CTGNBCK</td>
<td>No BCS check.</td>
</tr>
<tr>
<td>...1</td>
<td>...</td>
<td>CTGTCOMP</td>
<td>Component name of temporary data set</td>
</tr>
<tr>
<td></td>
<td>...</td>
<td></td>
<td>name passed.</td>
</tr>
<tr>
<td></td>
<td>1...</td>
<td>CTGTSMS</td>
<td>SMS managed temporary data set.</td>
</tr>
<tr>
<td></td>
<td>... .111</td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>14 (E)</td>
<td>1</td>
<td>CTGXFG02</td>
<td>Extension flag byte 2.</td>
</tr>
<tr>
<td>15 (F)</td>
<td>1</td>
<td>CTGXFG03</td>
<td>Extension flag byte 3.</td>
</tr>
<tr>
<td>16 (10)</td>
<td>4</td>
<td>CTGXUCBP</td>
<td>UCB address list pointer.</td>
</tr>
<tr>
<td>20 (14)</td>
<td>4</td>
<td>CTNVRBA</td>
<td>NVR RBA.</td>
</tr>
</tbody>
</table>
### SVC Summary

<table>
<thead>
<tr>
<th>Offset</th>
<th>Bytes/Bits</th>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 (14)</td>
<td>3</td>
<td>CTGDIRBA</td>
<td>Compressed data/index RBA.</td>
</tr>
<tr>
<td>24 (18)</td>
<td>4</td>
<td>CTGLBDAT</td>
<td>Last backup date pointer.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CTGLRDAT</td>
<td>Last referenced date pointer.</td>
</tr>
<tr>
<td>28 (1C)</td>
<td>4</td>
<td>CTGDADSM</td>
<td>DADSM parm list pointer.</td>
</tr>
<tr>
<td>32 (20)</td>
<td>12</td>
<td>CTGDIAG</td>
<td>Diagnostic information.</td>
</tr>
<tr>
<td>32 (20)</td>
<td>4</td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>36 (24)</td>
<td>4</td>
<td>CTGSFI</td>
<td>Catalog subfunction information.</td>
</tr>
<tr>
<td>36 (24)</td>
<td>1</td>
<td>CTGCATPC</td>
<td>Catalog problem code.</td>
</tr>
<tr>
<td>37 (25)</td>
<td>1</td>
<td>CTGOPNER</td>
<td>ACBERFLG (open error).</td>
</tr>
<tr>
<td>38 (26)</td>
<td>2</td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>40 (28)</td>
<td>4</td>
<td>CTGRPLER</td>
<td>RPL feedback word.</td>
</tr>
<tr>
<td>44 (2C)</td>
<td>4</td>
<td></td>
<td>Reserved.</td>
</tr>
</tbody>
</table>

DSN/CI    ccccc.... data set name/control interval name.

VOLIST The volume list is variable in length; format is:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>Number of 12-byte volume list entries to follow.</td>
</tr>
<tr>
<td>2-5</td>
<td>UCB device code.</td>
</tr>
<tr>
<td>6-11</td>
<td>Volume serial number.</td>
</tr>
<tr>
<td>12-13</td>
<td>Reserved.</td>
</tr>
</tbody>
</table>

**SVC 27 (0A1B)**

OBTAIN macro - is type 3, gets LOCAL lock.

Calls module IGC0002G.

GTF data is:

R15 and R0

No applicable data.

R1 Address of the parameter list.

PLIST Parameter list is 16 bytes long; format is:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>Operation code. X'C100' SEARCH for DSNAME; X'C080' SEEK for track address.</td>
</tr>
<tr>
<td>2</td>
<td>Option byte.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1...</td>
<td>Bypass TIOT ENQ, enqueued by caller.</td>
</tr>
<tr>
<td>.1...</td>
<td>Do not build a dummy format-1 DSCB.</td>
</tr>
<tr>
<td>..1.</td>
<td>Do not allocate catalog in obtains address space.</td>
</tr>
<tr>
<td>...1</td>
<td>Authorized caller wants name hiding.</td>
</tr>
<tr>
<td>....</td>
<td>1... EADSCB=OK keyword is specified.</td>
</tr>
<tr>
<td>....</td>
<td>.1... NOQUEUE=ON. Do not wait if the resource is not available.</td>
</tr>
</tbody>
</table>
SVC Summary

3  Number of DSCBs. The number of 140-byte DSCBs consecutive return areas that are provided in bytes 12-15. When this value is zero, one 140-byte return area must be provided.

4-7  Address of the data set name or address of the track address of the DSCB (CCHHR) depending on the operation code.

8-11  Address of the volume serial number.

12-15  Address of a 140-byte work area or address of consecutive 140-byte return areas as described by byte 3.

VOLSER  cccccc  volume number of an associated volume.
DSN/  cccccc...  data set name (displayed when the operation code in word 1 of the parameter list indicates SEARCH), or track address (displayed when the operation code in word 1 of the parameter list indicates SEEK).

SVC 28 (0A1C)
Reserved.

SVC 29 (0A1D)
SCRATCH macro - is type 3, gets LOCAL lock.

Calls module IGC0002I.

GTF data is:
R15  No applicable data.
R0  Zeros or the address of a UCB for a device upon which volumes can be mounted.
R1  Address of the SCRATCH parameter list (PLIST).

PLIST  The parameter list is 16 bytes long; the format is:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Bits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0100 0001</td>
<td>Operation code (set to X'41' for SCRATCH).</td>
</tr>
<tr>
<td>1</td>
<td>1...</td>
<td>Dynamic Unallocation by job or step ending.</td>
</tr>
<tr>
<td>.1...</td>
<td>When set to 1 and JSCBPASS is 1, the RACDEF macro is not issued. In all other cases, except VSAM data sets, the RACDEF TYPE=DELETE will be issued.</td>
<td></td>
</tr>
<tr>
<td>.xx xxxx</td>
<td>Reserved set to zeros.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1...</td>
<td>Dynamic Unallocation; TIOT is enqueued by the caller.</td>
</tr>
<tr>
<td>.10</td>
<td>Check purge date.</td>
<td></td>
</tr>
<tr>
<td>.1.1</td>
<td>Override purge date.</td>
<td></td>
</tr>
<tr>
<td>.... 1...</td>
<td>When set to 1 and the caller is in supervisor state, RACF processing will be bypassed. This allows the catalog to continue RACF processing and to eliminate redundant RACF processing.</td>
<td></td>
</tr>
<tr>
<td>.... .1..</td>
<td>When set to 1, all DASD tracks occupied by the data set will be erased (made unreadable) before being released for reuse.</td>
<td></td>
</tr>
<tr>
<td>.x. .xx</td>
<td>Reserved set to zeros.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>xxxx xxxx</td>
<td>Reserved set to zeros.</td>
</tr>
</tbody>
</table>
DSN    ccccc....  data set name.

VOLIST The volume list is variable in length; format is:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>Number of 12-byte volume list entries to follow.</td>
</tr>
<tr>
<td>2-5</td>
<td>UCB device code.</td>
</tr>
<tr>
<td>6-11</td>
<td>Volume serial number.</td>
</tr>
<tr>
<td>12</td>
<td>SCRATCH secondary status code. (X'80' if SCRATCH successful and the user has RACF authority).</td>
</tr>
<tr>
<td>13</td>
<td>Scratch status byte.</td>
</tr>
</tbody>
</table>

Note: Each succeeding volume list entry (if any) has the same format as offset 2-13.

**SVC 30 (0A1E)**

RENAME macro - is type 3, gets LOCAL lock.

Calls module IGC00030.

GTF data is:

R15  No applicable data.
R0   Address of the UCB for the device on which volumes can be mounted, or zeros.
R1   Address of the parameter list.

PLIST The parameter list is 16 bytes long; format is:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>X'C1002000' If bit 1 of byte 1 is set to 1 and JSCBPASS=1 then the RACDEF macro is not issued.</td>
</tr>
<tr>
<td>4-7</td>
<td>Address of the old data set name.</td>
</tr>
<tr>
<td>8-11</td>
<td>Address of the new data set name.</td>
</tr>
<tr>
<td>12-15</td>
<td>Address of the volume list.</td>
</tr>
</tbody>
</table>

OLDDSN    ccccc...  fully qualified name of the data set to be renamed.
NEWDSN    ccccc...  new name of the data set being renamed.

VOLIST The volume list is variable in length; format is:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>Number of 12-byte volume list entries to follow.</td>
</tr>
</tbody>
</table>
SVC Summary

2-5  UCB device code.
6-11 Volume serial number.
12  Reserved.
13  Rename status byte.

Note: Each succeeding volume list entry (if any) has the same format as offset 2-13.

SVC 31 (0A1F)
FEOV macro - is type 4, gets LOCAL lock.

Calls module IGC003A.

GTF data is:

R15 and R0
No applicable data.

R1  High-order byte–flags as follows:
   00  No option specified.
   20  REWIND specified.
   30  LEAVE specified.

Three low-order bytes–address of DCB.

DDNAME  ccccccc  DDNAME associated with this request.

SVC 32 (0A20)
REALLOC or No macro - is type 4, gets LOCAL lock.

Calls module IGGDAC01.

APF protected. The REALLOC macro always loads the parameter list address in register 1 and complements it. Other combinations have no macro. GTF data is:

R15  No applicable data.
R0  If positive, contains address of associated JFCB. If negative (not complemented — high-order bit is set on), contains the address of the associated partial DSCB.
R1  If positive, contains the address of a fullword containing: device code. If call made for a VIO data set (JFCVRDS is set on) UCB address.

If negative (complement address), contains the address of a REALLOC parameter list and R0 contains no applicable data. The parameter list is 32 bytes long as described below:

To pass a dummy REALLOC parameter list on the JFCB or partial DSCB interface, where R0 contains applicable data, specify byte 9 bit 0 in the REALLOC parameter list. The UCB address must also be set. The Minimum Allocation Unit can optionally be set. All other fields in the REALLOC parameter list are ignored.

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SVC Summary

0-3 C'REAL', ID of parameter list.
4-5 Length of parameter list.
6-7 Return code.
8 Parameter flag byte.
9 Processing flag byte.

<table>
<thead>
<tr>
<th>Bits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1...</td>
<td>Dummy REALLOC parameter list is passed. Only the processing flag byte (byte 9), Minimum Allocation Unit (bytes 16-19), and UCB address (bytes 24-27) are used. Ignore all other bytes and use the values in the JFCB or Partial DSCB interface as passed in register 0.</td>
</tr>
<tr>
<td>.1..</td>
<td>Space must be allocated from track-managed space.</td>
</tr>
<tr>
<td>..1.</td>
<td>Reserved set to zeros.</td>
</tr>
<tr>
<td>....</td>
<td>Applicable to EAV. The request is to be allocated using a combination of the track-managed or the cylinder-managed spaces. If the exact space is not available, then the request is failed.</td>
</tr>
<tr>
<td>....</td>
<td>Unused.</td>
</tr>
<tr>
<td>....</td>
<td>The extended attribute (EATTR=) value to be used. Valid when byte 9, bit 0 is set and when the JFCB is passed in register 0.</td>
</tr>
</tbody>
</table>

Description for each value:

b'00' EATTR has not been specified. The defaults for EAS eligibility apply. VSAM data sets default is EAS-eligible. This is equivalent to EATTR=OPT being specified. Non-VSAM data sets default is not EAS eligible. This is equivalent to EATTR=NO being specified.

b'01' EATTR=NO has been specified. The data set cannot have extended attributes (format 8 and 9 DSCBs) oroptionally reside in EAS.

b'10' EATTR=OPT has been specified. The data set can have extended attributes and optionally reside in EAS. This is the default for VSAM data sets.

b'11' Reserved for future use.

10 Number of contiguous partial format 9 DSCBs that are located at the address in bytes 32-35. The default is 1.
11 Reserved.
12-15 Data set size in tracks.
16-19 Minimum allocation unit in tracks.
20-23 Address of partial DSCB or format 1 DSCB.
24-27 UCB Address.
28-31 Partitioned data set directory quantity in tracks.
SVC Summary

32-35 Address of format 2 DSCB or contiguous partial format 9 DSCBs. Byte 10 defines the number of partial format 9 DSCBs. Format 9 DSCBs with a subtype field with a value other than 1 is ignored. Only format 9 DSCB attribute data in this model is used.

36-39 Address of format 3 DSCB.

CUU cccc Device number from the UCB pointed to by R1.

DSN cccc... Data set name from the DSN field of either the JFCB or DSCB pointed to by R0.

SVC 33 (0A21)

IOHALT macro - is type 2, gets IOSUCB lock.

Calls module IGC0003C.

Note: This SVC can be used in two ways. The first way (which is used by the IOHALT macro) is used by setting the low order bit of R1 to 1; the second way is used by setting the low order bit of R1 to 0.

GTF data for the first way (low-order bit of R1 is 1) is:

R15 No applicable data.
R0 UCB address (common segment), a fullword pointer; or address of a UCBCOPY. (See z/OS MVS Programming: Assembler Services Reference [AR-XCT] for more information.)

R1 Contents:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>If byte 1 of R1 is X'81' then R0 contains the offset from the IOB to the virtual CCW that corresponds to the central CCW to be modified to a NOP.</td>
</tr>
<tr>
<td>2</td>
<td>Ignored</td>
</tr>
<tr>
<td>3</td>
<td>Input</td>
</tr>
<tr>
<td></td>
<td>Option</td>
</tr>
<tr>
<td></td>
<td>= &quot;01&quot;</td>
</tr>
<tr>
<td></td>
<td>= &quot;81&quot;</td>
</tr>
</tbody>
</table>

CUU dddd The device number associated with the device being halted.

GTF data for the second way (low-order bit of R1 is 0) is:

R15 No applicable data.
R0 If byte 1 of R1 is X'81' then R0 contains the offset from the IOB to the virtual CCW that corresponds to the central CCW to be modified to a NOP.
R1 Contents:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Ignored</td>
</tr>
<tr>
<td>1</td>
<td>Input</td>
</tr>
<tr>
<td></td>
<td>Option</td>
</tr>
</tbody>
</table>
SVC Summary

= "00"  use IOS HALT I/O subroutine.
= "80"  use EXCP CCW modify subroutine.
2-3  Address of the UCB or UCBCOPY associated with the HALT request.

CUU  dddd  The device number associated with the device being halted.

**SVC 34 (0A22)**

MACRO - is type 4, gets LOCAL and CMS lock.

Calls module IEE0003D.

For a system task issuing SVC34:

<table>
<thead>
<tr>
<th>R1</th>
<th>R0</th>
<th>R15</th>
<th>FUNCTION or ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>POS</td>
<td>N/A</td>
<td>N/A</td>
<td>Process CMD: to IEE0403D.</td>
</tr>
<tr>
<td>ZERO</td>
<td>POS</td>
<td>N/A</td>
<td>Free the CIB chain.</td>
</tr>
<tr>
<td>ZERO</td>
<td>ZERO</td>
<td>ZERO</td>
<td>GETCSCB processing.</td>
</tr>
<tr>
<td>ZERO</td>
<td>NEG</td>
<td>N/A</td>
<td>Set CHCIBCT to zero.</td>
</tr>
<tr>
<td>NEG</td>
<td>POS</td>
<td>N/A</td>
<td>CIB chain ADD or DELETE.</td>
</tr>
<tr>
<td>NEG</td>
<td>ZERO</td>
<td>SEE *</td>
<td>CSCB processing. (* If CHABT bit set in CSCB, then R15 contains ABTERM parm list. If CHABT bit is zero, then R15 is N/A.)</td>
</tr>
<tr>
<td>NEG</td>
<td>NEG</td>
<td>N/A</td>
<td>Store R1 in CHCIBCT.</td>
</tr>
</tbody>
</table>

**SVC 35 (0A23)**

MACRO - is type 4, gets LOCAL and CMS locks.

Calls module IEAVM600.

GTF data is:

| R15 | No applicable data. |
| R1  | Address of the parameter list. |
| R0  | Three high order bytes—a new line is to be connected to the message with this three byte message ID. For a message reissuance - address of the Write-To-Operator Queue Element (WQE) control block created from the original issuance. If the information was specified on the WTO macro - contains zeros. |

Length of PLIST (1 byte)

includes routing and descriptor code field, if present.

PLIST  If routing and descriptor codes are present, they are appended to the parameter lists, increasing the lengths of the parameter lists by four bytes. However, if a WPX is generated, it extends the length by up to 124 bytes.

PLIST for WTO:

Bytes

0  Length of reply buffer, if for a 31-bit WTO. Otherwise zero.
1  Message length plus four if text is inline, fixed length if bytes 4-11 contain a pointer to a data area containing the message text.
2  MCS flag byte, bit settings are:
   1... .... Routing and descriptor codes are present.
   .1.. .... Reserved.
   ..1. .... WTO is an immediate command response.
   ...1 .... Message type field exists.
   .... 1... WTO reply to a WTOR macro instruction.
   .... .1.. Message should be broadcast to all active consoles.
   .... ..1. Message queued for hard copy only.
   .... ...1 Reserved.

3  Second MCS flag byte: bit settings are:
   1... .... Do not timestamp this message.
   .1.. .... Message is a multiline WTO.
   ..1. .... Primary subsystem use only. JES3: Do not log
            minor WQEs if major WQE is not hardcopied.
            JES2: not used.
   ...1 .... Extended WPL format (WPX) exists.
   .... 1... Message is an operator command.
   .... .1.. Message should not be queued to hardcopy.
   .... ..1. Message reissued via WQEBLK keyword.
   .... ...1 Reserved.

4-n The message text, normally the message ID, or a pointer to a data area
    containing the message text. The message text can be of variable length,
    but if a pointer is specified it will always occupy 4 bytes.

The following offsets are unpredictable due to the variable length of the
previous field.

If a WPX is not generated, routing and descriptor codes (if present) are as
follows:

(n+1)-(n+3) Routing and descriptor codes, if present:
Descriptor first byte bit settings:
   1... .... System failure.
   .1.. .... Immediate action required.
   ..1. .... Eventual action required.
   ...1 .... System status.
   .... 1... Immediate command response.
   .... .1.. Job status.
   .... ..1. Application program message or DOM at
            job-step task termination.
   .... ...1 Out-of-line message.

Descriptor second byte bit settings:
   1... .... Status display.
   .1.. .... Dynamic status display.
   ..1. .... Critical eventual action message.
   ...1 .... Important information message.
   .... 1... Message was previously automated.
   .... .1.. Reserved.
   .... ..1. Reserved.
   .... ...1 Reserved.

Routing first byte bit settings:
   1... .... Primary console action.
   .1.. .... Primary console information.
   ..1. .... Tape pool.
   ...1 .... Direct access pool.
If a WPX is generated, however, it follows the message text:

\[(n+1)-(n+103)\]

WPX. Its format follows:

1   Version level.
2   Flags.
3   Length of reply buffer.
4   Length of WPX.
5-6  Extended MCS flags.
7-8  Control program flags.
9-12 Reply buffer address.
13-16 Reply ECB address.
17-20 DOM/Connect ID.
21-22 Descriptor codes (same mapping as above).
23-24 Reserved.
25-40 Routing codes.
41-42 Message type flags.
43-44 Reserved.
45-52 Job ID.
53-60 Job name.
61-68 Retrieval key.
69-72 Token for DOM.
73-76 Console ID.
77-84 System name.
85-92 Console name.
93-96 Address of a 12-byte field for replying console name/ID.
97-100 Address of CART.
101-104 Address of wait state parameter list.
SVC Summary

105-108
ASCB address.

109-124
Reserved.

PLIST for succeeding lines in a multiple line WTO:
Bytes

0  First byte of Inline type flags, bit settings are:
   1... ....  Control line.
   .1.. ....  Label line.
   ..1. ....  Data line.
   ...1 ....  End line.
   .... 1...  Reserved.
   .... .1..  Reserved.
   .... ..1.  Reserved.
   .... ...1 Reserved.

1  Second byte of Inline type flags.
2  Console area ID identifier.
3  Number of message lines in the WTO.
4  Reserved.
5  Count of the message characters plus 4.
6-77  The message text.
   OR
6-9  A pointer to a data area containing the message text.

PLIST for WTOR (24-bit mode):
Bytes  Contents
0  Length of the reply. High order bit is set to 1.
1-3  Address of the reply buffer.
4-7  Address of the reply ECB.
8  Zeros.
9  Message length + 4.
10-11 MCS flag bytes (same as in WTO PLIST).
12-19 First 8 bytes of the message text. Normally, the message ID.
20-23 Routing and descriptor codes, if present.

PLIST for WTOR (31-bit mode) without a WPX:
Bytes  Contents
0-3  Addressing mode indicator and address of the reply buffer. High order bit of byte 0 is set to 1.
4-7  Address of the reply ECB.
8  Length of reply buffer.
9  Message length + 4.
10-11 MCS flag bytes (same as in WTO PLIST).
12-19 First 8 bytes of the message text. Normally, the message ID.
20-23 Routing and descriptor codes, if present.
PLIST for WTOR (31-bit mode) with a WPX:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>High order bit is set to 1, others set to 0.</td>
</tr>
<tr>
<td>1</td>
<td>Message length + 4.</td>
</tr>
<tr>
<td>2-3</td>
<td>MCS flag bytes (same as in WTO PLIST).</td>
</tr>
<tr>
<td>4-11</td>
<td>First 8 bytes of the message text. Normally, the message ID.</td>
</tr>
</tbody>
</table>

WPX. Its format follows:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Version level.</td>
</tr>
<tr>
<td>2</td>
<td>MPF/SUBSMOD flags.</td>
</tr>
<tr>
<td>3</td>
<td>Length of reply buffer.</td>
</tr>
<tr>
<td>4</td>
<td>Reserved.</td>
</tr>
<tr>
<td>5-6</td>
<td>Extended MCS flags.</td>
</tr>
<tr>
<td>7-8</td>
<td>Reserved.</td>
</tr>
<tr>
<td>9-12</td>
<td>Reply buffer address.</td>
</tr>
<tr>
<td>13-16</td>
<td>Reply ECB address.</td>
</tr>
<tr>
<td>17-20</td>
<td>DOM/Connect ID.</td>
</tr>
<tr>
<td>21-22</td>
<td>Descriptor codes (same mapping as above).</td>
</tr>
<tr>
<td>23-24</td>
<td>Reserved.</td>
</tr>
<tr>
<td>25-40</td>
<td>Routing codes.</td>
</tr>
<tr>
<td>41-42</td>
<td>Message type flags.</td>
</tr>
<tr>
<td>43-44</td>
<td>Message's priority.</td>
</tr>
<tr>
<td>45-52</td>
<td>Job ID.</td>
</tr>
<tr>
<td>53-60</td>
<td>Job name.</td>
</tr>
<tr>
<td>61-68</td>
<td>Retrieval key.</td>
</tr>
<tr>
<td>69-72</td>
<td>Token for DOM.</td>
</tr>
<tr>
<td>73-76</td>
<td>Console ID.</td>
</tr>
<tr>
<td>77-84</td>
<td>System name.</td>
</tr>
<tr>
<td>85-92</td>
<td>Console name.</td>
</tr>
<tr>
<td>93-96</td>
<td>Address of a 12-byte field for replying console name/ID.</td>
</tr>
<tr>
<td>97-100</td>
<td>Address of CART</td>
</tr>
<tr>
<td>101-104</td>
<td>Address of wait state parameter list.</td>
</tr>
</tbody>
</table>

PLIST for WTO with WQEBLK (WPLMCSFO bit is on):

Contains only 4 bytes of data (the parameter list length and the MCS flags).
SVC Summary

**SVC 36 (0A24)**

WTL macro - is type 4, gets LOCAL and CMS locks.

Calls module IEEMB804.

GTF data is:

- **R15**: No applicable data.
- **R0**: Contains 0 if no prefix is present. Contains 4 if a 2-byte prefix is present.
- **R1**: Pointer to the WTL parameter list.

**PLIST**: 5 to 130 bytes; format is:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>Length of PLIST in bytes.</td>
</tr>
<tr>
<td>2-3</td>
<td>Reserved.</td>
</tr>
<tr>
<td>4-nn</td>
<td>Message text.</td>
</tr>
</tbody>
</table>

**SVC 37 (0A25)**

SEGLD/SEGWT macro - is type 2, gets no lock.

Calls module IEWSUOVR, entry point IGC037.

GTF data is:

- **R15**: No applicable data.
- **R0**: Zero entry was from SEGLD. Nonzero entry from SEGWT.
- **R1**: Address of the parameter list.

**PLIST**: 12 bytes, format is:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>Branch instruction to a SVC 45.</td>
</tr>
<tr>
<td>4-7</td>
<td>Address of the referred-to-symbol.</td>
</tr>
<tr>
<td>8</td>
<td>&quot;TO&quot; segment number.</td>
</tr>
<tr>
<td>9-11</td>
<td>Previous caller or zero.</td>
</tr>
</tbody>
</table>

**SVC 38 (0A26)**

Reserved.

**SVC 39 (0A27)**

LABEL macro - is type 3, gets no lock.

Calls module IGC0003I.

APF protected. GTF data is:

- **R15 and R0**: No applicable data.
- **R1**: Address of the parameter list. This parameter list must be in 24-bit addressable storage.
### PLIST

68 bytes long, format is:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• C00004 REWIND option.</td>
</tr>
<tr>
<td></td>
<td>• C00000 UNLOAD option.</td>
</tr>
<tr>
<td>3</td>
<td>Relative UCB in the TIOT to use for mounting purposes. XTIOT is supported by setting SPLUCLST bit and passing address of the UCB list in SPLDDPTR.</td>
</tr>
<tr>
<td>4-7</td>
<td>Address of the 8-byte ddname for the DD card that allocates the device or address of the UCB list in the XTIOT when SPLUCLST is set.</td>
</tr>
<tr>
<td>8-11</td>
<td>Address of the volume label set.</td>
</tr>
<tr>
<td>12-13</td>
<td>Length of one volume label.</td>
</tr>
<tr>
<td>14</td>
<td>Number of labels in the volume label set.</td>
</tr>
<tr>
<td>15</td>
<td>Command byte of the control CCW.</td>
</tr>
<tr>
<td>16-19</td>
<td>Address of the first 10 bytes of the volume header label.</td>
</tr>
<tr>
<td>20-22</td>
<td>Flags bytes for communicating with the calling program.</td>
</tr>
</tbody>
</table>

#### Bytes Contents

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>First flags byte - Bits as follows:</td>
</tr>
<tr>
<td></td>
<td>1... ... LACS message issued during SVC.</td>
</tr>
<tr>
<td></td>
<td>.1. ... Extended PLIST passed in.</td>
</tr>
<tr>
<td></td>
<td>..1. ... SERVO INIT without permission.</td>
</tr>
<tr>
<td></td>
<td>...1 ... Do not do SERVO INIT.</td>
</tr>
<tr>
<td></td>
<td>.... 1... Cannot SERVO INIT.</td>
</tr>
<tr>
<td></td>
<td>.... ..1. RACHECK authorization failure.</td>
</tr>
<tr>
<td></td>
<td>.... ...1. ANSI access passed in.</td>
</tr>
<tr>
<td></td>
<td>.... ...1 SPLUCLST is set for XTIOT support - UCB list passed in SPLDD PTR.</td>
</tr>
<tr>
<td>21</td>
<td>Second flags byte - Bits as follows:</td>
</tr>
<tr>
<td></td>
<td>1... ... Second load of SVC 39 not available.</td>
</tr>
<tr>
<td></td>
<td>.1. ... ANSI label requested.</td>
</tr>
<tr>
<td></td>
<td>..1. ... Do not read mounted volume label (READLBL=NO’ specified).</td>
</tr>
<tr>
<td></td>
<td>...1 ... NUMBTAPE specified in INITT statement.</td>
</tr>
<tr>
<td></td>
<td>.... xxxx Reserved.</td>
</tr>
<tr>
<td>22</td>
<td>Third flags byte - Reserved.</td>
</tr>
<tr>
<td>23</td>
<td>Requested ANSI access code.</td>
</tr>
<tr>
<td>24</td>
<td>LACS error return code.</td>
</tr>
<tr>
<td>25-26</td>
<td>LACS error reason code.</td>
</tr>
</tbody>
</table>
SVC Summary

27-34  LACS function at point of failure.
35     RACHECK error return code.
36-37  RACHECK error reason code.
38     RACF SAF error return code.
39     Dynamic exit service error return code.
40-41  Dynamic exit service error reason code.
42-43  Return code of the last exit routine that failed.
44-45  Reason code of the last exit routine that failed.
46-47  Unused.
48-51  Return code from RMM EDGXCI API call.
52-55  Reason code from RMM EDGXCI API call.
56-59  Flags bytes for communication between IGC0003I and IGC0103I
60-63  Flags bytes for passing the results of processing to the post exit.
64-67  Flags bytes for reasons why the request failed.

SVC 40 (0A28)

EXTRACT macro - is type 3, gets LOCAL lock.

Calls module IEAVTB00, entry point IGC00040.

GTF data is:

R15 and R0
No applicable data.

R1     Address of the parameter list.
PLIST 12 bytes long; format is:

Bytes  Contents
0      Reserved; should be zeros.
1-3    Address of the list area in which the extracted information will be
       stored.
4      Reserved; should be zeros.
5-7    Address of the TCB from which the EXTRACT will get requested
       information. Zeros indicate that the EXTRACT will get information
       from the current TCB and/or its related control blocks.
8      Flag bytes that indicates the fields to be extracted:

<table>
<thead>
<tr>
<th>Bits</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1...</td>
<td>Address of the general register save area.</td>
</tr>
<tr>
<td>1..</td>
<td>Address of the floating point register save area.</td>
</tr>
<tr>
<td>.0</td>
<td>Reserved.</td>
</tr>
<tr>
<td>...1</td>
<td>Address of the end-of-task exit routine.</td>
</tr>
<tr>
<td>....</td>
<td>Limit priority and dispatching priority.</td>
</tr>
<tr>
<td>....</td>
<td>Task completion code.</td>
</tr>
<tr>
<td>....</td>
<td>Address of the TIOT.</td>
</tr>
</tbody>
</table>
### SVC Summary

<table>
<thead>
<tr>
<th>Bits</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>....</td>
<td>....1</td>
</tr>
</tbody>
</table>

**9 Flag Byte 2**

<table>
<thead>
<tr>
<th>Bits</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1...</td>
<td>....</td>
</tr>
<tr>
<td>.1..</td>
<td>....</td>
</tr>
<tr>
<td>..1.</td>
<td>....</td>
</tr>
<tr>
<td>...1</td>
<td>....</td>
</tr>
<tr>
<td>....</td>
<td>xxxx</td>
</tr>
</tbody>
</table>

**10-11 Reserved should be zeros.**

#### SVC 41 (0A29)

**IDENTIFY** macro - is type 3, gets LOCAL and CMS locks.

Calls module IEAVID00.

GTF data is:

<table>
<thead>
<tr>
<th>R15</th>
<th>No applicable data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>R0</td>
<td>Entry point name address or zero.</td>
</tr>
<tr>
<td>R1</td>
<td>Address of the entry point name being added or of the parameter list.</td>
</tr>
</tbody>
</table>

**EPNAME** cccccc The entry point name being added.

#### SVC 42 (0A2A)

**ATTACH or ATTACHX** macro - is type 2, gets LOCAL lock.

Calls module IEAVEAT0.

GTF data is:

<table>
<thead>
<tr>
<th>R15</th>
<th>Address of the parameter list being passed to the SVC routine (SUPRVLIST).</th>
</tr>
</thead>
<tbody>
<tr>
<td>R0</td>
<td>No applicable data.</td>
</tr>
<tr>
<td>R1</td>
<td>Address of the parameter list being passed to the called program, or zeros (no parameter list being passed).</td>
</tr>
</tbody>
</table>

**SUPRVLIST** -

The parameter list passed to the SVC routine is 72 or 100 bytes long.

Format is:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>Entry Address.</td>
</tr>
</tbody>
</table>
### SVC Summary

<table>
<thead>
<tr>
<th>Byte Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-7</td>
<td>DCB address.</td>
</tr>
<tr>
<td>8-11</td>
<td>ECB address.</td>
</tr>
<tr>
<td>12-15</td>
<td>Give subpool value or list address.</td>
</tr>
<tr>
<td>16-19</td>
<td>Share subpool value or list address.</td>
</tr>
<tr>
<td>20-23</td>
<td>ETXR address.</td>
</tr>
<tr>
<td>24-25</td>
<td>Dispatching priority.</td>
</tr>
<tr>
<td>26</td>
<td>Limit priority.</td>
</tr>
<tr>
<td>27-35</td>
<td>Program name.</td>
</tr>
<tr>
<td>36-39</td>
<td>JSCB address.</td>
</tr>
<tr>
<td>40-43</td>
<td>STAI/ESTAI parameter list address.</td>
</tr>
<tr>
<td>44-47</td>
<td>STAI/ESTAI exit routine address.</td>
</tr>
<tr>
<td>48-51</td>
<td>Tasklib DCB address.</td>
</tr>
<tr>
<td>52</td>
<td>Flag byte.</td>
</tr>
<tr>
<td>53</td>
<td>Task ID.</td>
</tr>
<tr>
<td>54-55</td>
<td>Length of parameter list.</td>
</tr>
<tr>
<td>56-59</td>
<td>NSHSPV or NSHSPL parameter list.</td>
</tr>
<tr>
<td>60</td>
<td>Flag byte</td>
</tr>
</tbody>
</table>

- 1... Indicate new format; else old format.
- 1... "DISP=NO" KEYWORD GIVEN
- 1... "JSCB" ADDRESS GIVEN
- 1... "GIVEJPQ=YES" GIVEN
- 1... "KEY=ZERO" KEYWORD
- 1... "SZERO=NO" KEYWORD
- 1... "SVAREA=NO" KEYWORD
- 1... "JSTCB=YES" KEYWORD
- 1... "SM=SUPV" KEYWORD
- ATTNSHLV field indicator.
- RSAPF indication.
- Reserved.
- Term indication.
- ESTAI present indication.
- ASYNCH indication.
- PURGE parameter values.
**SVC Summary**

---1--- Module from APF library indication.

---1--- Reserved.

---1--- Reserved.

---1--- Tasklib DCB present.

---1--- STAI/ESTAI exit address present.

61 Format number, 1 indicates a parameter list for MVS; 2 indicates a parameter list from ATTACHX.

62-63 Reserved.

64-67 EP/DE ALET.

68-71 DCB ALET.

72-75 ECB ALET.

76-79 GSPL ALET.

80-83 SHSPL ALET.

84-87 JSCB ALET.

88-91 STAI ALET.

92-95 TASKLIB ALET.

96-100 NSLSPL ALET.

Length of PLIST (1 byte):

**PLIST** PLIST up to 40 bytes of parameter list passed to a program. The parameter list is a series of 4-byte entries. Each entry has its high-order byte reserved and an address in the low-order three bytes.

Register contents on return:

**R1** Address of TCB for the new task (for any return code other than zero, R1 is set to zero upon return).

**R15**

00 - Successful completion (subtask might not have been successfully created).

04 - ATTACH issued in a STAE exit; processing not completed.

08 - Insufficient storage available for control block for STAI/ESTAI request; processing not completed.

0C - Invalid address of exit routine or parameter list specified with STAI parameter; processing not completed.

**SVC 43 (0A2B)**

**CIRB** macro - is type 1, gets LOCAL lock.

Calls module IEAVEF00, entry point IGC043.

**GTF** data is:

**R15** No applicable data.
R0  Entry point address of the user's asynchronous exit routine. When the routine is dispatched it will get control at this entry point.

R1  The meanings of the bytes of the register are as follows:

Byte 1
- 0100 0... A normal IRB is being created.
- 0000 0... An SIRB is being created. This is used only by IOS to run ERP routines.
- .... .1.. Problem program key.
- .... .0.. Supervisor key.
- .... ..1. Problem program state.
- .... ..0. Supervisor state.
- .... ...1 Save area for registers requested.
- .... ...0 No save area requested.

Byte 2
- 0000 ...0 Reserved - always zero.
- .... 1... Indicates that the IQEs are going to schedule the routine.
- .... 0... Indicates that the RQEs are going to schedule the routine
- .... .1.. Return the IQEs at exit if the IRB has a work area and the RBUSIOE flag is not on.
- .... .0.. Do not return the IQEs at exit.
- .... ..1. Indicates that the RB will be freed when the exit issues an SVC 3.
- .... ..0. Indicates that the RB will not be freed when the exit issues an SVC 3.

Byte 3  Reserved.

Byte 4  Indicates the size in doublewords of the work area to be acquired. CIRB will unconditionally request space from subpool 253. The maximum size is 255 doublewords.

SVC 44 (0A2C)

[CHAP] macro - is type 2, gets LOCAL lock.

Calls module IEAVECH0.

GTF data is:

R15  No applicable data.

R0  Signed value to be added to the dispatching priority of the specified task; negative value will be in two's-complement form.

R1  Address of the area containing the address of TCB whose priority is to be changed; or zeros. Zeros indicates that the active task's priority is to be changed.

<table>
<thead>
<tr>
<th>TCB</th>
<th>Address</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHAP TCB</td>
<td>hhhhhhh</td>
<td>Address of the TCB whose priority is to be changed. Must be a subtask of the current task.</td>
</tr>
</tbody>
</table>

SVC 45 (0A2D)

OVLYBRCH macro - is type 2, gets no lock.

Calls module IEWSUOVR, entry point IGC045.
GTF data is:

**R15**  Address of the entry-table entry that caused the SVC to be issued.

**R0 and R1**  No applicable data.

**PLIST**  12 bytes long; format is:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>Branch instruction to SVC 45.</td>
</tr>
<tr>
<td>4-7</td>
<td>Address of the referred-to symbol.</td>
</tr>
<tr>
<td>8</td>
<td>“To” segment number.</td>
</tr>
<tr>
<td>9-11</td>
<td>Previous caller or zero.</td>
</tr>
</tbody>
</table>

**SVC 46 (0A2E)**

**TTIMER** macro and **STIMER** macro (TEST and CANCEL options) - is type 2, gets local and dispatcher locks.

For **TTIMER** macro, GTF data is:

**R15**  No applicable data.

**R0**  Pointer to 8-byte area containing the interval remaining if "MIC" is specified.

**R1**  Low-order byte contains code indicating the type of request and the format of the returned value.

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2</td>
<td>Reserved.</td>
</tr>
<tr>
<td>3</td>
<td>Flag bits, as follows:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>0000</th>
<th>....</th>
<th>Reserved; must be zero.</th>
</tr>
</thead>
<tbody>
<tr>
<td>....</td>
<td>0...</td>
<td>TTIMER macro present.</td>
</tr>
<tr>
<td>....</td>
<td>.1..</td>
<td>ERRET option. Routine specified by the ERRET parameter gets control on an environmental error. Register 15 contains the return code.</td>
</tr>
<tr>
<td>....</td>
<td>.1.</td>
<td>MIC option. Interval remaining is returned to the specified address in microseconds. (Bit 51 is equivalent to approximately 1 microsecond.)</td>
</tr>
<tr>
<td>....</td>
<td>.0.</td>
<td>TU option. Time remaining in the task's time interval is to be in register 0 in timer units.</td>
</tr>
<tr>
<td>....</td>
<td>...1</td>
<td>CANCEL option. Current task's time interval is to be canceled.</td>
</tr>
</tbody>
</table>

**R4**  Points to requester's TCB.

**R5**  Points to the SVRB.

**R7**  Points to the ASCB.

**R14**  Contains the return address.

For **STIMER** macro (TEST and CANCEL options) GTF data is:

**R15**  No applicable data.
SVC Summary

R0  Pointer to a 16-byte parameter list which is formatted as follows:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Flag bits, as follows:</td>
</tr>
<tr>
<td></td>
<td>000. .... Reserved; must be zero.</td>
</tr>
<tr>
<td></td>
<td>...1 .... TU option. Time remaining in the current task's time interval is placed in a 4 byte field supplied by the user. It is recorded in timer units.</td>
</tr>
<tr>
<td></td>
<td>.... 1... &quot;ID=ALL&quot; option.</td>
</tr>
<tr>
<td></td>
<td>.... .1.. ERRET option. Routine specified by the ERRET parameter gets control on an environmental error. Register 15 contains the return code.</td>
</tr>
<tr>
<td></td>
<td>.... ..1. MIC option. Interval remaining is returned to the specified address in microseconds. (Bit 51 is equivalent to approximately 1 microsecond.)</td>
</tr>
<tr>
<td></td>
<td>.... ...1 CANCEL option. Specified time interval is to be cancelled.</td>
</tr>
<tr>
<td>1-2</td>
<td>Reserved; must be zero.</td>
</tr>
<tr>
<td>3</td>
<td>Flag bits as follows: Level number of the parameter list. Must be X'01'</td>
</tr>
<tr>
<td>4-7</td>
<td>Pointer to 4-byte area containing the TQE ID.</td>
</tr>
<tr>
<td>8-11</td>
<td>Pointer to area in which interval remaining will be stored. If &quot;TU&quot; is specified, the area must be 4 bytes. If &quot;MIC&quot; is specified, the area must be 8 bytes.</td>
</tr>
<tr>
<td>12-16</td>
<td>Reserved; must be zero.</td>
</tr>
</tbody>
</table>

R1  Flag bytes formatted as follows:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2</td>
<td>Reserved; must be zero.</td>
</tr>
<tr>
<td>3</td>
<td>Flag bits, as follows:</td>
</tr>
<tr>
<td></td>
<td>0000 .... Reserved; must be zero.</td>
</tr>
<tr>
<td></td>
<td>.... 1... STIMER macro present.</td>
</tr>
<tr>
<td></td>
<td>.... .000 Reserved; must be zero.</td>
</tr>
</tbody>
</table>

R4  Points to the requester's TCB.

R5  Points to the SVRB.

R7  Points to the ASCB.

R14 Contains the return address.

SVC 47 (0A2F)

STIMER macro and STIMER macro (SET option) is type 2, gets local and dispatcher locks.

For STIMER macro, GTF data is:

R15  No applicable data (old format only). Exit routine address (new format only).
SVC Summary

R0  Contents:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>STIMER option byte, as follows:</td>
</tr>
<tr>
<td></td>
<td>0... .... Indicates old format parameters.</td>
</tr>
<tr>
<td></td>
<td>1... .... Indicates new format parameters.</td>
</tr>
<tr>
<td>.000</td>
<td>TUINTVL option.</td>
</tr>
<tr>
<td>.001</td>
<td>BINTVL option.</td>
</tr>
<tr>
<td>.010</td>
<td>MICVL option.</td>
</tr>
<tr>
<td>.011</td>
<td>DINTVL option.</td>
</tr>
<tr>
<td>.110</td>
<td>GMT option.</td>
</tr>
<tr>
<td>.111</td>
<td>TOD option.</td>
</tr>
<tr>
<td>....</td>
<td>1... ERRET option. Control is returned because of errors. Register 15 is set to 8.</td>
</tr>
<tr>
<td>....</td>
<td>.0.. STIMER macro present.</td>
</tr>
<tr>
<td>....</td>
<td>.00 Task request. Decrease the interval only when the task is active.</td>
</tr>
<tr>
<td>....</td>
<td>.01 Wait request. Decrease the interval continuously and put the task in a wait state until the interval expires.</td>
</tr>
<tr>
<td>....</td>
<td>.11 Real request. Decrease the interval continuously.</td>
</tr>
</tbody>
</table>

1-3  Exit address (old format only). No applicable data (new format only).

R1  Address of the time value.

Time Value - 4 or 8 bytes depending on option in force:

a. DINTVL, TOD, MICVL, and GMT - 8 bytes; represents the time value.

b. BINTVL and TUINTVL - 4 bytes; represents the time value.

R4  Points to requester's TCB.

R5  Points to the SVRB.

R7  Points to the ASCB.

R14 Contains the return address.

For STIMERM SET, GTF data is:

R0  Flag bytes formatted as follows:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Flag bits as follows:</td>
</tr>
<tr>
<td></td>
<td>0000 0... Reserved; must be zero.</td>
</tr>
<tr>
<td></td>
<td>.... 1.. STIMERM macro present.</td>
</tr>
<tr>
<td></td>
<td>.... .00 Reserved; must be zero.</td>
</tr>
</tbody>
</table>

1-3  Reserved; must be zero.

R1  Points to a 24-byte parameter list, which is formatted as follows:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Flag bits, as follows:</td>
</tr>
</tbody>
</table>
SVC Summary

0... .... Reserved; must be zero.
.000 .... TUINTVL option.
.001 .... BINTVL option.
.010 .... MICVL option.
.011 .... DINTVL option.
.110 .... GMT option.
.111 .... TOD option.
.... 1... ERRET option.
.... .0.. Reserved; must be zero.
.... ..01 WAIT=YES option.
.... ..11 WAIT=NO option.

1-2  Reserved; must be zero.
3    Level number of parameter list. Must be X’01’.
4-7  Address of requester's field in which the TQE id will be returned.
8-11 Address of time interval.
12-15 Address of user specified exit routine or zero.
16-19 Parameter value to be passed to exit routine or zero.
20-23 Reserved; must be zero.

R4    Points to requester's TCB.
R5    Points to the SVRB.
R7    Points to the ASCB.
R14   Contains the return address.

SVC 48 (0A30)

[DEQ] macro - is type 2, gets LOCAL and CMSEQDQ locks.

Calls module ISGGRT, entry point IGC048.

GTF data is:

R15 and R0
    No applicable data.
R1    Address of the parameter list.
PLIST 20 bytes of the DEQ parameter list, representing a DEQ request for a single resource. The complete parameter list can include requests for up to 65,535 resources.

Bytes  Contents
-4     Contains the TCB address when TCB= is specified (see flag byte 0); otherwise, contents will be zero.
0      Flag bits, as follows:

0000 0000  List request
.... .0..  RNL=YES
SVC Summary

1... .... End-of-list indicator; if zero, the parameter list contains another request. Up to 65,535 requests can be included in one parameter list.
.0.. .... New options are in effect (bits 2-7 have meaning).
.011 11.. Reserved.
.0.. .1. A generic DEQUEUE (by major name) was requested.
.0.. ...1 "TCB=tcbaddr" was requested; parmlist prefix contains the TCB address.

1 Length of the minor name whose address is in bytes 8 - 11 of this element. Zeros indicate that the length of the minor name is in the first byte of the minor name field whose address is in bytes 8 - 11 of this element (does not include length byte itself).

2 DEQ parameter byte; bit settings are:

0... .... Reserved.
.0.. 0... Scope of the minor name is STEP.
.0.. 1... Resource is known across systems, and UCB= was specified. (This combination means that the last word in the parmlist contains the UCB address.)
.1.. 0... Scope of the minor name is SYSTEM.
.1.. 1... Scope of the minor name is SYSTEMS.
..1. .... Obsoleted.
...1 .... Reset "must complete".
.... .000 RET=NONE.
.... .001 RET=HAVE.

3 Return code field for codes returned to the issuer by DEQ.

4-7 Address of the major resource name (QNAME).

8-11 Address of the minor resource name (RNAME).

12-15 If bits 1 and 4 of the DEQ parameter byte are set to 0 and 1 respectively, this word contains the address of a word containing the UCB address; otherwise, the content of this word will be zero.

Register contents on return (provided only if RET=HAVE):

R15 00 if each return code for each resource named in DEQ is 0. Otherwise, R15 contains the address of a virtual storage area containing the return codes.

SVC 49 (0A31)
Reserved.

SVC 50 (0A32)
Reserved.

SVC 51 (0A33)

SNAP or SNAPX SDUMP or SDUMPX macro - is type 4, gets LOCAL, CMS, CMSEQDQ, DISP, VSMPAGE, VSMFIX, CPU, and SALLOC locks (see also the SNAP, SNAPX, SDUMP, OR SDUMPX control block in z/OS MVS Data Areas in http://www.ibm.com/systems/z/os/zos/bkserv/).
SVC Summary

Calls module IEAVAD00.

GTF data is:

**R15 and R0**

No applicable data.

**R1**

Address of the parameter list.

**PLIST**

For SNAP or SNAPX and SDUMP or SDUMPX parameter lists, see z/OS MVS Data Areas in [http://www.ibm.com/systems/z/os/zos/bkserv/](http://www.ibm.com/systems/z/os/zos/bkserv/)

**SVC 52 (0A34)**

RESTART macro - is type 4, gets LOCAL, CMS, and SALLOC locks.

Calls module IEFRSTRT.

APF protected. GTF data is:

**R15 and R0**

No applicable data.

**R1**

Address of parameter list, SVC 52 is issued to initiate a checkpoint restart.

**Parameter list contains:**

- **REPLNGTH** H  Length of the parameter list.
- **REPCIRAD** F  TTR of CIR records in the checkpoint data set entry.
- **REPCOUNT** H  Number of checkpoints taken.
- **REPKID** H  Length of check ID.
- **REPCHECK** 4F  Check ID.
- **REPDOON** 2F  DD Name of the checkpoint data set.
- **REPPE** F  Low order address of the P/P area.
- **REPPPE** F  Size of the P/P area.
- **REPBLKSI** H  Checkpoint data set blocksize.
- **REPBLK** H  Length of the TIOT.
- **REPFAG** CL1  Checkpoint flag byte 1.
- **REPWACL** CL3  Checkpoint work area length.
- **REPFLAG2** CL1  Checkpoint flag byte 2.
- **RSCKP** CL4  V=R Tests.

**SVC 53 (0A35)**

RELEX macro - is type 3, gets no lock.

Calls module IGC005C.

GTF data is:

**R15**

No applicable data.

**R0**

If R1 is negative, no applicable data. If R1 is positive, the address of a parameter list that contains:

- Relative block or TTR

  | HHHHHHHH |

  - Relative block or TTR

  or

  | MBBCCHHR |

  - Actual address.

**R1**

If positive, SVC was part of a RELEX macro call and R1 contains the DCB.
address. If negative, SVC was issued as part of some BDAM exclusive control processing and R1 contains the two’s complement of the IOB address.

DDNAME cccccccc DDNAME associated with this request.

**SVC 54 (0A36)**

DISABLE macro - is type 3, gets LOCAL lock.

Calls module IGC0005D.

GTF data is:

- **R15 and R0**
  - No applicable data.
- **R1**
  - Address of the associated DCB.

DDNAME cccccccc Name of the associated DD statement.
D CB hhhhhhhh Address of the associated DCB.
DEB hhhhhhhh Address of the associated DEB.

**SVC 55 (0A37)**

EOV macro - is type 4, gets LOCAL lock.

Calls module IGC0005E.

If MODE=24 (R1 not = 0), GTF data is:

- **R15**
  - No applicable data.
- **R0**
  - IOB address if:
    - DCBOFLGS = ...1 ....
    - DCBMACRF = 0... ....
  - or
    - Internal code for problem determination if R1 is negative, indicating DMABCOND was issued with the SVC = YES parameter,
    - or
    - X’0000 1000’, indicating that the calling program is requesting a 001 ABEND.

**Note:** If none of the listed situations is relevant, R0 must be cleared (set to zeros) or the results are unpredictable.

- **R1**
  - DCB address. If R1 is negative, the DCB address must be in complement form and R0 is expected to contain an internal code for problem determination.

DDNAME cccccccc DDNAME associated with this request.

If MODE=31 (R1 = 0), GTF data is:
**SVC Summary**

R15  
31-bit address of AMB or DCB.

R0  
IOB address if:

\[
\begin{align*}
DCBOFLGS &= \ldots1 \ldots \\
DCBMACRF &= 0\ldots 
\end{align*}
\]

DDNAME  
ccccccc  
DDNAME associated with this request.

**SVC 56 (0A38)**

The **ENQ**/**RESERVE** macro is type 2, gets LOCAL and CMSEQDQ locks.

Calls module ISGGRT.

GTF data is:

**R15 and R0**

No applicable data.

**R1**  
Address of the parameter list.

**PLIST**  
36 bytes of the ENQ/RESERVE parameter list, representing an ENQ request for a single resource. The complete parameter list can include requests for additional resources; the last request is identified by a flag bit described below.

-20  
Reserved.

-16  
If an MASID ENQ and an ECB is specified, contains the ECB address.

-12  
If an MASID ENQ, contains the MASID operand value.

-8  
If an MASID ENQ, contains the MTCB operand value; otherwise, contains the TCB address if both the TCB and the ECB are specified.

-4  
If an MASID ENQ, contains the format word of decimal 20; otherwise, contains the TCB or the ECB address depending on whether TCB= or ECB= was specified. (See the flag bytes following.)

0  
Flag bits, as follows:

\[
\begin{align*}
\ldots \ldots & \ldots 0.. \quad \text{RNL=YES} \\
1.. & \ldots \quad \text{End-of-list indicator; if zero, the parameter list includes another resource request.} \\
.1.. & \ldots \quad \text{Old options are in effect (bits have no meaning).} \\
.01. & \ldots \quad \text{Indicates LOC=ANY specified on a RESERVE request. The UCB may reside in 31-bit storage.} \\
.0.1 & \ldots \quad \text{Indicates that the requester of the resource now owns the resource and the resource is shared. If zero, the resource is owned exclusively.} \\
.0.. 1.. & \quad \text{Format word indicator. If zero, the list of PELS does not have the MASID format prefix.} \\
.0.. \ldots 1 & \quad \text{TCB=tcbaddr was requested; parmlist prefix contains the TCB address.}
\end{align*}
\]
1 Length of the minor name whose address is in bytes 8 - 11 of this element.
Zeros indicates the length of minor name is in the first byte of the minor name field whose address is in bytes 8 - 11 of this element (does not include the length byte itself).

2 ENQ parameters byte; bit settings are:

<table>
<thead>
<tr>
<th>Bit Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0...</td>
<td>Exclusive request.</td>
</tr>
<tr>
<td>1...</td>
<td>Shared request.</td>
</tr>
<tr>
<td>.0... 0...</td>
<td>Scope of the minor name is STEP.</td>
</tr>
<tr>
<td>.0... 1...</td>
<td>RESERVE type. The resource is known across systems and UCB= was specified. The last word of the parameter list is the address of a word containing the UCB address.</td>
</tr>
<tr>
<td>.1... 0...</td>
<td>Scope of the minor name is SYSTEM.</td>
</tr>
<tr>
<td>.1... 1...</td>
<td>Scope of the minor name is SYSTEMS.</td>
</tr>
<tr>
<td>.1...</td>
<td>Obsolete.</td>
</tr>
<tr>
<td>...1</td>
<td>Set must complete equal to STEP.</td>
</tr>
<tr>
<td>....</td>
<td>RET=NONE.</td>
</tr>
<tr>
<td>....</td>
<td>RET=HAVE.</td>
</tr>
<tr>
<td>....</td>
<td>RET=CHNG.</td>
</tr>
<tr>
<td>....</td>
<td>RET=USE.</td>
</tr>
<tr>
<td>....</td>
<td>ECB=addr. The ECB address is contained in the parameter list prefix.</td>
</tr>
<tr>
<td>....</td>
<td>RET=TEST.</td>
</tr>
</tbody>
</table>

3 Field for codes returned to the issuer by ENQ.

4-7 Address of the major resource name (QNAME).

8-11 Address of the minor resource name (RNAME).

12-15 If bits 1 and 4 of the ENQ parameter byte are set to 0 and 1 respectively, this word contains the address of a word containing the UCB address; otherwise, the content of this word will be zero.

Note: RESERVE is basically an ENQ with UCB= specified. See flag byte 2 above.

Register contents on return (provided only if RET=TEST, RET=USE, RET=CHNG, or RET=HAVE):

R15 00 if each return code for each resource named in ENQ is 0. Otherwise, R15 contains the address of a storage area containing the return codes.

SVC 57 (0A39)

FREEDBUF macro - is type 3, gets no lock.

Calls module IGC0005G.

GTF data is:

R15 No applicable data.
R0 DECB address. The address is in two’s complement form and indicates an extended function.
R1 DCB address.

DDNAME cccccccc DDNAME associated with this request.
SVC Summary

**SVC 58 (0A3A)**

RELBUF/REQBUF macro - is type 1, gets local lock.

Calls module IGC058.

GTF data is:
- **R15** No applicable data.
- **R0** Request count or release address.
- **R1** DCB address.

- **DDNAME** cccccccc: DDNAME associated with this request.
- **DDNAME** cccccccc: Name of the associated DD statement.
- **DCB** xxxxxxxx: Address of the DCB associated with this I/O request.
- **DEB** xxxxxxxx: Address of the DEB associated with this I/O request.

**SVC 59 (0A3B)**

OLTEP macro - is type 3, gets LOCAL and CMS locks.

Calls module IGC0005I.

APF protected via TESTAUTH. GTF data is:

- **R15** No applicable data unless specified
  - **R1=00** No function performed
  - **R1=04** UCB lookup for the control unit test.
  - **R0** RSRM address:
    - **Word 0** = Base address of the control unit.
    - **Word 1** = bytes 0,1 - number of devices on the control unit.
      - bytes 2,3 - a code (0 or 1)
  - **R1=08** To determine if OLTEP is in a MP environment.
  - **R1=0C** To vary offline a 3830 attached to a 3850 mass storage system.
  - **R1=10** To put a 3330 SSID (when attached to a 3850 mass storage system) into a list for cleanup.
  - **R1=14** To cleanup the UCBs and DEB chains and zero the CVTOLTEP word.
  - **R1=18** No function performed.
  - **R1=1C** No function performed.
  - **R1=20** No function performed.
  - **R1=24** No function performed.
  - **R1=28** No function performed.
SVC Summary

R1=2C  No function performed.
R1=30  No function performed.
R1=34  No function performed.
R1=38  No function performed.
R1=3C  To check online or offline status.
R0=    RSRM address:
   • Word 0 = pointer to the UCB.
   • Word 1 = pointer to the 8-byte workarea.
R1=40  UCB lookup for each DEVTAB entry.
R0=    RSRM address:
   • Word 0 = pointer to the DEVTAB.
   • Word 1 = number of entries in DEVTAB.
   • Word 2 = pointer to the save area.
R1=44  No function performed.
R1=4C  To translate a central address to a virtual address.
R1=50  OLTEP will purge an I/O event and free the necessary control
   blocks and areas.
R1=48  No function performed.
R1=54  Test UCB not ready bit.
R0=    RSRM address:
   • Word 0 = pointer to the UCB.
R1=58  Initialization (MVS).
R0=    RSRM address:
   • Word 0 = DIE address.
   • Word 1 = DIEPTR address.
   • Word 2 = TESTDEB address.
R15=
   00  OK.
   04  Second OLTEP.
   08  PGFIX for subpool 245 failed.
R1=5C-STARTIO - Move the IOSB.
R0=    RSRM address:
   • Word 0 = Model the IOSB address.
R15=
   00  IOSB moved and the STARTIO issued.
   04  SRB/IOSB set not available, all are in use.
   XX  CCW translator failure. XX is the return code from the translator.
SVC Summary

R1=60  Verify and set the processor affinity.
R0=  RSRM address. Word 0 = pointer to the requested affinity.
R15=

00  OK.
04  Requested affinity cannot be set.

R1=64  Invoke IOSMAP for device
R0=  RSRM address:
    • Word 0 = UCB address.
    • Word 1 = address of area to contain path map.

SVC 60 (0A3C)

SVC Summary

STAE  ESTAE macro - is type 2, gets LOCAL lock.

Calls module IEAVSTA0, entry point IGC060.

GTF data is:

FOR STAE REQUESTS

R15  No applicable data.
R0  Contents:

    00  Create.
    100 Create.
    04  Cancel.
    08  Overlay.
    108 Overlay.

R1  Address of the parameter list. The high-order bit is set to 1 if the
    XCTL=YES parameter was coded.

PLIST 12 bytes long; format is:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Flag byte:</td>
</tr>
</tbody>
</table>

    1... .... TCB address is supplied.
    .... .1.. Allow asynchronous exit scheduling.
    .... .10 Do not purge I/O operations.
    .... .01 Purge I/O operations with the halt option.
    .... .00 Purge I/O operations with the quiesce option.
    .000 0... Reserved and set to zero.

1-3  If zero, the CANCEL operand is in effect; otherwise, the address of
    the STAE exit routine.

4-7  Address of the exit routine parameter list; if zero, no exit routine
    parameter list exists.

FOR ESTAE REQUESTS
R15  No applicable data.
R0   Contents:
  00   A new ESTAE parameter list is to be created.
  100  A new ESTAE parameter list is to be created with zeroes placed in
       the reserved fields.
  04   Cancel the most recent STAE request.
  A4   Cancel the most recent STAE with TOKEN request.
  84   Cancel the most recent ESTAE request.
  94   Branch enter to cancel the most recent ESTAE request.
  B4   Branch enter to cancel the most recent ESTAE with TOKEN
       request.
  08   Overlay the previous ESTAE parameter list with the parameters
       passed in this request.
  108  Overlay the previous ESTAE parameter list with the parameters
       passed in this request and zeroes placed in the reserved fields.
R1   Address of the parameter list. The high-order bit is set to 1 if the ESTAE
     macro is not to be canceled when an XCTL is issued, and to 0 if the ESTAE
     macro is to be canceled when an XCTL is issued.
PLIST See the mapping of the ESTA macro in z/OS MVS Data Areas in
       \url{http://www.ibm.com/systems/z/os/zos/bkserv/}

SVC 61 (0A3D)
(Applies to TSO/E only) - is type 3, gets LOCAL lock.
Calls module IGC0006A.
GTF data is:
R15  No applicable information.
R0   Contains the address of the Fetch work area if invoked by Contents
     Supervisor. Otherwise, no applicable data.
R1   Contains: Zeros if the routine is being entered from the overlay supervisor.
     Negative address of the DCB used to fetch the module if the routine is
     being entered from the contents supervisor.

SVC 62 (0A3E)
DETACH macro - is type 2, gets LOCAL lock.
Calls module IEAVEED0, entry point IGC062.
GTF data is:
R15 and R0
  No applicable data.
R1   Address of the fullword containing the address of the subtask TCB to be
     detached. If bit 0 = 1, STAE=YES was specified. This affects the abend code
     with which an incomplete subtask is abended. If STAE=YES the code is
     33E, otherwise it is 13E.
DETACH TCB  hhhhhhh  Address of the subtask TCB to be detached.

**Note:** If R1 contains zeros, the DETACH TCB field is meaningless, and the issuer of SVC 62 will be abended with code 23E.

Register contents on return:
- **R15** 00 - successful completion
- 04 - an incomplete subtask was detached with STAE=YES specified; DETACH processing successfully completed

**SVC 63 (0A3F)**

CHKPT macro - is type 4, gets LOCAL and CMS locks.

Calls module IHJACP00, entry point IGC0006C.

GTF data is:
- **R15 and R0**
  - No applicable data.
- **R1** Contents:
  - a. Address of the parameter list.
  - b. Zero if for a CANCEL request.

**PLIST** 8 bytes long; format is:

- 0 00 Check the ID address provided in the second parameter of CHKPT macro instruction.
- 80 No check ID address is provided.
- 1-3 Address of the checkpoint DCB.
- 4 00 Check ID address is provided.
  - 01 to 10 Check ID length is provided via the third parameter of the CHKPT macro instruction.
  - FF S specified as the third parameter of the CHKPT macro instruction; the system-generated check ID is to be placed at the address specified in bytes 5-7.
- 5-7 Address for storing the system-generated check ID or the address of the user provided check ID.

**SVC 64 (0A40)**

RDJFCB macro - is type 3, gets LOCAL lock.

Calls module IGC0006D.

GTF data is:
- **R15 and R0**
  - No applicable data.
- **R1** The 24-bit address of the parameter list.

**PLIST** Four to 40 bytes of the RDJFCB parameter list, which has a maximum of 1020 bytes. The list is a series of 4-byte entries, each containing a 24-bit
address DCB. The high-order byte has bit 0 set to one to indicate the last entry. The address of the parameter list that is passed must be a 24-bit address.

**SVC 65 (0A41)**
Reserved.

**SVC 66 (0A42)**
BTAMTEST macro - is type 4, gets no lock.

Calls module IGC0006F.

GTF data is:
- **R15 and R0**
  No applicable data.
- **R1**
  Address of the IOB when the SVC was issued.
- **IOBERINF**
  Address of the RFT message, inserted by the channel end appendage (IGG019MB).
- **IOBERNIF+4**
  Address of the parameter list, inserted by the terminal test control (IGG019MR).

**SVC 67 (0A43)**
Reserved.

**SVC 68 (0A44)**
SYNADAF/SYNADRLS macro - is type 4, gets no lock.

Calls module IGC0006H: is type 4, gets no lock.

GTF data is:

**Entry from SYNADAF:**
- **R15**
  High-order position is a flag byte; three low-order bytes of user data or the address of the entry point to the SYNAD routine. Flag byte codes are:

<table>
<thead>
<tr>
<th>Code</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>X'00'</td>
<td>EXCP request.</td>
</tr>
<tr>
<td>X'01'</td>
<td>BPAM request.</td>
</tr>
<tr>
<td>X'02'</td>
<td>BSAM request.</td>
</tr>
<tr>
<td>X'03'</td>
<td>QSAM request.</td>
</tr>
<tr>
<td>X'04'</td>
<td>BDAM request.</td>
</tr>
<tr>
<td>X'05'</td>
<td>BISAM request.</td>
</tr>
<tr>
<td>X'06'</td>
<td>QISAM request.</td>
</tr>
<tr>
<td>X'07'</td>
<td>BTAM request.</td>
</tr>
<tr>
<td>X'09'</td>
<td>GAM request.</td>
</tr>
</tbody>
</table>
SVC Summary

R0 Three low order bytes: Address of the DECB if BSAM, BPAM, BDAM, or BISAM. Address of the status indicators if QSAM. Dependent on high-order bit if QISAM.

High order byte:

QSAM Offset of the first CCW in the status indicator area except when using the large block interface.

QISAM If bit 0 is 0, the low-order three bytes point to work area. If bit 0 is 1, the low-order three bytes point to key that is out of sequence.

R1 High-order byte has a flag byte; three low-order bytes have the address of the DCB, or Address of the IOB for QISAM or EXCP. Flag byte bit settings are: Bits-reserved for EXCP, BISAM, QISAM. BDAM, BPAM, BSAM, and QSAM as follows:

1... .... Error caused by an input operation.
.1.. .... Error caused by an output operation.
..1. .... Error caused by a BSP, CNTRL, or POINT.
...1 .... Record has been successfully read.
.... 1... Invalid request.
.... .1.. Paper tape conversion - invalid character.
.... ..1. BDAM only - hardware error.
.... ...1 BDAM only - no space for the record.

Entry from SYNADRLS:

GTF data is:

R0 and R1 No applicable data.

R15 High-order byte has X'FF' and three low-order bytes are user data.

X'FF' Indicates that the SVC routine is being entered from the SYNADRLS macro instruction.

R13 Save area address.

SVC 69 (0A45)

BSP macro - is type 3, gets no lock.

Calls module IGC0006I.

GTF data is:

R15 and R0 No applicable data.

R1 Address of the DCB.

SVC 70 (0A46)

Reserved, previously used by GAM/SP.

GSERV macro - is type 2, gets LOCAL lock.
Calls module IGC070.

GTF data is:

**R15 and R0**
No applicable data.

**R1** Contents:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Mask indicating which bits in the graphic control byte (GCB) should be reset.</td>
</tr>
<tr>
<td>1-3</td>
<td>Address of a fullword field that identifies the DCB related to the GCB in which bits are to be reset.</td>
</tr>
</tbody>
</table>

**PLIST** 4 bytes displays the fullword pointed to by register 1. Byte 0 is a unit index factor used to locate the UCB address in the DEB associated with the DCB. (The GCB to be reset is in the UCB).

**SVC 71 (0A47)**

ASGNBFR/BUFINQ/RLSEBFR macro - is type 3, gets LOCAL lock.

Calls module IGC0007A.

GTF data is:

**R15 and R0**
No applicable data.

**R1** Address of the parameter list.

**DDNAME** cccccccc name of the DD statement associated with the DCB specified by the macro instruction.

**PLIST** parameter list up to 12 bytes long pointed to by R1. The content varies according to the macro instruction calling the SVC; contents are:

**Entry from ASGNBFR:**

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Request byte; settings are:</td>
</tr>
<tr>
<td>04</td>
<td>Indicates ASGNBFR.</td>
</tr>
<tr>
<td>1-3</td>
<td>DCB address.</td>
</tr>
<tr>
<td>4-7</td>
<td>Address of the halfword field containing the number of bytes of buffer to be assigned.</td>
</tr>
</tbody>
</table>

**Entry from RLSEBFR:**

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Request byte; settings are:</td>
</tr>
<tr>
<td>08</td>
<td>RLSEBFR.</td>
</tr>
<tr>
<td>0C</td>
<td>RLSEBFR ALL.</td>
</tr>
<tr>
<td>1-3</td>
<td>DCB address.</td>
</tr>
</tbody>
</table>
4-7 Address of the halfword field containing the number of bytes of buffer to be released.

Entry from BUFINQ:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Request byte; settings are:</td>
</tr>
<tr>
<td></td>
<td>10  Indicates BUFINQ.</td>
</tr>
<tr>
<td>1-3</td>
<td>DCB address.</td>
</tr>
<tr>
<td>4-7</td>
<td>Address of the table of buffer addresses (must be on a fullword boundary).</td>
</tr>
<tr>
<td>8-11</td>
<td>The number of bytes specified to be available for the table of buffer addresses.</td>
</tr>
</tbody>
</table>

**SVC 72 (0A48)**

No macro - is type 4, gets LOCAL and CMS locks.

Calls module IEAVVCTR.

GTF data is:

**R15 and R0**

No applicable data.

**R1** Address of the parameter list that contains:

<table>
<thead>
<tr>
<th>Offset</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>'X'00'</td>
<td>Device service processor name.</td>
</tr>
<tr>
<td>'X'08'</td>
<td>Console failure reason code.</td>
</tr>
<tr>
<td>'X'09'</td>
<td>UCME address.</td>
</tr>
<tr>
<td>'X'0C'</td>
<td>UCM base address.</td>
</tr>
</tbody>
</table>

**SVC 73 (0A49)**

SPAR macro - is type 3, gets LOCAL lock.

Calls module IGC0007C.

GTF data is:

**R15 and R0**

No applicable data.

**R1** Address of the parameter list.

**PLIST up to 40 bytes.**

It is a series of 4-byte entries. First entry has format:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Priority specified for the attention routine by the SPAR macro instruction.</td>
</tr>
<tr>
<td>1</td>
<td>Reserved.</td>
</tr>
<tr>
<td>2-3</td>
<td>Number of words in the parameter list.</td>
</tr>
</tbody>
</table>
SVC Summary

Each additional entry contains the GACB address specified by the SPAR macro instruction.

SVC 74 (0A4A)
DAR macro - is type 3, gets LOCAL lock.

Calls module IGC0007D.

GTF data is:

R15 and R0
No applicable information.

R1
Address of the parameter list.

PLIST up to 40 bytes.
It is a series of 4-byte entries. First entry has the format:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>Reserved.</td>
</tr>
<tr>
<td>2-3</td>
<td>Number of words in the parameter list.</td>
</tr>
</tbody>
</table>

Each additional entry contains the GACB address specified by the DAR macro instruction.

SVC 75 (0A4B)
DQUEUE macro - is type 3, gets LOCAL lock.

Calls module IGC0007E.

GTF data is:

R15
No applicable data.

R0
Address of next the IQE on the IRB active list for the attention routine when ATTNINQ has specified the clear mode; otherwise, contains zeros.

R1 content:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Unit index to identify a particular 2260 display station; or 00 for a 2250 station.</td>
</tr>
<tr>
<td>1-3</td>
<td>GACB address.</td>
</tr>
</tbody>
</table>

IQE
When ATTNINQ specifies clear mode this field contains the first 3 words of the IQE pointed to by R0:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>Address of the next IQE in the chain, or zeros.</td>
</tr>
<tr>
<td>4-7</td>
<td>No applicable data.</td>
</tr>
<tr>
<td>8-11</td>
<td>Address of the IRB associated with the IQE. N/A will appear in this field whenever the ATTNINQ macro instruction did not specify the clear mode.</td>
</tr>
</tbody>
</table>
SVC Summary

**SVC 76 (0A4C)**
No macro - is type 3, gets no lock.

Calls module IFBSVC76, entry point IGC0007F.

APF protected. GTF data is:

R15 Contains a return code, as follows:

<table>
<thead>
<tr>
<th>Return Code (hex)</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Recording to logrec recording medium complete</td>
</tr>
<tr>
<td>08</td>
<td>Storage not available (no recording attempted)</td>
</tr>
<tr>
<td>0C</td>
<td>One of the following:</td>
</tr>
<tr>
<td></td>
<td>• Space not available (no recording attempted). Record override switch set.</td>
</tr>
<tr>
<td></td>
<td>• Buffer overflow condition reached for log stream blocks.</td>
</tr>
<tr>
<td>10</td>
<td>One of the following:</td>
</tr>
<tr>
<td></td>
<td>• Permanent I/O error.</td>
</tr>
<tr>
<td></td>
<td>• Format error in the header record.</td>
</tr>
<tr>
<td>14</td>
<td>Record length error; the record would not fit in a logrec log stream block.</td>
</tr>
</tbody>
</table>

R0 If positive, contains the function indicator in byte 3:

| 00 | Indicates that the EOD recording is requested. |
| 04 | Indicates that the EREP entry to record statistical information in the logrec data set is requested. |
| 08 | Indicates that an IPL recording is requested. |
| 0C | Indicates entry to update date and time values in the logrec data set time-stamp record. |

If negative (complemented), contains the length in bytes of a record to be placed in the logrec set.

R1 If R0 is positive, R1 contains no applicable data. If R0 is negative, R1 contains the address of the record to be written.

**SVC 77 (0A4D)**
Reserved.

**SVC 78 (0A4E)**

LSPACE macro - is type 3, gets LOCAL lock.

Calls module IGC0007H.

GTF data is:

R15 No applicable data.

R0 Address of the associated UCB or zero. If R0 = 0, R1 points to a parameter list. See [z/OS DFSMSdfp Advanced Services](https://www.ibm.com/support/docview.wss?uid=swg27053397) for a description.

R1 SMF indicator and/or the message buffer address as follows:
Bytes Contents

0 SMF indicator (caller must be in protect key 0 or authorized to specify either SMF indicator).

X’80’ Build SMF record type 19.

X’40’ LSPACE should test if the SMF volume information is requested before building the SMF record type 19.

1-3 zero or the address of a 30-byte message buffer.

CUU dddd The device number in channel-unit format.

**SVC 79 (0A4F)**

STATUS macro - is type 2, gets LOCAL, CMS, CMSEQDQ, SALLOC, and DISP locks, plus the local and global intersect.

Calls module IEAVSETS, entry point IGC079.

GTF data is:

The two low-order bytes of register 0 contain a STATUS function code. Depending on the code, registers 1 and 15 contain other information as shown.

<table>
<thead>
<tr>
<th>Register 0</th>
<th>Function</th>
<th>Register 1</th>
<th>Register 15</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>2-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0000</td>
<td>0001</td>
<td>MCSTEP</td>
<td>N/A*</td>
</tr>
<tr>
<td>MASK</td>
<td>0003</td>
<td>NDSTEP</td>
<td>N/A*</td>
</tr>
<tr>
<td>N/A*</td>
<td>0004</td>
<td>NDSYS</td>
<td>N/A*</td>
</tr>
<tr>
<td>MASK</td>
<td>0005</td>
<td>NDTCB</td>
<td>TCB</td>
</tr>
<tr>
<td>0000</td>
<td>0006</td>
<td>STOP</td>
<td>0 or TCB</td>
</tr>
<tr>
<td>0000</td>
<td>0007</td>
<td>START</td>
<td>0 or TCB</td>
</tr>
<tr>
<td>ASID**</td>
<td>0008</td>
<td>SDSTEP</td>
<td>N/A*</td>
</tr>
<tr>
<td>N/A*</td>
<td>0009</td>
<td>SDSYS</td>
<td>N/A*</td>
</tr>
</tbody>
</table>

| Register 0 | Function | Register 1 | Register 15 |
| ASID      | 000A     | SDTCB      | TCB         |
| ASID      | 000B     | SDETCB     | TCB         |
| MASK      | 000C     | NDTCB      | TCB         |
| ASID**    | 000D     | SRBS       | N/A*        |
| 0000      | 000E     | SYNCH      | N/A*        |
| 0000      | 000F     | Caller, SD | N/A*        |
| MASK      | 0010     | Caller, ND | N/A*        |
| 0000      | 0011     | SRBs only  | N/A*        |

Note: The sign bit of register one indicates:
- 0 = set(stop)
- 1 = reset(start)
- * = not applicable to codes 6, 7, 14, 15, 16.
- ** = XM status only for reset/start
SVC Summary

**SVC 80 (0A50)**
Reserved.

**SVC 81 (0A51)**
SETPRT or SETDEV macro - is type 4, gets no lock.

Calls module IGC0008A.

GTF data is:

**R15 and R0**
No applicable data.

**R1**
Address of the parameter list.

**DDNAME cccccc**
Name of the DD statement associated with the data set being printed.

**PLIST**
Parameter list of up to 14 words being passed to SVC 81.

**Bytes**

- **0-3**
  address of the DCB.

- **4-7**
  EBCDIC UCS image ID.

- **8**
  LOAD MODE indicator; bit settings are:

  
  - .0.. .... UCS = fold not specified.
  - .1.. .... UCS = fold.
  - x.xx xxxx Reserved.

- **9**
  Verification indicator; bit settings are:

  
  - ...1 .... Display the image on the printer for verification.
  - ...0 .... Do not display the image on the printer for verification.
  - xxx. xxxx Reserved.

- **10**
  Data check indicator; bit settings are:

  
  - 10.. .... Block data checks.
  - 01.. .... Unblock data checks.
  - 00.. .... Data checks the DCB specifies.
  - ..10 .... Schedule SYSOUT data segment for printing now.
  - ..01 .... Do not schedule SYSOUT data segment for immediate printing.
  - .... 10.. OPTCD = unfold option.
  - .... 01.. OPTCD = fold option.
  - ...x ...x. Reserved.
  - ...1 SETPRT parameter list is extended to at least 48 bytes in length.

- **11-14**
  EBCDIC FCB image ID.

- **15**
  FCB parameter options; bit settings are:
1... .... Verify the FCB.
.1... .... Bypass auto forms positioning.
.... ...1 Align.
.xxx xxx. Reserved.

16 SPPFLAG1 Flag indicators; bit settings are:

0... .... BURST=N, thread continuous forms stacker.
1... .... BURST=Y, thread burster-trimmer-stacker.
.1... .... REXMIT=Y, retransmission-only change COPIES, FLASH and
starting copy number.
..1. .... INIT=Y, initialize the printer.
...1 .... PRTMSG=N, suppress error messages in the printer.
.... 1... Bypass the “load forms overlay” message and status display.
.... .1.. Bypass the stacker setup message and status display.
.... ..1. Bypass WCGM overflow message.
.... ...1 Load the requested FCB image without checking current FCB
status.

17 SPPFLAG2 Flag indicators; bit settings are:

1... .... MODIFY is specified as an address.
0... .... MODIFY is not specified or is specified as a name.
.1... .... First character arrangement table is specified as an address.
.0... .... First character arrangement table is specified as a name or is
not specified.
..1. .... Second character arrangement table is specified as an address.
..0. .... Second character arrangement table is specified as a name or is
not specified.
...1 .... Third character arrangement table is specified as an address.
...0 .... Third character arrangement table is specified as a name or is
not specified.
.... 1... Fourth character arrangement table is specified as an address.
.... 0... Fourth character arrangement table is specified as a name or is
not specified.
.... .1.. FCB is specified as an address (3800 only).
.... .0.. FCB is specified as a name or is not specified.
.... ..xx Reserved.

18 Number of copies to be printed on this transmission.
19 Starting copy number.
20 Length of the parameter list.
22 Number of copies to be forms flashed on this transmission.
23 Table reference character for copy modification.
24 The last 4 bytes of a module name or a pointer to the copy modification
control record.
28 The 4 character name of a forms overlay frame.
32 The last 4 bytes of a member name or a pointer to the first character
arrangement table module.
SVC Summary

36  The last 4 bytes of a member name or a pointer to the second character arrangement table module.
40  The last 4 bytes of a member name or a pointer to the third character arrangement table module.
44  The last 4 bytes of a member name or a pointer to the fourth character arrangement table module.
48  Address of the message communication area for error information.
52  Address of the DCB for a user library to load 3800 setup modules.
56  Caller's COPYP specifications.
57  SPPFLAG3 FCB options. Copied into SETPRT work area. Bit settings are:

1... ....   COPYP specified.
.1.. ....   PSPEED specified.
..11 ....   Reserved.
.... xxxx   Caller's PSPEED specification as follows:
.... 00..   Unchanged.
.... 01..   Low.
.... 10..   Medium.
.... 11..   High.
.... ..00   Reserved, must be set to zero.

SVC 82 (0A52)
Reserved.

SVC 83 (0A53)
SMFWTM macro or SMFEWTM macro, BRANCH=NO - is type 3, gets no lock.
Calls module IEEMB830.
APF protected. GTF data is:
R15 and R0
No applicable data.
R1    The address of an SMF record that is to be written to an SMF data set.

SVC 84 (0A54)
GRAPHICS macro - is type 1, gets LOCAL lock.
Calls module IGC084, entry point IGC00084.
GTF data is:
R15  No applicable data.
R0   High-order two bytes have the buffer restart address stored in the UCB;
     two low-order bytes contain the address of the UCB.
R1    Zeros.
SVC 85 (0A55)
No macro - is type 3, gets LOCAL lock.

Calls module IGC0008E.

APF protected. GTF data is:
R15, R0 and R1 - No applicable data.

SVC 86 (0A56)
ATLAS macro - is obsolete, no longer supported.

SVC 87 (0A57)
DOM macro - is type 3, gets LOCAL and CMS locks.

Calls module IEAVXDOM, entry point IGC0008G.

GTF data is:
R15  No applicable data.
R0   Bytes

0    Count of 4 byte IDs.

Note: In byte 0, if the high order bit is ON, then the DOM request is a list of ID numbers and REPLY=YES is not specified.

1    SYSID.

2-3  Flags, as follows:

00   One ID number and REPLY=YES not specified.
01   One ID number specified.
02   A DOM control block specified.
04   One ID number and REPLY=YES specified.
08   List of ID numbers specified.
0C   List of ID numbers and REPLY=YES specified.
10   System ID specified.
11   One ID number and system ID specified.
18   List of ID numbers and system ID specified.
20   Token specified.
30   Token, system ID specified.
41   One ID number, SCOPE=SYSTEMS specified.
42   A DOM control block, SCOPE=SYSTEMS specified.
48   List of ID numbers, SCOPE=SYSTEMS specified.
50   System ID, SCOPE=SYSTEMS specified.
51   System ID, one ID number, SCOPE=SYSTEMS specified.
58   System ID, list of ID numbers, SCOPE=SYSTEMS specified.
SVC Summary

60 Token, SCOPE=SYSTEMS specified.
70 Token, system ID, SCOPE=SYSTEMS specified.
81 One ID number, SCOPE=SYSTEM specified.
82 DOM control block, SCOPE=SYSTEM specified.
88 List of ID numbers, SCOPE=SYSTEM specified.
90 System ID, SCOPE=SYSTEM specified.
91 One ID number, system ID, SCOPE=SYSTEM specified.
98 List of ID numbers, system ID, SCOPE=SYSTEM specified.
A0 Token, SCOPE=SYSTEM specified.
B0 Token, system ID, SCOPE=SYSTEM specified.

R1 Contains one of the following (contents are determined by R0):
• List of ID numbers
• 24-bit right-adjusted ID number of the message to be deleted
• Token
• Address of the DOM control block
• 0 (if DOM by SYSID specified alone)

PLIST Up to 240 bytes long. It is a series of 4-byte entries. Each entry is a message ID word. If the COUNT keyword is not specified, the last entry is identified by 1 in the first bit of the high-order byte. If the COUNT keyword is specified, the last entry contains the number of entries in the list.

SVC 88 (0A58)
Reserved.

SVC 89 (0A59)
Reserved.

SVC 90 (0A5A)
Reserved.

SVC 91 (0A5B)
VOLSTAT macro - is type 3, gets no lock.

Calls module IGC0009A.

GTF data is:

R15 No applicable information.
R0 If negative, contains the address of the UCB. If positive, contains address of the DCB.
R1 Contents:

The SVC was issued by CLOSE.
X'32' The SVC was issued by DDR.
X'33' The SVC was issued by EOD.
X'63' The SVC was issued by EOV.
Any other, the SVC was issued by UNALLOCATION.

**SVC 92 (0A5C)**
TCBEXCP macro - is type 1, gets LOCAL lock.
Calls module IECVEXCP, entry point IGC092.

GTF data is:
- **R15** No applicable data.
- **R0** If the high order byte is X'FF', the low order three bytes contain the address of the EPCB. Otherwise, the low order three bytes contain the address of the TCB to which the I/O is related.
- **R1** Address of the IOB associated with this request. (If the high order bit is zero, SVC 92 is functionally equivalent to SVC 0; if the high order bit is one, SVC 92 is functionally equivalent to SVC 114.)

- **DDNAME** cccccccc Name of the associated DD statement.
- **DCB** xxxxxxxx Address of the DCB associated with this I/O request.
- **DEB** xxxxxxxx Address of the DEB associated with this I/O request.

**SVC 93 (0A5D)**
TGET macro - is type 3, gets LOCAL and CMS locks. GTF data is:
- **R15** No applicable data.
- **R0** Two high-order bytes are reserved. Two low-order bytes contain the buffer size in bytes.
- **R1** High-order byte is a flag byte; three low-order bytes contain the address of the buffer that is to receive data from the input line. Flag byte bit settings are:

<table>
<thead>
<tr>
<th>Bits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1...</td>
<td>TGET specified.</td>
</tr>
<tr>
<td>0...</td>
<td>TPUT specified.</td>
</tr>
<tr>
<td>..1.</td>
<td>Reserved.</td>
</tr>
<tr>
<td>...1</td>
<td>Reserved for TPUT.</td>
</tr>
<tr>
<td>...0</td>
<td>NOWAIT specified; control should be returned to the program that issued the TGET whether or not an input line is available from the terminal. If no input line is obtained, a return code of 4 will be found in register 15.</td>
</tr>
<tr>
<td>...1</td>
<td>WAIT specified; control will not be returned to the program that issued the TGET until an input line has been put into the program's buffer. If an input line is not available from the terminal, the issuing program will be put into a wait state until a line does become available and is placed in program's buffer.</td>
</tr>
<tr>
<td>.... 1...</td>
<td>Reserved for TPUT.</td>
</tr>
<tr>
<td>.... .1.</td>
<td>Reserved for TPUT.</td>
</tr>
<tr>
<td>.... ..10</td>
<td>Reserved for TPUT.</td>
</tr>
<tr>
<td>.... ..01</td>
<td>ASIS specified; normal or minimal editing will be performed.</td>
</tr>
<tr>
<td>.... ..00</td>
<td>EDIT specified; further editing will be performed in addition to the normal (ASIS) editing.</td>
</tr>
</tbody>
</table>
SVC 93 (0A5D)

TPG macro is type 3, gets LOCAL and CMS locks. GTF data is:

R0  The high-order bit is set.
R1  Pointer to a 4 word parameter list. The format is:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>Reserved.</td>
</tr>
<tr>
<td>2-3</td>
<td>Buffer size.</td>
</tr>
<tr>
<td>4-7</td>
<td>Address of buffer.</td>
</tr>
<tr>
<td>8-11</td>
<td>Reserved.</td>
</tr>
<tr>
<td>12</td>
<td>Flag 2.</td>
</tr>
</tbody>
</table>

Bits

1... .... End of list.
..11 11.. Reserved.
.... ..1. TPG specified.
.... ...1 NOEDIT specified.
1.... .... Reserved for TGET.
0.... .... Reserved for TPUT.
...1 .... Reserved for TPUT.
...1 .... NOWAIT specified; control should be returned to the program that issued the TPG macro, whether or no TIOC buffers are available for the output line. If no buffers are available, the TPG SVC places a return code of 4 in register 15.
...0 .... WAIT specified; control will not be returned to the program that issued the TPG macro until an output line has been placed in a TIOC output buffer. If no buffers are available, the issuing program will be put into a wait state until buffers do become available and the output line is placed in them.
.... 1... HOLD specified; the program that issued the TPG macro cannot continue processing until the issued output line has either been written to the terminal or deleted.
.... 0... NOHOLD specified; control should be returned to the program that issued the TPG macro as soon as the output line has been placed on the output queue.
.... .1.. Reserved for TPUT.
.... ..10 Reserved for TPUT.
.... ..01 Reserved for TGET and TPUT.
.... ..00 Reserved for TGET and TPUT.
.... ..11 Reserved for TPUT.

14-15  Reserved.

SVC 93 (0A5D)

TPUT macro - is type 3, gets LOCAL and CMS locks.

GTF data is:

R15  Pointer to the USERID if specified. (See flag byte, bit 1 in register 1).
Two high-order bytes contain the address space identifier (ASID) of the destination terminal. Two low-order bytes contain the size of the input buffer in bytes.

The high-order is a flag byte; low-order bytes have the address of the buffer to hold line of output. Flag byte bit settings are:

- 1... TGET specified.
- 0... TPUT specified.
- .1... USERID specified by register 15.
- ..1... LOWP specified; the terminal will not receive any inter-terminal messages from non-supervisory routines if TSBITOFF is on, even if a key-zero task is sending messages. Can only be specified on TPUT with ASID or USERID.
- ..0... HIGHP specified; the terminal will receive inter-terminal messages if TSBITOFF is on. Can only be specified with ASID or USERID.
- ...1 NOWAIT specified; control should be returned to program that issued TPUT, whether or not TIOC buffers are available for the output line. If buffers are not available, a return code of 4 will be placed in register 15.
- ...0 WAIT specified; control will not be returned to the program that issued the TPUT until an output line has been placed in a TIOC output buffer. If no buffers are available, the issuing program will be put into a wait state until buffers do become available and the output line is placed in them.
- .... 1... HOLD specified; the program that issued the TPUT cannot continue its processing until this output line has been either written to the terminal or deleted.
- .... 0... NOHOLD specified; control should be returned to the program that issued the TPUT as soon as the output line has been placed on the output queue.
- .... .1... BREAKIN specified; output has precedence over input. If the user at the terminal is transmitting, he is interrupted, and this output line is sent. Any data that was received before the interruption is kept and displayed at the terminal following this output line.
- .... ..1... NOBREAK specified; input has precedence over output. The output message will be placed on the output queue to be printed at some future time when the user is not entering a line.
- .... ..10 CONTROL specified; the line is composed of terminal control characters and will not print or move the carriage on the terminal.
- .... ..01 ASIS specified; normal minimal editing will be performed.
- .... ..00 EDIT specified; further editing will be performed in addition to the normal ASIS editing.
- .... ..11 FULSCR specified; no editing is performed.

GTF data for the execute and the standard extended form of TPUT macro is:

The high order bit is set

Pointer to a 4 word parameter list. The format is:

- 0-1 ASID if specified.
- 2-3 Buffer size.
- 4 Flag byte; bits are as follows.
<table>
<thead>
<tr>
<th>Bits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1...</td>
<td>TGET specified.</td>
</tr>
<tr>
<td>0...</td>
<td>TPUT specified.</td>
</tr>
<tr>
<td>.1..</td>
<td>USERID specified.</td>
</tr>
<tr>
<td>..1.</td>
<td>LOWP specified; the terminal will not receive any inter-terminal messages from non-supervisory routines if TSBITOFF is on, even if a key zero task is sending messages. Can only be specified on TPUT with ASID or USERID.</td>
</tr>
<tr>
<td>..0.</td>
<td>HIGHP specified; the terminal will receive inter-terminal messages if TSBITOFF is on. Can only be specified with ASID or USERID.</td>
</tr>
<tr>
<td>...1</td>
<td>NOWAIT specified; control should be returned to the program that issued the TPUT, whether or not TIOC buffers are available for the output line. If buffers are not available, the TPUT SVC places a return code of 4 in register 15.</td>
</tr>
<tr>
<td>...0</td>
<td>WAIT specified; control will not be returned to the program that issued the TPUT macro, until an output line has been placed in a TIOC output buffer. If no buffers are available, the issuing program will be put into a wait state until buffers do become available and the output line is placed in them.</td>
</tr>
<tr>
<td>.... 1...</td>
<td>HOLD specified; the program that issued the TPUT macro cannot continue processing until the issued output line has either been written to the terminal or deleted.</td>
</tr>
<tr>
<td>.... 0...</td>
<td>NOHOLD specified; control should be returned to the program that issued the TPUT as soon as the output line has been placed on the output queue.</td>
</tr>
<tr>
<td>.... .1..</td>
<td>BREAKIN specified; output has precedence over input. If the user at the terminal is transmitting, he is interrupted, and this output line is sent. Any data that was received before the interruption is kept and displayed at the terminal following the output line.</td>
</tr>
<tr>
<td>.... .0..</td>
<td>NOBREAK specified; input has precedence over output. The output message will be placed on the output queue to be printed at some future time when the user is not entering a line.</td>
</tr>
<tr>
<td>.... ..10</td>
<td>Control specified; the line is composed of terminal control characters and will not print or move the carriage on the terminal.</td>
</tr>
<tr>
<td>.... ..01</td>
<td>ASIS specified; normal minimal editing will be performed.</td>
</tr>
<tr>
<td>.... ..00</td>
<td>EDIT specified; further editing will be performed in addition to the normal ASIS editing.</td>
</tr>
<tr>
<td>.... ..11</td>
<td>FULSCR specified; no editing is performed.</td>
</tr>
</tbody>
</table>

5-7 Buffer address.
8-11 USERID if specified.
12 Bits
SVC 94 (0A5E)
STCC macro - is type 3, gets LOCAL and CMS locks.
Calls module IGC0009D.
SVC 94 is called by the following macro instructions: TCLEARQ, STBREAK, STCOM, STCC, STAUTOLN, STSIZE, GTDEVSIZ, GTSIZE, STAUTOCP, STTRAN, STFSMODE, STLINENO, STTMPMD, and GTTERM.

GTF data is (in entry code order):

**Entry from TCLEARQ:**
- R15: No applicable data.
- R0: Byte contents, as follows:

```plaintext
  0  01  Entry code.
  1-3 0  Reserved.
```

- R1: Byte contents, as follows:

```plaintext
  0  80  INPUT specified.
  00  OUTPUT specified.
  1-3 0  Reserved.
```

**Entry from STBREAK:**
- R15: No applicable data.
- R0: Byte contents, as follows:

```plaintext
  0  04  Entry code.
  1-3 0  Reserved.
```

- R1: Byte contents, as follows:

```plaintext
  0  80  YES specified.
  00  NO specified.
  1-3 0  Reserved.
```

**Entry from STCOM:**
- R15: No applicable data.
- R0: Byte contents, as follows:

```plaintext
  0  05  Entry code.
  1-3 0  Reserved.
```
R1 Byte contents, as follows:

0 80 YES specified.
00 NO specified.
1-3 0 Reserved.

Entry from STCC:
R15 No applicable data.
R0 Byte contents, as follows:

0 07 Entry code.
1-3 0 Reserved.

Entry from STATTN:
R15 No applicable data.
R0 Byte contents, as follows:

0 Flag byte; bit settings are:
1... ... First operand specified.
.1... ... ATTN specified.
.1. ... LD specified.
...1 ... CD specified.
0000 0000 No operands specified; retain the previously-used characters.
1 0 Reserved.
2 hh Hexadecimal representation of any EBCDIC character on the terminal keyboard except new line (NL) and carriage return (CR) control characters.
   c Character representation of any EBCDIC character on the terminal keyboard.
   hh Character - delete the control character; the hexadecimal representation of any EBCDIC character on the terminal keyboard except new line (NL) and carriage return (CR) characters.
   c Character representation of any EBCDIC character on the terminal keyboard.

Entry from STATTN:
R15 No applicable data.
R0 Byte contents, as follows:

0 08 Entry code.
1 00 Reserved.
2 hh Line byte; number of consecutive lines of output that can be directed to the terminal before the keyboard will unlock.
   00 Output line counting is not used.
3 hh Tens byte; tens of seconds that can elapse before the keyboard will unlock.
   00 Locked keyboard timing is not used.
R1  Byte contents, as follows:

0  Flag byte; bit settings are:
   1... .... LINES specified.
   .1.. .... TENS specified.
   ..1. .... Input address specified.
   0000 0000 No operands specified; results in a NOP instruction.

1-3  Character string address; if zeros, no character string was specified.

Entry from STAULTOLN:

R15  No applicable data.

R0  Contents as follows:

0  09  Entry code.
1-3  Address of a fullword containing the number to be assigned to the first
     line of terminal input.

R1  Byte contents, as follows:

0  00  Reserved.
1-3  Address of a fullword containing the increment value used in assigning
     line numbers.

Entry from STSIZE:

R15  No applicable data.

R0  Byte contents, as follows:

0  0A  Entry code.
1-2  Reserved; should be zeros.
3  Lines byte; number of lines (depth) that can appear on the screen.

R1  Byte contents, as follows:

0-2  00  Reserved; should be zeros.
3  Size byte; the logical line size (width), in characters, for the terminal.

Entry from GTSIZE, STAUTOCP, SPAUTOPT, RTAUTOPT:

R15  No applicable data.

R0  Contents as follows:

0  Entry codes are:
   OB  GTSIZE.
   OC  STAUTOCP
   OD  SPAUTOPT
   OE  RTAUTOPT
SVC Summary

0  Entry codes are:
1-3  0  Reserved.

R1  No applicable data; The default is zero.

Entry from STTRAN:
R15  No applicable data.
R0  Byte contents, as follows:

<table>
<thead>
<tr>
<th>Entry code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0F</td>
</tr>
<tr>
<td>1</td>
<td>Flag byte</td>
</tr>
<tr>
<td>1...</td>
<td>NOTRAN specified</td>
</tr>
<tr>
<td>.1...</td>
<td>NOCHAR specified</td>
</tr>
<tr>
<td>..1...</td>
<td>TCHAR and SCHAR specified</td>
</tr>
<tr>
<td>2</td>
<td>Terminal character to be translated in the system.</td>
</tr>
<tr>
<td>3</td>
<td>System character to be translated at the terminal.</td>
</tr>
</tbody>
</table>

R1  Address of the parameter list containing the address and the name of the user table.

Entry from STCLEAR:
R15  No applicable data.
R0  Byte contents, as follows:

<table>
<thead>
<tr>
<th>Entry code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10  Entry code.</td>
</tr>
<tr>
<td>1-3</td>
<td>Reserved; should be zeros.</td>
</tr>
</tbody>
</table>

R1  Byte contents, as follows:

<table>
<thead>
<tr>
<th>Entry code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Reserved; should be zeros.</td>
</tr>
<tr>
<td>1-3</td>
<td>Erasure character string address.</td>
</tr>
</tbody>
</table>

Entry from GTTERM:
R15  No applicable data.
R0  Byte contents, as follows:

<table>
<thead>
<tr>
<th>Entry code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>11  Entry code.</td>
</tr>
<tr>
<td>1-3</td>
<td>Reserved.</td>
</tr>
</tbody>
</table>

R1  Parameter list address.

Entry from STFSMODE:
R15  No applicable data.
R0  Byte contents, as follows:

<table>
<thead>
<tr>
<th>Entry code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>12  Entry code.</td>
</tr>
</tbody>
</table>
R1  Byte contents, as follows:

| 0  | 80 | ON specified. |
| 40 | INITIAL=YES. |
| 20 | NOEDIT=YES. |
| 10 | PARTITIONS=YES. |
| 00 | OFF specified. |

1-2  0  Reserved.

3  Value of RSHWKEY.

Entry from STLINENO:

R15  No applicable data.

R0  Byte contents, as follows:

| 0  | 13 | Entry code. |
| 1-3 | 0 | Reserved. |

R1  Byte contents, as follows:

| 0  | 80 | ON specified. |
| 00 | OFF specified. |

1-2  0  Reserved.

3  Line number byte; the screen line number that specifies where the next non-full-screen message should appear.

Entry from STTMPMD:

R15  No applicable data.

R0  Byte contents, as follows:

| 0  | 14 | Entry code. |
| 1-3 | 0 | Reserved. |

R1  Byte contents, as follows:

| 0  | C0 | Both ON and KEYS=ALL specified. |
| 80 | ON specified. |
| 40 | KEYS=ALL specified. |
| 00 | OFF specified. |

1-3  0  Reserved.

Entry from GTDEVSIZ:

R15  No applicable data.

R0  Byte contents, as follows:
SVC Summary

0      Entry codes are:
     15  GTDEVSIZ
     1-3 0  Reserved.
R1     No applicable data; should be zero.

SVC 95 (0A5F)
SYSEVENT macro - is type 1, gets SRM lock (dependent on SYSEVENT code in register 0).

Calls module IRARMINT.

GTF data is:
R15   For some SYSEVENT codes, contains the return code value.
R0    Contents:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>Zeros, address space identifier (ASID), or not applicable.</td>
</tr>
<tr>
<td>2</td>
<td>Contents variable.</td>
</tr>
<tr>
<td>3</td>
<td>SYSEVENT code.</td>
</tr>
</tbody>
</table>
R1     Contents variable.

SVC 96 (0A60)
STAX macro - is type 3, gets LOCAL lock.

Calls module IEAVAX00.

GTF data is:
R15 and R0
No applicable data.
R1     Address of the parameter list.
PLIST 24 bytes long; format is:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>Address of the user program to get control at the time of the attention interruption.</td>
</tr>
<tr>
<td>4-5</td>
<td>Size of the input buffer (max 4095).</td>
</tr>
<tr>
<td>6-7</td>
<td>Size of the output buffer (max 4095).</td>
</tr>
<tr>
<td>8-11</td>
<td>Address of the output buffer.</td>
</tr>
<tr>
<td>12-15</td>
<td>Address of the input buffer.</td>
</tr>
<tr>
<td>16</td>
<td>STAX option flag byte; bit settings are:</td>
</tr>
</tbody>
</table>

|   | Reserved. |
|-. | REPLACE = YES. |
|..1.| REPLACE = NO. |
|1.. | DEFER = YES. |
SVC Summary

...1 .... DEFER = NO.
.... 1... Increment CLIST attention counter
.... .1... Decrement CLIST attention counter
.... ..1. Byte 17 contains a format number
.... ...1 Reserved.

17    A one indicates a format 1 parameter list.
18-19  Reserved.
20-23  User parameter list.

SVC 97 (0A61)
(Applies to TSO/E only) - is type 3, gets LOCAL lock.

Calls module IGC0009G.

GTF data is:
- Used by any module of the tested program; as a breakpoint handler, the TCBTCP bit is X'1' in the current TCB.
- R15, R0, and R1 - No applicable data.
- Used by any module of the TSO/E TEST command processor; the current TCBTCP bit is X'0' and registers contain:
  - R15 and R0 - No applicable data.
  - R1 Contents - address of the following three-word parameter list:
    +0    Address of a TCB, PRB, or IRB
    +4    Value or an address of a value:
    C000  Not applicable.
    A000  Not applicable.
    9000  Address of TCOMTAB or zeros.
    8800  The instruction address, including the appropriate AMODE indicator in the high order bit.
    8400  New value for specified general register.
    8200  Address of the 64 byte area containing new values for the general registers.
    8100  New value for specified floating-point register.
    8080  Not applicable.
    8040  Address of area to be validity checked.
    8010  Not applicable.
    8008  New value for specified vector register element.
    8004  New value for specified vector register pair element.
    8002  New value for entire specified vector register.
    8001  New value for entire specified vector register pair.
    +8    Two bytes of flags indicating the requested service:
    C000  Set the TCBTCP bit to "1".
SVC Summary

A000  Set the TCBTCP bit to "0".
9000  Getmain/Freemain TCOMTAB or alter TCBTRN field.
8800  Alter the instruction address in the RBOPSW.
8400  Alter the specified register in SVC 97's SVRB register save area.
8200  Alter all register's in SVC 97's SVRB register save area.
8100  Alter the specified floating-point register in the TCB save area.
8080  Set the RB wait count to 0.
8040  Validity check the specified address to determine if the user has read or write access.
8010  Freemain the SVQ and SVB control blocks.
8008  Alter the specified vector register element in the vector status save area (VSSA).
8004  Alter the specified vector register pair element in the Vector status save area (VSSA).
8002  Alter the entire specified vector register in the vector status save area (VSSA).
8001  Alter the entire specified vector register pair in the vector status save area (VSSA).

+A  Two-byte register number if "8400" or "8100" is requested; ((Register number x CVTVSS) + Element number) – if '8008' or '8002' is requested; ((Register number x CVTVSS) + (2 x Element number)) – if '8004' or '8001' is requested.

SVC 98 (0A62)

PROTECT macro - is type 4, gets LOCAL and CMS locks.

Calls module IGC0009H.

GTF data is:

R15 and R0
No applicable data.

R1  Address of the parameter list.

PLIST  first 4-bytes of the parameter list; format is:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Entry code.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Entry code</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>ADD function.</td>
</tr>
<tr>
<td>02</td>
<td>REPLACE function.</td>
</tr>
<tr>
<td>03</td>
<td>DELETE function.</td>
</tr>
<tr>
<td>04</td>
<td>LIST function.</td>
</tr>
<tr>
<td>05</td>
<td>TTR function.</td>
</tr>
</tbody>
</table>

1-3  Depends on the function indicated in byte 0:
SVC Summary

<table>
<thead>
<tr>
<th>Entry code</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>000000</td>
<td>Add function.</td>
</tr>
<tr>
<td>000000</td>
<td>Replace function.</td>
</tr>
<tr>
<td>000000</td>
<td>Delete function.</td>
</tr>
<tr>
<td>hhhhhh</td>
<td>LIST function - address of an 80-byte buffer.</td>
</tr>
</tbody>
</table>

**SVC 99 (0A63)**

DYNALLOC macro - is type 3, gets LOCAL and CMS locks.

Calls module IEFDB400, entry point IGC0009I.

Additional GTF tracing for SVC 99 records is provided through GTF USR trace record EIDs EF1D, EF1E, and EF1F. See [z/OS MVS Diagnosis: Tools and Service Aids](https://www.ibm.com) for further information.

GTF data is:

**R15 and R0**
No applicable data.

**R1** Address of the parameter list.

**PLIST** SVC 99 request block (S99RB). See [z/OS MVS Programming: Authorized Assembler Services Guide](https://www.ibm.com) for more information about the request block.

**SVC 100 (0A64)**

(Applies to TSO/E only) - is type 3, gets LOCAL and CMS locks.

Calls module IKJEFF00, entry point IGC00100.

GTF data is:

**R15** No applicable data.

**R1** Address of the parameter list.

**R0** Number identifying the caller.

**PLIST** 32 bytes long. Format is:

<table>
<thead>
<tr>
<th>Bytes</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>Address of the TMP parameter list.</td>
</tr>
<tr>
<td>4-7</td>
<td>Pointer to the parameter list extension for OPERATOR or PROFILE processors.</td>
</tr>
<tr>
<td>8-11</td>
<td>Error return code.</td>
</tr>
<tr>
<td>12-19</td>
<td>Failing macro name.</td>
</tr>
<tr>
<td>20-21</td>
<td>Caller's ID number.</td>
</tr>
<tr>
<td>22-23</td>
<td>Length of the user-defined extension.</td>
</tr>
<tr>
<td>24-31</td>
<td>Reserved.</td>
</tr>
</tbody>
</table>

SVC 100 is used by the SUBMIT, OUTPUT, OPERATOR, PROFILE and CANCEL/STATUS processors.
### SVC 101 (0A65)

QTIP macro - is type 1, gets LOCAL and CMS locks. SVC 101 is used only by TSO/E and the MCP, and is the interface between these functions for cross-address space communication and data movement.

GTF data is:

<table>
<thead>
<tr>
<th>R15 Contents:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bytes</strong></td>
<td><strong>Contents</strong></td>
</tr>
<tr>
<td>0</td>
<td>Zero.</td>
</tr>
<tr>
<td>1-3</td>
<td>Depends on the entry code in R0:</td>
</tr>
<tr>
<td></td>
<td><strong>Entry Code</strong></td>
</tr>
<tr>
<td>00</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>
| 01            | Address of the two word parameter list:
|               | • Word 1 Address of the USERID
|               | • Word 2 Address of the password |
| 03            | Entry address of QTIP0030 within IEDAYAA. |
| 04-0B         | Not applicable. |
| 0C            | Zero means the queue flush is allowed. |
| 0D            | Not applicable. |
| 0E            | With save area address in R1, not applicable; without save area address in R1, entry address of QTIP0140 within IEDAYOO. |
| 0F-10         | Not applicable. |
| 12-13         | Entry address of IEDAYQT1. |
| 15-16         | Address of the TSB. |
| 17            | Address of the RMPL. |
| 18            | (Same as 11-13). |
| 1B            | Address of TIOCRPT. |
| 1C            | Entry address of QTIP02080 within IEDAYII. |
| 1D            | Address of the RMPL when called by IEDAY8. |

<table>
<thead>
<tr>
<th>R0 Contents:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bytes</strong></td>
<td><strong>Contents</strong></td>
</tr>
<tr>
<td>0-2</td>
<td>Zeros.</td>
</tr>
</tbody>
</table>
| 3            | Entry codes used:
| 00           | IEDAYAA used; SVC call given. |
| 01           | IEDAY88 used; SVC call given. |
| 03           | IEDAYAA used; internal branch entry taken. |
| 04           | IEDAYHH used; SVC call given. |
| 05-09        | IEDAYII used; SVC call given. |
0A  IEDAYLL used; SVC call given.
0B-0D  IEDAYOO used; SVC call given.
0E  With save area address in R1, IEDAYOO used, SVC call given; without a save area address in R1, IEDAYOO used, internal branch entry taken.
0F-10  IEDAYOO used; SVC call given.
12-13  IEDAYGP used; branch entry taken.
15-16  IEDAYAA used; SVC call given.
17  IEDAY88 used; SVC call given.
18  IEDAYOO used; internal branch entry taken.
1B  IEDAY88 used; SVC call given.
1C  IEDAYII used; internal branch entry taken.
1D  IEDAYGP used; SVC call given by IEDAY8, internal branch entry taken from IGC0009C.

R1  Contents:
    Bytes  Contents
    0      Zero.
    1-3    Zero or address of a 12 word parameter list which is to be restored upon exit from SVC 101.

SVC 102 (0A66)
AQCTL macro - is type 3, gets LOCAL and CMS locks.
Calls module IEDQEB, entry point IGC0010B.
GTF data is:
R15 and R0  No applicable data.
R1  Address of the parameter list.
PLIST  The parameter list is either one, two or three full words, the last of which has the high order bit on (X'80') to indicate the end. Byte zero of the first word contains the function code.

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>BYTE 0</th>
<th>BYTES 1-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opctl/network control</td>
<td>X'84'</td>
<td>Pointer to the APCIB.</td>
</tr>
<tr>
<td>Move in address space</td>
<td>X'08'</td>
<td>From pointer.</td>
</tr>
<tr>
<td></td>
<td>X'00'</td>
<td>To pointer.</td>
</tr>
<tr>
<td></td>
<td>X'80'</td>
<td>Pointer to the length.</td>
</tr>
<tr>
<td>Tpost to ready queue</td>
<td>X'0C'</td>
<td>Pointer to the RCB.</td>
</tr>
<tr>
<td></td>
<td>X'00'</td>
<td>Pointer to the RCB.</td>
</tr>
<tr>
<td></td>
<td>X'80'</td>
<td>Reserved.</td>
</tr>
<tr>
<td></td>
<td>X'8C'</td>
<td>Pointer to the RCB.</td>
</tr>
<tr>
<td>Get/Read</td>
<td>X'90'</td>
<td>Pointer to the ECB.</td>
</tr>
<tr>
<td>Put/Write</td>
<td>X'94'</td>
<td>Pointer to the ECB.</td>
</tr>
<tr>
<td>Point</td>
<td>X'98'</td>
<td>Pointer to the ECB.</td>
</tr>
<tr>
<td>CKREQ</td>
<td>X'9C'</td>
<td>Pointer to the ECB.</td>
</tr>
<tr>
<td>Post ECB.</td>
<td>X'20'</td>
<td>Pointer to the ECB.</td>
</tr>
</tbody>
</table>
SVC Summary

<table>
<thead>
<tr>
<th>FUNCTION</th>
<th>BYTE 0</th>
<th>BYTES 1-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qreset.</td>
<td>X’80’</td>
<td>Pointer to the ASID.</td>
</tr>
<tr>
<td></td>
<td>X’A4’</td>
<td>Pointer to the ECB.</td>
</tr>
</tbody>
</table>

**SVC 103 (0A67)**

XLATE macro - is type 3, gets LOCAL lock.

Calls module IGC0010C.

GTF data is:
- **R15** No applicable data.
- **R0** Length of the field to be translated.
- **R1** Bit contents are as follows:

  - 0 0 Translate from ASCII to EBCDIC.
  - 1 Translate from EBCDIC to ASCII.
  - 1-31 Address of the field to be translated (in bits 8-31 if issued in 24-bit mode).

**SVC 104 (0A68)**

TOPCTL macro - is type 4, gets no lock.

Calls module IGC0010D.

APF protected. GTF data is:
- **R15** No applicable data.
- **R0** Bits indicate the subroutine to be run:

  - 0-2 0000 0001 IGC0010D entry point routine.
  - 0000 0002 GTFIELDA decode routine.
  - 0000 0003 STTNME operator command addressing routine.
  - 0000 0004 IEDQCA02 scan routine.

- **R1** Address of the operator control work area.

**SVC 105 (0A69)**

IMGLIB macro - is type 3, gets no lock.

Calls module IGC0010E.

GTF data is:
- **R15 and R0** No applicable data.
- **R1** Indicates the actions to be taken:

  - 0000 0000 Create an open DCB for SYS1.IMAGELIB and return its address.
Delete the DCB at this address and also the DEB pointed to by this DCB.

**SVC 106 (0A6A)**
Reserved.

**SVC 107 (0A6B)**

- **MODESET** macro - is type 6, gets no lock.

  Calls module IEAVMODE, entry point IGC107.

  APF protected. GTF data is:

**R15 and R0**

  No applicable data.

**R1** Parameter list:

<table>
<thead>
<tr>
<th>R1</th>
<th>Parameter list:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-2</td>
<td>Reserved (must be zero).</td>
</tr>
<tr>
<td>3</td>
<td>Indicator bits:</td>
</tr>
<tr>
<td>0000</td>
<td>No action.</td>
</tr>
<tr>
<td>0001</td>
<td>Invalid.</td>
</tr>
<tr>
<td>0010</td>
<td>Place the TCB key in the RBOPSW field of the RB.</td>
</tr>
<tr>
<td>0011</td>
<td>Set the RBOPSW key to zero.</td>
</tr>
<tr>
<td>....</td>
<td>No action.</td>
</tr>
<tr>
<td>....</td>
<td>Turn on the state bit in RBOPSW field of the RB (problem state).</td>
</tr>
<tr>
<td>....</td>
<td>Invalid.</td>
</tr>
<tr>
<td>....</td>
<td>Turn off the state bit in RBOPSW field of the RB (supervisor state).</td>
</tr>
</tbody>
</table>

**SVC 108 (0A6C)**
Reserved.

**SVC 109 (0A6D)**

ESR (type 4) SVC - is type 2.

Calls module IGC0010F.

GTF data is:

**R15** No applicable data.

**R0** Function register.

<table>
<thead>
<tr>
<th>R0</th>
<th>Function register:</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>ESPIE set function.</td>
</tr>
<tr>
<td>8</td>
<td>ESPIE reset function.</td>
</tr>
<tr>
<td>12</td>
<td>ESPIE test function.</td>
</tr>
</tbody>
</table>

**R1** If set or test request, address of IHAESPI. If reset request, TOKEN value.

Routes control to type 3 and 4 extended supervisor service routines based on the routing code in register 15. Codes X'00' through X'C7' (00 - 199) are reserved for IBM use.
<table>
<thead>
<tr>
<th>Code (Hex)</th>
<th>Macro</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>01</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>02</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>03</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>04</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>05</td>
<td>GTFSRV</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>07</td>
<td>MFSTART(RMF)</td>
<td>Authorization required - gets no locks.</td>
</tr>
<tr>
<td>08</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>09</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>0A</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>0B</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>0C</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>0D</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>0E</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>0F</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>Sort SVC.</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>14</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>16</td>
<td>MFDATA(RMF)</td>
<td>Internal data collection for RMF, authorization required - gets no locks.</td>
</tr>
<tr>
<td>17</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td>HSM</td>
</tr>
<tr>
<td>19</td>
<td></td>
<td>Calls module IGX00024</td>
</tr>
<tr>
<td>1A</td>
<td></td>
<td>TSO/E</td>
</tr>
<tr>
<td>1B</td>
<td></td>
<td>TSO/E</td>
</tr>
<tr>
<td>1C</td>
<td></td>
<td>ESPIE</td>
</tr>
<tr>
<td>1D</td>
<td></td>
<td>VSAM CBUF and BWO (backup while open)</td>
</tr>
<tr>
<td>1E</td>
<td>MSGDISP</td>
<td>DFSMSdfp tape message display.</td>
</tr>
<tr>
<td>1F</td>
<td>SYNCDEV</td>
<td>Synchronize device and system</td>
</tr>
<tr>
<td>20</td>
<td></td>
<td>NOTE,POINT</td>
</tr>
<tr>
<td>21</td>
<td>OUTDEL, OUTADD</td>
<td>Note and Point with TYPE=ABS. Register 0 points to an eight-byte parameter list.</td>
</tr>
<tr>
<td>22</td>
<td></td>
<td>MVS/bulk data transfer - Gets no locks.</td>
</tr>
<tr>
<td>23</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>24</td>
<td></td>
<td>ISPF Library Management Facility - calls module IGX00036, gets local lock.</td>
</tr>
<tr>
<td>25</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>26</td>
<td></td>
<td>DFSORT.</td>
</tr>
<tr>
<td>27</td>
<td></td>
<td>AOM in DFSMSdfp</td>
</tr>
<tr>
<td>28</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>29</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>2A</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>2B</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>2C</td>
<td></td>
<td>AOM in DFSMSdfp.</td>
</tr>
<tr>
<td>2D - 2E</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>2F</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>30 - 3B</td>
<td></td>
<td>Reserved</td>
</tr>
<tr>
<td>3C</td>
<td></td>
<td>IBMInfoSphere® Classic Federation and Data Replication.</td>
</tr>
</tbody>
</table>
**SVC Summary**

<table>
<thead>
<tr>
<th>Code (Hex)</th>
<th>Macro</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3D - C7</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>C8 - FF</td>
<td>Reserved for customer use.</td>
<td></td>
</tr>
</tbody>
</table>

**SVC 110 (0A6E)**
Reserved.

**SVC 111 (0A6F)**
No macro - is type 2, gets LOCAL and CMS locks.

Calls module IGC111.

GTF data is:
- R15 No applicable data.
- R0 Contains the function indicator in the low-order byte; refer to HASCHAM for JES2 or IATDMEB for JES3 program listing for an interpretation.
- R1 If positive, contains the address of the RPL. If negative (complemented), contains the address of the ACB.

**SVC 112 (0A70)**

PGRLSE macro - is type 1, gets LOCAL lock.

Calls module IARPS, entry point IGC112.

GTF data is:
- R15 No applicable data.
- R0 Starting address of the virtual area to be operated on.
- R1 End address of that area plus 1.
- R4 TCB address.
- R5 RB address.
- R6 Entry point address of IGC112.
- R7 ASCB address.

**SVC 113 (0A71)**

PGFIX/PGFREE/PGLOAD/PGOUT/PGANY macro - is type 1, gets LOCAL lock.

Calls module IARPS, entry point IGC113.

GTF data is:
- R15 If the high-order bit of register 1 is off, contains the second word of the virtual subarea list (VSL).
- R0 If positive, contains the address of the ECB.
SVC Summary

R1  If the high-order bit is on, contains the address of the VSL. If high-order bit is off, contains the first word of the VSL; register 15 will contain the second word.

R4  TCB address.

R5  RB address.

R6  Entry point address of IGC113.

R7  ASCB address.

Virtual Subarea List

<table>
<thead>
<tr>
<th>Byte 0</th>
<th>Flags</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bit 0</td>
<td>(1... ..)</td>
<td>This bit indicates that bytes 1-3 are a chain pointer to the next VSL entry to be processed; bytes 4-7 are ignored, but the checking of this bit is subject to the setting of byte 4, bit 1. This feature allows several parameter lists to be chained as a single logical parameter list.</td>
</tr>
<tr>
<td>Bit 1</td>
<td>(.1... ...)</td>
<td>PGFIX is to be performed; reserved, set by macro instruction.</td>
</tr>
<tr>
<td>Bit 2</td>
<td>(.1... ...)</td>
<td>PGFREE is to be performed; reserved, set by macro instruction.</td>
</tr>
<tr>
<td>Bit 3</td>
<td>(.... 1...)</td>
<td>PGLOAD is to be performed; reserved, set by macro instruction.</td>
</tr>
<tr>
<td>Bit 4</td>
<td>(.... 1...)</td>
<td>PGRLE is to be performed; reserved, set by macro instruction.</td>
</tr>
<tr>
<td>Bit 5</td>
<td>(.... 1...)</td>
<td>PGANY is to be performed; reserved, set by macro instruction.</td>
</tr>
<tr>
<td>Bit 6</td>
<td>(.... 1...)</td>
<td>Long-term PGIX is to be performed; reserved, set by macro instruction.</td>
</tr>
<tr>
<td>Bit 7</td>
<td>(.... ...1)</td>
<td>Reserved.</td>
</tr>
</tbody>
</table>

Bytes 1-3 Start Address: The virtual address of the origin of the virtual area to be processed.

<table>
<thead>
<tr>
<th>Byte 4</th>
<th>Flags</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bit 0</td>
<td>(1... ..)</td>
<td>This flag indicates the last entry of the list. It is set in the last doubleword entry in the list.</td>
</tr>
<tr>
<td>Bit 1</td>
<td>(.1... ...)</td>
<td>When this flag is set, the entry in which it is set is ignored. This bit takes precedence over byte 0, bit 0.</td>
</tr>
<tr>
<td>Bit 2</td>
<td>(.1... ...)</td>
<td>Reserved.</td>
</tr>
<tr>
<td>Bit 3</td>
<td>(.... 1...)</td>
<td>This flag indicates that a return code of 4 was issued from a page service function other than PGRLE.</td>
</tr>
<tr>
<td>Bit 4</td>
<td>(.... 1...)</td>
<td>Reserved.</td>
</tr>
<tr>
<td>Bit 5</td>
<td>(.... 1...)</td>
<td>PGOUT is to be performed; reserved, set by macro instruction.</td>
</tr>
<tr>
<td>Bit 6</td>
<td>(.... 1...)</td>
<td>KEEPREAL option of PGOUT is to be performed; reserved, set by macro instruction.</td>
</tr>
<tr>
<td>Bit 7</td>
<td>(.... ...1)</td>
<td>Reserved.</td>
</tr>
</tbody>
</table>

Bytes 5-7 End Address + 1: The virtual address of the byte immediately following the end of the virtual area.

SVC 114 (0A72)

EXCPVR macro - is type 1, gets LOCAL lock.

Calls module IECVEXCP, entry point IGC114.

GTF data is:

R15  No applicable data.

R0  Address of the IOBE when flag IOBCEF in IOBFLAG4 is on in the IOB.
SVC Summary

R1  Address of the IOB associated with this request.

DDNAME cccccccc Name of the associated DD statement.
DCB xxxxxxxx Address of the DCB associated with this I/O request.
DEB xxxxxxxx Address of the DEB associated with this I/O request.

SVC 115 (0A73)
Reserved.

SVC 116 (0A74)
ESR (type 1) SVC - is type 1, gets LOCAL lock.
Calls module IECTSVC, entry point IECTRDIL.
Routing code in register 15 determines the type 1 SVC routine to be run.

<table>
<thead>
<tr>
<th>Code</th>
<th>Macro</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>IECTRDTI</td>
<td>BTAM 3270 read initial UCB scan.</td>
</tr>
<tr>
<td>01</td>
<td>IECTATNR</td>
<td>BTAM 3270 attention reset.</td>
</tr>
<tr>
<td>02</td>
<td>CHNGNTRY</td>
<td>BTAM 3270 CHNGNTRY skip.</td>
</tr>
<tr>
<td>03</td>
<td>IECTCHGA</td>
<td>BTAM 3270 CHNGNTRY activate.</td>
</tr>
<tr>
<td>04</td>
<td>RESETPL</td>
<td>BTAM 3270 read initial.</td>
</tr>
<tr>
<td>05</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>CALLDSP</td>
<td>Dispatcher call.</td>
</tr>
<tr>
<td>09</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>0A</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>0B</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>0C</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>0D</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>0E</td>
<td>Reserved.</td>
<td></td>
</tr>
</tbody>
</table>

SVC 117 (0A75)
DEBCHK macro - is type 2, gets LOCAL lock.

GTF data is:
R15 Contains the value 2.
R0 Bits 0-7 Access Method Value

Table 9. List of bits and the access value

<table>
<thead>
<tr>
<th>Bits 0-7</th>
<th>Access method value</th>
</tr>
</thead>
<tbody>
<tr>
<td>X'82'</td>
<td>VTAM</td>
</tr>
<tr>
<td>X'81'</td>
<td>SUBSYS</td>
</tr>
<tr>
<td>X'40'</td>
<td>BDAM</td>
</tr>
<tr>
<td>X'20'</td>
<td>SAM</td>
</tr>
<tr>
<td>X'20'</td>
<td>BPAM</td>
</tr>
<tr>
<td>X'10'</td>
<td>TAM</td>
</tr>
<tr>
<td>X'08'</td>
<td>GAM</td>
</tr>
<tr>
<td>X'02'</td>
<td>EXCP</td>
</tr>
</tbody>
</table>
Table 9. List of bits and the access value (continued)

<table>
<thead>
<tr>
<th>Bits 0-7</th>
<th>Access method value</th>
</tr>
</thead>
<tbody>
<tr>
<td>X'01'</td>
<td>VSAM</td>
</tr>
<tr>
<td>X'00'</td>
<td>None</td>
</tr>
</tbody>
</table>

Bits 8-31 Type Function Code
- 0: Verify
- 1: Add
- 2: Delete
- 3: Purge

R1

Bits 0-7
- X'00'

Bits 8-31
- Address of the DCB, if the type code is not PURGE.
- Address of the DEB, if the type code is PURGE.

SVC 118 (0A76)
Reserved.

SVC 119 (0A77)

**TESTAUTH** macro - is type 1, gets LOCAL lock.

Calls module IEAVTEST, entry point IGC119.

GTF data is:

R15 No applicable data.
R0 Applies only if flag bit 7 in register one is zero. If positive, contains the authorization code. If negative, does not contain the authorization code.
R1 Bytes have meaning as follows:

<table>
<thead>
<tr>
<th>Byte</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Reserved - must be set to zero.</td>
</tr>
<tr>
<td>1</td>
<td>Flag bits:</td>
</tr>
<tr>
<td></td>
<td>xxxx ... Reserved.</td>
</tr>
<tr>
<td></td>
<td>.... 1... RBLEVEL=2 (applies only to KEY and/or STATE).</td>
</tr>
<tr>
<td></td>
<td>.... 0... RBLEVEL=1 (applies only to KEY and/or STATE).</td>
</tr>
<tr>
<td></td>
<td>.... .1... STATE=YES.</td>
</tr>
<tr>
<td></td>
<td>.... .0... STATE=NO.</td>
</tr>
<tr>
<td></td>
<td>.... ..1... KEY=YES.</td>
</tr>
<tr>
<td></td>
<td>.... ..0... KEY=NO.</td>
</tr>
<tr>
<td></td>
<td>.... ...1 No FCTN specified.</td>
</tr>
<tr>
<td></td>
<td>.... ...0 FCTN=code (see register 1 byte 3).</td>
</tr>
</tbody>
</table>

2 Reserved - must be set to zero.

3 FCTN code - applies only if flag bit 7 is "0".

Register contents on return:

R15
- 00 - Task is authorized.
- 04 - Task is not authorized.
SVC 120 (0A78)

`GETMAIN` `FREEMAIN` macro - is type 1, gets LOCAL lock.

Calls module IGVVSM31, entry point IGC120.

Note:
1. SVC 120 can be used to GETMAIN storage whose address is above 16 M bytes.
2. The interface provided by this macro can be called in either 24-bit or 31-bit addressing mode. All values and addresses will be treated as 31-bit values and addresses.

GTF data is:

**R15** Bytes as follows:

0 Flags:
- X... ... RESERVED.
- .1... ... KEY was specified.
- ..1. ... AR 15 is in use.
- ..0. ... AR 15 is not in use.
- ...1 ... LOC=(nnn,64) was specified.

- Storage can be backed above the bar.
- CHECKZERO=YES was specified.
- CHECKZERO=NO was specified explicitly, or by default.
- TCBADDR was specified on STORAGE OBTAIN or RELEASE.
- .00 OWNER=HOME was specified explicitly, or by default.
- .01 OWNER=PRIMARY was specified.
- .10 OWNER=SECONDARY was specified.
- ..11 OWNER=SYSTEM was specified.

1 Key of storage to be obtained/freed for subpools 229, 230, 231, 241, or 249 for a branch entry only.

2 Subpool number of storage to be obtained/freed.

3 Option byte:
- 0... ... Reserved - Ignored, should be zero.
- .1... ... Storage can be backed anywhere.
- ..00 ... Storage should have residency of caller.
- ..01 ... Storage address must be 24 bits.
- ..11 ... Storage address valid to full 31 bits.
- ... 1... Request is variable.
- ... .1... Storage should be on page boundary.
- ... ..1. Request is unconditional.
- ... ...1 Request is a FREEMAIN.

**R0** The number of bytes of storage to be obtained or freed (Zero for a subpool FREEMAIN).

**R1** The address of the area to be freed (Zero for GETMAIN requests).

Register contents on return:

**R1** Address of the allocated virtual storage area if the request was for a GETMAIN.

**R15** 00 - Storage available if the request was for a GETMAIN; storage freed if the request was for a FREEMAIN.
SVC Summary

04 - Storage not available if request was for a GETMAIN; storage status unchanged if request was for a FREEMAIN.

SVC 121 (0A79)

VSAM macro - is type 1, gets LOCAL lock.

Calls module IGC121.

GTF data is:

- \textbf{R15} Contains the pointer to the buffer control block.
- \textbf{R0} Contains the pointer to the place holder entry, used for a record management request.
- \textbf{R1} Contains the pointer to the IOMB (VSAM I/O management control block).

SVC 122 (0A7A)

ESR(type2) SVC - is type 2.

Routes control to type 2 extended supervisor service routines based on a routing code in register 15.

<table>
<thead>
<tr>
<th>Code</th>
<th>Macro</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>01</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>EVENTS</td>
<td>Gets local lock.</td>
</tr>
<tr>
<td>\textbf{R0}</td>
<td>Bytes have meaning as follows:</td>
<td></td>
</tr>
<tr>
<td>\textbf{0}</td>
<td>Meaning</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flag bits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1... ....</td>
<td>ENTRIES=n (create request); delete is requested if FC=5.</td>
</tr>
<tr>
<td></td>
<td>111 1111</td>
<td>Reserved.</td>
</tr>
<tr>
<td>\textbf{1}</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>\textbf{2-3}</td>
<td>Number of ENTRIES requested or zero.</td>
<td></td>
</tr>
<tr>
<td>\textbf{R1}</td>
<td>Address of the EVENT table if a delete is requested.</td>
<td></td>
</tr>
</tbody>
</table>

06 Service Processor Call Gets no locks.

\textbf{R1} Has the address of the parameter list. The two word parameter list has the following format:

\begin{itemize}
  \item \textbf{WORD 1} Address of the requester’s data block.
  \item \textbf{WORD 2} Address of the service processor command word.
\end{itemize}

07 \textbf{Extended LINK macro} is type 2, gets local and CMS locks. GTF data is:
## SVC Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Macro</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>Address of the parameter list. The 20 byte parameter list has the following format:</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Bytes</strong></td>
<td><strong>Meaning</strong></td>
</tr>
<tr>
<td>0-3</td>
<td>Address of the entry point name or directory entry.</td>
<td></td>
</tr>
<tr>
<td>4-7</td>
<td>DCB address or zero.</td>
<td></td>
</tr>
<tr>
<td>8-9</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Flag byte:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>80 - Directory entry present</td>
<td></td>
</tr>
<tr>
<td></td>
<td>40 - LSEARCH option specified</td>
<td></td>
</tr>
<tr>
<td></td>
<td>20 - ERRET address given</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>12-15</td>
<td>ERRET address or zero.</td>
<td></td>
</tr>
<tr>
<td>16-19</td>
<td>Address of user optional parameter list.</td>
<td></td>
</tr>
<tr>
<td>08</td>
<td><strong>Extended XCTL</strong></td>
<td>macro is type 2, gets LOCAL and CMS locks. GTF data is:</td>
</tr>
<tr>
<td>R1</td>
<td>Address of the parameter list. The 16 byte parameter list has the following format:</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Bytes</strong></td>
<td><strong>Meaning</strong></td>
</tr>
<tr>
<td>0-3</td>
<td>Address of the entry point name or directory entry.</td>
<td></td>
</tr>
<tr>
<td>4-7</td>
<td>DCB address or zero.</td>
<td></td>
</tr>
<tr>
<td>8-9</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Flag byte:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>80 - Directory entry present</td>
<td></td>
</tr>
<tr>
<td></td>
<td>40 - LSEARCH option specified</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>12-15</td>
<td>Address of user optional parameter list.</td>
<td></td>
</tr>
<tr>
<td>09</td>
<td><strong>Extended LOAD</strong></td>
<td>macro is type 2, gets LOCAL and CMS locks. GTF data is:</td>
</tr>
</tbody>
</table>
### SVC Summary

<table>
<thead>
<tr>
<th>Code</th>
<th>Macro</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td></td>
<td>Address of the parameter list. The 16 byte parameter list has the following format:</td>
</tr>
</tbody>
</table>

#### Bytes Meaning
- **0-3** Address of the entry point name or directory entry.
- **4-7** DCB address or zero.
- **8-9** Reserved.
- **10** Flag byte:
  - 80 - Directory entry present
  - 40 - LSEARCH option specified
  - 20 - ERRET address given
  - 10 - Global load specified
  - 08 - Load to fixed global storage requested
  - 04 - Explicit load requested
  - 02 - Delete at end-of-memory requested
  - 01 - Load point address requested.
- **11** Reserved.
- **12-15** Explicit load address or the address where to place the load point.

<table>
<thead>
<tr>
<th>R15</th>
<th>00 - LOAD function was successful. If greater than 00 - LOAD function was not successful.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0A</td>
<td>Service Processor Interface SVC is type 2, gets no locks.</td>
</tr>
<tr>
<td>0B</td>
<td>ISNAXSVC is type 2, gets no locks.</td>
</tr>
<tr>
<td>0C</td>
<td>Reserved.</td>
</tr>
<tr>
<td>0D</td>
<td>CSVXCEFM is type 2, gets LOCAL lock.</td>
</tr>
<tr>
<td>0E</td>
<td>Reserved.</td>
</tr>
<tr>
<td>0F</td>
<td>CSVHFLDM is type 2, gets LOCAL lock.</td>
</tr>
<tr>
<td>10</td>
<td>CSVHFDLM is type 2, gets LOCAL lock.</td>
</tr>
<tr>
<td>11</td>
<td>IEAVEGUR is type 2, gets no locks.</td>
</tr>
<tr>
<td>12</td>
<td>Reserved.</td>
</tr>
<tr>
<td>13</td>
<td>Reserved.</td>
</tr>
</tbody>
</table>

### SVC 123 (0A7B)

**PURGEDQ** macro - is type 2, gets DISP lock.

Calls module IEAVEPD0, entry point IGC123.

APF protected. GTF data is:

- **R15** No applicable data.
- **R0** Parameter to be passed to the RMTR if the SRB is purged.
- **R1** Address of the parameter list.
**SVC 124 (0A7C)**

TPIO macro - is type 1, gets LOCAL locks.

Calls module ISTAPC22.

GTF data is:

- **R15**: No applicable data.
- **R0**: Bytes have meaning as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Specific request.</td>
</tr>
<tr>
<td>04</td>
<td>Any request.</td>
</tr>
<tr>
<td>08</td>
<td>Open.</td>
</tr>
<tr>
<td>0C</td>
<td>TPPOST.</td>
</tr>
<tr>
<td>0F</td>
<td>CLOSE ACB.</td>
</tr>
<tr>
<td>10</td>
<td>Session control request.</td>
</tr>
</tbody>
</table>

**R1**: Work element address.

**SVC 125 (0A7D)**

EVENTS macro - is type 1, gets LOCAL lock.

Calls module IEAVEVT0, entry point IGC125.

GTF data is:

- **R15**: Address of LAST= entry or, address of ECB if ECB= is specified.
- **R0**: Bytes have meaning, as follows:

<table>
<thead>
<tr>
<th>Code</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>WAIT=YES.</td>
</tr>
<tr>
<td>1</td>
<td>WAIT=NO.</td>
</tr>
<tr>
<td>..1</td>
<td>ECB= address.</td>
</tr>
<tr>
<td>...1</td>
<td>Byte 1 contains a format number</td>
</tr>
<tr>
<td>....</td>
<td>Reserved.</td>
</tr>
</tbody>
</table>

**R1**: Address of the EVENT table.

**SVC 126 (0A7E)**

Reserved.

**SVC 127 (0A7F)**

Reserved.
SVC Summary

**SVC 128 (0A80)**
Reserved.

**SVC 129 (0A81)**
Reserved.

**SVC 130 (0A82)**

**RACHECK** macro - is type 3, gets no lock.

If RACF is installed, calls module IRRRCK00. Some RACHECK options require APF-authorization. This is enforced appropriately by RACF.

When SVC 130 is issued as a result of a RACHECK request, GTF data is:

- **R15 and R0**
  - No applicable data.
- **R1**
  - Address of the parameter list. See ACHKL data area in [z/OS Security Server RACF Data Areas](https://www-01.ibm.com/support/docview.wss?uid=ssg1S003025).

When SVC 130 is issued as a result of a RACROUTE request, and RACF is installed, GTF data is:

- **R0**
- **R1**
  - Zero.
- **R15**
  - No applicable data.

On return from SVC 130, GTF data is:

- **R0**
  - RACF reason code, if defined for the RACF return code in R15.
- **R1**
  - If applicable, has address of return data.
- **R15**
  - RACF return code.

**SVC 131 (0A83)**

**RACINIT** macro - is type 3, gets no lock.

If RACF is installed, calls module ICHRIN00.

Usually requires APF authorization, which is enforced by RACF.

When SVC 131 is issued as a result of a RACINIT request, GTF data is:

- **R15 and R0**
  - No applicable data.
- **R1**
  - Address of the parameter list. See RIPL data area in [z/OS Security Server RACF Data Areas](https://www-01.ibm.com/support/docview.wss?uid=swg1S003025).

When SVC 131 is issued as a result of a RACROUTE request, and RACF is installed, GTF data is:

- **R0**
- **R1**
  - Zero.
R15  RACF return code.

On return from SVC 131, GTF data is:
R0  RACF reason code, if defined for the RACF return code in R15.
R1  No applicable data.
R15 RACF return code.

**SVC 132 (0A84)**

RACLIST, RACXTRT, or ICHEINTY macro - is type 3, gets no lock.

If RACF is installed, calls module ICHRSM00.

Usually requires APF authorization, which is enforced by RACF.

When SVC 132 is issued as a result of a RACLIST, RACXTRT, or ICHEINTY request, GTF data is:

**R15 and R0**

No applicable data.


When SVC 132 is issued as a result of a RACROUTE request, and RACF is installed, GTF data is:


**R1** Zero.

**R15** No applicable data.

On return from SVC 132, GTF data is:

**R0** RACF reason code, if defined for the RACF return code in R15.

**R1** For RACXTRT, has address of return data. Otherwise, no applicable data.

**R15** RACF return code.

**SVC 133 (0A85)**

RACDEF macro - is type 3, gets no lock.

If RACF is installed, calls module IRRRDF00.

Requires APF authorization, which is enforced by RACF.

When SVC 133 is issued as a result of a RACDEF request, GTF data is:

**R15 and R0**

No applicable data.

When SVC 133 is issued as a result of a RACROUTE request, and RACF is installed, GTF data is:

- **R0**: Address of parameter list. See z/OS Security Server RACF Diagnosis Guide.
- **R1**: Zero.
- **R15**: No applicable data.

On return from SVC 133, GTF data is:

- **R0**: RACF reason code, if defined for the RACF return code in R15.
- **R1**: No applicable data.
- **R15**: RACF return code.

### SVC 134 (0A86)

Reserved.

### SVC 135 (0A87)

Reserved.

### SVC 136 (0A88)

Reserved.

### SVC 137 (0A89)

ESR macro is type 6, gets no locks. The routing code in register 15.

Calls module IEAVEDS0.

Identifies the type 6 SVC routine to be run.

<table>
<thead>
<tr>
<th>Code (Hex)</th>
<th>Macro</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>CALLDISP</td>
<td>Dispatcher call.</td>
</tr>
<tr>
<td>01</td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>02</td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>03</td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>04</td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>05</td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>06</td>
<td></td>
<td>Reserved.</td>
</tr>
</tbody>
</table>

### SVC 138 (0A8A)

PGSER macro - is type 2, gets no locks.

Calls module IARPI, entry point IGC138.

GTF data is:

- **R0**: ECB address or 0 if no ECB.
- **R1**: Bit 0
  - If 0, then register format (R form).
  - If 1, then list format (L form).
- **Bits 1-31**: If R1 bit 0 = 0, then the register contains a 31-bit address of the start of the virtual area.
I f R1 bit 0 = 1, then the register contains a 31-bit pointer to the first PSL in the user supplied PSL list.

<table>
<thead>
<tr>
<th>R2-R3</th>
<th>Irrelevant</th>
</tr>
</thead>
<tbody>
<tr>
<td>R4</td>
<td>TCB address</td>
</tr>
<tr>
<td>R5</td>
<td>RB address</td>
</tr>
<tr>
<td>R6-R12</td>
<td>Irrelevant</td>
</tr>
<tr>
<td>R13</td>
<td>Address of a standard 72 byte save area.</td>
</tr>
<tr>
<td>R14</td>
<td>If R1 bit 0 = 0, for register format macro, then:</td>
</tr>
<tr>
<td></td>
<td>Bits 0-15 Reserved</td>
</tr>
<tr>
<td></td>
<td>Bits 16-23 Same as FUNC in PSL</td>
</tr>
<tr>
<td></td>
<td>Bits 24-31 Same as FLAG2 in PSL</td>
</tr>
<tr>
<td></td>
<td>If R1 bit 0 = 1, then R14 is irrelevant, and not examined by page services.</td>
</tr>
<tr>
<td>R15</td>
<td>If R1 bit 0 = 0, for register format macro, then R15 contains a 31-bit address of the last byte of the virtual area (end address). If R1 bit 0 = 1, then R15 is irrelevant, and not examined by page services.</td>
</tr>
</tbody>
</table>

On return, the register contents will be as follows:

<table>
<thead>
<tr>
<th>R0</th>
<th>Unpredictable</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1-R14</td>
<td>Same as for input</td>
</tr>
<tr>
<td>R15</td>
<td>Return code.</td>
</tr>
</tbody>
</table>

**SVC 139 (0A8B)**

CVAF macros - are type 3, get local lock.

Calls module IGC0013I.

GTF data is:

R15 and R0

No applicable data.

R1 Address of 64-byte parameter list mapped by macro ICVAFPL.

**SVC 143 (0A8F)**

GENKEY, RETKEY, CIPHER, or EMK macro - is type 4, gets no lock. GTF data is:

R15 and R0

No applicable data.

R1 Address of the parameter list. Parameter list is determined by the macro that is invoked.

**Note:** This SVC is used when Cryptographic Unit Support (CUSP) or Programmed Cryptographic Facility (PCF) macros are run on a system with Integrated Cryptographic Service Facility/MVS (ICSF/MVS) installed.

**SVC 144 (0A90)**

This SVC is used only by an interactive debugger working with z/OS UNIX PTRACE functions. When the SVC is run, it causes the z/OS UNIX PTRACE SVC routine to get control. The SVC routine communicates back to the debugger to notify it that a breakpoint has been reached. After the debugging is complete, control returns to the program. For more information, refer to the description of BPX1PTR in [z/OS UNIX System Services Programming: Assembler Callable Services Reference](#).
**SVC Summary**

**SVC 146 (0A92)**

BPESVC macro - is type 3, gets no lock.

Calls module BPESVC00, entry point BPESVC00.

GTF data is:

**R15**  For all function codes except 3: No applicable data. For function code 3: Address of name of requested function.

**R0**  Function code:

<table>
<thead>
<tr>
<th>Code</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Query function status.</td>
</tr>
<tr>
<td>1</td>
<td>Register named function.</td>
</tr>
<tr>
<td>2</td>
<td>Deregister named function.</td>
</tr>
<tr>
<td>3</td>
<td>Call named function.</td>
</tr>
<tr>
<td>4</td>
<td>Termination cleanup.</td>
</tr>
</tbody>
</table>

**R1**  Address of parameter list.

**PLIST**  The size of the parameter list depends on the function; format is:

Function code 0 (Query function status):

- Bytes
  - 0-3  Parmlist version number.
  - 4-7  Function name address.
  - 8-11 Address of word to receive function routine address.
  - 12-15 Address of word to receive function routine length.
  - 16-19 Address of word to receive function routine version.
  - 20-23 Address of 8-byte area to receive owning address space STOKEN.

Function code 1 (Register named function):

- Bytes
  - 0-3  Parmlist version number.
  - 4-7  Function name address.
  - 8-11 Function routine address.
  - 12-15 Function routine length.
  - 16-19 Function routine version.
  - 20-23 Pointer to 8-byte parameter area, a copy of which will be passed to the function routine.

24  Option byte 1; bits are as follows:

- 0000 0000  Never replace function module.
- 0000 0001  Replace if new version higher than old version.
- 0000 0010  Always replace function module.

25  Option byte 2; bits are as follows:
1... ..... Function caller must be supervisor state/key 0-7.
.1... ..... Function provider is in a BPE environment.
.1. ..... Cleanup function at provider termination.
...1 ..... Delete function module at cleanup/deregistration.
.... xxxx Reserved, must be 0.

26 Reserved, must be 0.
27 Bits

0xxx ..... PSW execution key (0-7) of function module.
.... xxxx Reserved, must be 0.

Function code 2 (Deregister named function):
**Bytes**
0-3 Parmlist version number.
4-7 Function name address.

Function code 3 (Call named function):
**R1** Pointer to the parmlist for the specific named function being called.

Function code 4 (Termination cleanup):
**Bytes**
0-3 Parmlist version number.
4-7 Address of STOKEN of terminating address space.
Table 10 lists the program calls by number (in hexadecimal), with their related services and modules.

<table>
<thead>
<tr>
<th>PC number (hex)</th>
<th>Service description</th>
<th>Component or module</th>
</tr>
</thead>
<tbody>
<tr>
<td>00000000</td>
<td>Linkage index reserve</td>
<td>IEAVXLRE</td>
</tr>
<tr>
<td>00000001</td>
<td>Linkage index free</td>
<td>IEAVXLFR</td>
</tr>
<tr>
<td>00000002</td>
<td>Entry table create</td>
<td>IEAVXECR</td>
</tr>
<tr>
<td>00000003</td>
<td>Entry table destroy</td>
<td>IEAVXEDE</td>
</tr>
<tr>
<td>00000004</td>
<td>Entry table connect</td>
<td>IEAVXECK</td>
</tr>
<tr>
<td>00000005</td>
<td>Entry table disconnect</td>
<td>IEAVXEDI</td>
</tr>
<tr>
<td>00000006</td>
<td>Authorization index reserve</td>
<td>IEAVXRFE</td>
</tr>
<tr>
<td>00000007</td>
<td>Authorization index free</td>
<td>IEAVXRFE</td>
</tr>
<tr>
<td>00000008</td>
<td>Authorization index extract</td>
<td>IEAVXRFE</td>
</tr>
<tr>
<td>00000009</td>
<td>Authorization index set</td>
<td>IEAVXSET</td>
</tr>
<tr>
<td>0000000A</td>
<td>Authorization table set</td>
<td>IEAVXSET</td>
</tr>
<tr>
<td>0000000B</td>
<td>PC/AUTH resource manager</td>
<td>IEAVXPAM</td>
</tr>
<tr>
<td>0000000C</td>
<td>For use by IBM code only</td>
<td>IEAVXREX</td>
</tr>
<tr>
<td>0000000D</td>
<td>ALESERV ADD/ADDPASN services</td>
<td>IEAVXALA</td>
</tr>
<tr>
<td>0000000E</td>
<td>ALESERV DELETE service</td>
<td>IEAVXALD</td>
</tr>
<tr>
<td>0000000F</td>
<td>ALESERV EXTRACT/EXTRACTH services</td>
<td>IEAVXALE</td>
</tr>
<tr>
<td>00000010</td>
<td>ALESERV SEARCH service</td>
<td>IEAVXALS</td>
</tr>
<tr>
<td>00000011</td>
<td>DualPool Router</td>
<td></td>
</tr>
<tr>
<td>00000012</td>
<td>ENQ/DEQ/RESERVE resource termination manager</td>
<td>ISGGTRM1</td>
</tr>
<tr>
<td>00000013</td>
<td>Global resource serialization dump services</td>
<td>ISGDGCB0</td>
</tr>
<tr>
<td>00000014</td>
<td>Global resource serialization queue scan services (SCOPE is STEP, SYSTEM, or SYSTEMS)</td>
<td>ISGQSC</td>
</tr>
<tr>
<td>00000015</td>
<td>Global resource serialization storage management interface</td>
<td>ISGSMI</td>
</tr>
<tr>
<td>00000016</td>
<td>Global resource serialization QScan services (SCOPE is LOCAL or GLOBAL)</td>
<td>ISGQSC</td>
</tr>
<tr>
<td>00000017</td>
<td>Cross Memory DEQ Service, LINKAGE=SYSTEM</td>
<td>ISGGRT</td>
</tr>
<tr>
<td>00000018</td>
<td>Cross Memory ENQ Service, LINKAGE=SYSTEM</td>
<td>ISGGRT</td>
</tr>
<tr>
<td>00000019</td>
<td>Global resource serialization mainline ESTAE routine</td>
<td>ISGGEST0</td>
</tr>
<tr>
<td>0000001C</td>
<td>GRS Latch internal processing</td>
<td>ISGLRLQFE</td>
</tr>
<tr>
<td>0000001D</td>
<td>GRS Latch CREATE service</td>
<td>ISGLCRTS</td>
</tr>
<tr>
<td>0000001E</td>
<td>GRS Latch internal processing</td>
<td>ISGLRTR</td>
</tr>
<tr>
<td>0000001F</td>
<td>GRS Latch PURGE service</td>
<td>ISGLPRGS</td>
</tr>
<tr>
<td>000000110</td>
<td>GRS Latch internal processing</td>
<td>ISGLTM</td>
</tr>
<tr>
<td>000000111</td>
<td>GRS Latch internal processing -ISGLTM2</td>
<td>ISGLTM</td>
</tr>
</tbody>
</table>
### Program call services

Table 10. Summary of z/OS program calls (continued)

<table>
<thead>
<tr>
<th>PC number (hex)</th>
<th>Service description</th>
<th>Component or module</th>
</tr>
</thead>
<tbody>
<tr>
<td>00000112</td>
<td>GRS Latch PURGE by address space services</td>
<td>ISGLPRBA</td>
</tr>
<tr>
<td>00000113</td>
<td>GRS SETGRS command internal processing</td>
<td>ISGCSETP</td>
</tr>
<tr>
<td>00000114</td>
<td>GRS ISGECA service and DISPLAY GRS,ANALYZE command</td>
<td>ISGCDANG</td>
</tr>
<tr>
<td>00000115</td>
<td>GRS Latch internal processing</td>
<td>ISGLDELS</td>
</tr>
<tr>
<td>00000117</td>
<td>GRS Internal processing</td>
<td>ISGSCPME</td>
</tr>
<tr>
<td>0000011A</td>
<td>ISGENQ service</td>
<td>ISGGRT</td>
</tr>
<tr>
<td>0000011B</td>
<td>ISQUERY service</td>
<td>ISGQPC</td>
</tr>
<tr>
<td>0000011C</td>
<td>ISGADMIN service</td>
<td>ISGGRT</td>
</tr>
<tr>
<td>0000011D</td>
<td>Non-cross memory ENQ service (LINKAGE=SVC) redrives to GRS</td>
<td>ISGGRT</td>
</tr>
<tr>
<td>0000011E</td>
<td>Non-cross memory DEQ service (LINKAGE=SVC) redrives to GRS</td>
<td>ISGGRT</td>
</tr>
<tr>
<td>0000011F</td>
<td>Non-cross memory ENQ or DEQ services (LINKAGE=SVC) wait for redriving to GRS</td>
<td>ISGGRT</td>
</tr>
<tr>
<td>00000120</td>
<td>Generic PC to GRS address space to perform various functions</td>
<td>ISGGHOM</td>
</tr>
<tr>
<td>00000200</td>
<td>Display allocation tables manager</td>
<td>IEFHB410</td>
</tr>
<tr>
<td>00000201</td>
<td>DALT Dynamic Activate Config change</td>
<td>IEFHB420</td>
</tr>
<tr>
<td>00000202</td>
<td>Allocation Component Trace Record</td>
<td>IEFCTRCD</td>
</tr>
<tr>
<td>00000203</td>
<td>ATS Tape sharing Operations</td>
<td>IEFHB4IG</td>
</tr>
<tr>
<td>00000204</td>
<td>Allocation Device Management (offline, online, unload)</td>
<td>IEFHBPDF</td>
</tr>
<tr>
<td>00000300</td>
<td>VSM CPOOL build service</td>
<td>IGVCPBDP</td>
</tr>
<tr>
<td>00000301</td>
<td>VSM CPOOL expansion interface</td>
<td>IGVCPEXP</td>
</tr>
<tr>
<td>00000302</td>
<td>VSM CPOOL delete service</td>
<td>IGVCPDLP</td>
</tr>
<tr>
<td>00000303</td>
<td>VSMLIST service</td>
<td>IGVLISTP</td>
</tr>
<tr>
<td>00000304</td>
<td>VSMLOC service</td>
<td>IGVLOCP</td>
</tr>
<tr>
<td>00000305</td>
<td>CPUTIMER service</td>
<td>IEAVRT04</td>
</tr>
<tr>
<td>00000306</td>
<td>Virtual fetch CSVVFORK service</td>
<td>CSVVFORK</td>
</tr>
<tr>
<td>00000307</td>
<td>Data-in-virtual</td>
<td>ITVCCCTL</td>
</tr>
<tr>
<td>00000308</td>
<td>Symptom records</td>
<td>ASRSERVP</td>
</tr>
<tr>
<td>00000309</td>
<td>LSEXPEAND service</td>
<td>IEAVLSEX</td>
</tr>
<tr>
<td>0000030A</td>
<td>LOCASCB STOKEN= service</td>
<td>IEAVESTA</td>
</tr>
<tr>
<td>0000030B</td>
<td>Storage obtain</td>
<td>IGVVSTOR</td>
</tr>
<tr>
<td>0000030C</td>
<td>RTM dynamic resource manager</td>
<td>IEAVRT2C</td>
</tr>
<tr>
<td>0000030D</td>
<td>WAIT LINKAGE=SYSTEM service</td>
<td>IEAVEWT0P</td>
</tr>
<tr>
<td>0000030E</td>
<td>POST LINKAGE=SYSTEM service</td>
<td>IEAVEWT0P</td>
</tr>
<tr>
<td>0000030F</td>
<td>PC-ESTAE Service</td>
<td>IEAVSTAI</td>
</tr>
<tr>
<td>000003010</td>
<td>ASCRE/ASDES/ASEXT services</td>
<td>ASEMAIN</td>
</tr>
<tr>
<td>00000311</td>
<td>Storage release</td>
<td>IGVVSTOR</td>
</tr>
<tr>
<td>00000312</td>
<td>TCBTOKEN service</td>
<td>IEAVT0K</td>
</tr>
<tr>
<td>00000313</td>
<td>TESTART service</td>
<td>IEAVT0K</td>
</tr>
<tr>
<td>00000314</td>
<td>CSVQUERY Service</td>
<td>CSVQYSRV</td>
</tr>
</tbody>
</table>
## Program call services

Table 10. Summary of z/OS program calls (continued)

<table>
<thead>
<tr>
<th>PC number (hex)</th>
<th>Service description</th>
<th>Component or module</th>
</tr>
</thead>
<tbody>
<tr>
<td>00000315</td>
<td>For use by IBM code only</td>
<td>ITVCF</td>
</tr>
<tr>
<td>00000316</td>
<td>TIMEUSED Service</td>
<td>IEATTUSD</td>
</tr>
<tr>
<td>00000317</td>
<td>SRB SUSPEND with Token</td>
<td>IEAVSRBS</td>
</tr>
<tr>
<td>00000318</td>
<td>SRB RESUME with Token</td>
<td>IEAVSRBR</td>
</tr>
<tr>
<td>00000319</td>
<td>SRB Purge with Token</td>
<td>IEAVSRBP</td>
</tr>
<tr>
<td>0000031A</td>
<td>LLACOPY Service</td>
<td>CSVLLCPY</td>
</tr>
<tr>
<td>0000031B</td>
<td>RCFSTAT Service</td>
<td>IEEUSTAT</td>
</tr>
<tr>
<td>0000031C</td>
<td>RCFCONF Service</td>
<td>IEEULCFG</td>
</tr>
<tr>
<td>0000031D</td>
<td>AFFINITY Service</td>
<td>IEAVEAFN</td>
</tr>
<tr>
<td>0000031E</td>
<td>SDOM Connect service</td>
<td>COFMCONN</td>
</tr>
<tr>
<td>0000031F</td>
<td>SDOM Disconnect service</td>
<td>COFMDISC</td>
</tr>
<tr>
<td>00000320</td>
<td>CTRACEWR - Write Service</td>
<td>ITITTWRIT</td>
</tr>
<tr>
<td>00000321</td>
<td>PC TIME Service</td>
<td>IEATTIME</td>
</tr>
<tr>
<td>00000322</td>
<td>UCB Service Authorized</td>
<td>IOSVUPCR</td>
</tr>
<tr>
<td>00000323</td>
<td>UCB Service Unauthorized</td>
<td>IOSVUPCR</td>
</tr>
<tr>
<td>00000324</td>
<td>Configuration Change Manager</td>
<td>IOSVCCMI</td>
</tr>
<tr>
<td>00000325</td>
<td>Unit Verification Services</td>
<td>IEFEISO1</td>
</tr>
<tr>
<td>00000326</td>
<td>Name token services</td>
<td>IEANTCRS</td>
</tr>
<tr>
<td>00000327</td>
<td>Name token services</td>
<td>IEANTDLS</td>
</tr>
<tr>
<td>00000328</td>
<td>CONVTOD service</td>
<td>IEATCNVT</td>
</tr>
<tr>
<td>00000329</td>
<td>Dynamic APF service</td>
<td>CSVQUERY</td>
</tr>
<tr>
<td>0000032A</td>
<td>APPC service routine</td>
<td>ATBMIPTE</td>
</tr>
<tr>
<td>0000032B</td>
<td>Dynamic Exit Support</td>
<td>CSVEXPR</td>
</tr>
<tr>
<td>0000032C</td>
<td>CSRL16J service</td>
<td>CSRL16JP</td>
</tr>
<tr>
<td>0000032D</td>
<td>SCHEDIRB service</td>
<td>IEAVEIRB</td>
</tr>
<tr>
<td>0000032E</td>
<td>IOS Support</td>
<td>IOSVCOPR</td>
</tr>
<tr>
<td>0000032F</td>
<td>HCD microprocessor cluster support</td>
<td>CBDMSHSD</td>
</tr>
<tr>
<td>00000330</td>
<td>TESTART CADS ALET service</td>
<td>IEAVXTR1</td>
</tr>
<tr>
<td>00000331</td>
<td>SCHEDSRB</td>
<td>IEAVSCHD</td>
</tr>
<tr>
<td>00000333</td>
<td>HCD sysplex services (HSS) interface routine</td>
<td>CBDMSHSS</td>
</tr>
<tr>
<td>00000334</td>
<td>Captured UCB Services</td>
<td>IOSVCAPU</td>
</tr>
<tr>
<td>00000335</td>
<td>Allocation DD Service</td>
<td>IEFDIS01</td>
</tr>
<tr>
<td>00000336</td>
<td>ETR Information</td>
<td>IEATETRI</td>
</tr>
<tr>
<td>00000337</td>
<td>LOGGER Router</td>
<td>IXGL2RTE</td>
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<tr>
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## Program call services

**Table 10. Summary of z/OS program calls (continued)**

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## Program call services

Table 10. Summary of z/OS program calls (continued)

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## Program call services

**Table 10. Summary of z/OS program calls (continued)**

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<td>System trace table snapshot routine</td>
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<td>System trace ALTRTRC suspend, resume, PSTART routine</td>
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<td>System trace table snapshot filler routine</td>
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<td>• Data space PC service - Enabled data space page faults</td>
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<td>• Virtual lookaside facility - define class</td>
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<td>• Virtual lookaside facility - purge class</td>
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<td>• Virtual lookaside facility - identify user</td>
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<td>• Virtual lookaside facility - remove user</td>
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<td>• Virtual lookaside facility - notify</td>
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## Program call services

Table 10. Summary of z/OS program calls (continued)

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Chapter 5. Program call services in the system function table 211
### Program call services

Table 10. Summary of z/OS program calls (continued)

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<td>Write symptom record</td>
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<td>00001437</td>
<td>Scheduling Environment Query Service</td>
<td>IWMS4QRY</td>
</tr>
<tr>
<td>00001438</td>
<td>Scheduling Environment Set Service</td>
<td>IWMS4SET</td>
</tr>
<tr>
<td>00001439</td>
<td>Scheduling Environment Validate Service</td>
<td>IWMS4VAL</td>
</tr>
<tr>
<td>0000143A</td>
<td>Scheduling Environment Determine Execution Service</td>
<td>IWMS4DES</td>
</tr>
<tr>
<td>0000143B</td>
<td>Batch Queue Registration</td>
<td>IWME2REG</td>
</tr>
<tr>
<td>0000143C</td>
<td>Batch Queue Deregistration</td>
<td>IWME2DRG</td>
</tr>
<tr>
<td>0000143D</td>
<td>Sysplex Router Query Service</td>
<td>IWMW4DNS</td>
</tr>
<tr>
<td>0000143E</td>
<td>Reset Job Service Routine</td>
<td>IWMW2RES</td>
</tr>
<tr>
<td>0000143F</td>
<td>Update Service Class Token</td>
<td>IWMP2RE3</td>
</tr>
<tr>
<td>00001440</td>
<td>WLM OE Get Address Space</td>
<td>IWME2WON</td>
</tr>
<tr>
<td>00001441</td>
<td>WLM OE Delete Address Space</td>
<td>IWME2FGT</td>
</tr>
<tr>
<td>00001442</td>
<td>WLM OE Get work Service</td>
<td>IWME2NOW</td>
</tr>
<tr>
<td>00001443</td>
<td>Sysplex Capacity Query Service</td>
<td>IWMD3BAT</td>
</tr>
<tr>
<td>00001444</td>
<td>Batch Init Connect</td>
<td>IWME2BCN</td>
</tr>
<tr>
<td>00001445</td>
<td>Batch Init Job Select</td>
<td>IWME2BSL</td>
</tr>
<tr>
<td>00001446</td>
<td>Server Manager Inform Service</td>
<td>IWME2INF</td>
</tr>
<tr>
<td>00001447</td>
<td>Application Environment Limit Service</td>
<td>IWME2LIM</td>
</tr>
<tr>
<td>00001448</td>
<td>Demand Batch Select Locator</td>
<td>IWME2BLC</td>
</tr>
<tr>
<td>00001449</td>
<td>Demand Batch Initiator Requestor</td>
<td>IWME2BRQ</td>
</tr>
<tr>
<td>0000144A</td>
<td>Batch Queue Query Service</td>
<td>IWME2BQY</td>
</tr>
<tr>
<td>0000144B</td>
<td>Batch Initiator Placement</td>
<td>IWME2RIP</td>
</tr>
<tr>
<td>0000144C</td>
<td>BQS Queue Verifier</td>
<td>IWMD3BQV</td>
</tr>
<tr>
<td>0000144D</td>
<td>EM Select Secondary Service</td>
<td>IWME2SEM</td>
</tr>
<tr>
<td>0000144E</td>
<td>EM Delete Secondary Work</td>
<td>IWME2SV1</td>
</tr>
<tr>
<td>0000144F</td>
<td>WLM Control Region Register</td>
<td>IWMW4CRR</td>
</tr>
<tr>
<td>00001450</td>
<td>WLM Control Region Deregister</td>
<td>IWMW4CRD</td>
</tr>
<tr>
<td>00001451</td>
<td>WLM Control Region Get Group Names</td>
<td>IWMW4GCN</td>
</tr>
<tr>
<td>00001452</td>
<td>WLM Build Routing Group</td>
<td>IWMW4BRG</td>
</tr>
</tbody>
</table>
### Program call services

#### Table 10. Summary of z/OS program calls (continued)

<table>
<thead>
<tr>
<th>PC number (hex)</th>
<th>Service description</th>
<th>Component or module</th>
</tr>
</thead>
<tbody>
<tr>
<td>00001453</td>
<td>WLM Control Region Recommend</td>
<td>IWMW4CRI</td>
</tr>
<tr>
<td>00001454</td>
<td>WLM Build Routing Table</td>
<td>IWMW4BRT</td>
</tr>
<tr>
<td>00001455</td>
<td>WLM Control Region Reporting</td>
<td>IWMW4CRN</td>
</tr>
<tr>
<td>00001456</td>
<td>WLM Export Service</td>
<td>IWMC3EXP</td>
</tr>
<tr>
<td>00001457</td>
<td>WLM Import Service</td>
<td>IWMC3IMP</td>
</tr>
<tr>
<td>00001458</td>
<td>WLM Undo Export Service</td>
<td>IWMC3UEX</td>
</tr>
<tr>
<td>00001459</td>
<td>WLM Undo Import Service</td>
<td>IWMC3UIM</td>
</tr>
<tr>
<td>0000145A</td>
<td>Export/Import Connect Service</td>
<td>IWMC3CON</td>
</tr>
<tr>
<td>0000145B</td>
<td>Export/Import Disconnect Service</td>
<td>IWMC3DIS</td>
</tr>
<tr>
<td>0000145C</td>
<td>Cleanup Latch resources</td>
<td>IWMC3CLR</td>
</tr>
<tr>
<td>0000145D</td>
<td>Get PB Transaction Trace token from active</td>
<td>IWMW2GPB</td>
</tr>
<tr>
<td>0000145E</td>
<td>Dynamic Channel Path Management Timestamp Service</td>
<td>IWMC4TMP</td>
</tr>
<tr>
<td>0000145F</td>
<td>Dynamic Channel Path Management Project I/O Velocity Service</td>
<td>IWMC4PIV</td>
</tr>
<tr>
<td>00001460</td>
<td>LPAR Management CPU Affinity Service</td>
<td>IWMC4CAF</td>
</tr>
<tr>
<td>00001461</td>
<td>Dynamic Channel Path Management Switch Timestamp Service</td>
<td>IWMC4SWT</td>
</tr>
<tr>
<td>00001462</td>
<td>Temporal Affinity Service</td>
<td>IWME2TAF</td>
</tr>
<tr>
<td>00001463</td>
<td>Delete Region Work</td>
<td>IWME2SV2</td>
</tr>
<tr>
<td>00001464</td>
<td>WLM Enclave Register Service</td>
<td>IWMW2ERG</td>
</tr>
<tr>
<td>00001465</td>
<td>WLM Enclave Deregister Service</td>
<td>IWMW2EDR</td>
</tr>
<tr>
<td>00001466</td>
<td>Queue IRD Command</td>
<td>IWML4QIC</td>
</tr>
<tr>
<td>00001467</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>00001468</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>00001469</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>0000146A</td>
<td>Change an Enclave</td>
<td>IWMW2ERE</td>
</tr>
<tr>
<td>0000146B</td>
<td>WLM Contention Notification Service</td>
<td>IWMR2CNT</td>
</tr>
<tr>
<td>0000146C</td>
<td>Define Application Environment</td>
<td>IWMQ2DAE</td>
</tr>
<tr>
<td>0000146D</td>
<td>Work Request Start Service</td>
<td>IWMW2WRS</td>
</tr>
<tr>
<td>0000146E</td>
<td>Work Request Stop Service</td>
<td>IWMW2WRP</td>
</tr>
<tr>
<td>0000146F</td>
<td>Work Request Block Service</td>
<td>IWMW2WRB</td>
</tr>
<tr>
<td>00001470</td>
<td>Work Request Unblock Service</td>
<td>IWMW2WRU</td>
</tr>
<tr>
<td>00001471</td>
<td>Correlator Retrieval Service</td>
<td>IWMW2GCR</td>
</tr>
<tr>
<td>00001472</td>
<td>ARM Services Router</td>
<td>IWMA3BRI</td>
</tr>
<tr>
<td>00001473</td>
<td>EWLM Function Router</td>
<td>IWMA3PCR</td>
</tr>
<tr>
<td>00001475</td>
<td>EWLM Get Completion Phase 1</td>
<td>IWMA3RC1</td>
</tr>
<tr>
<td>00001504</td>
<td>System Logger</td>
<td>Logger</td>
</tr>
<tr>
<td>00001600</td>
<td>BOSS</td>
<td>BOSS</td>
</tr>
<tr>
<td>00001700</td>
<td>IOS Space Switching Service</td>
<td>IOSV1OSW</td>
</tr>
<tr>
<td>00001800</td>
<td>BCPii services</td>
<td></td>
</tr>
<tr>
<td>00001900</td>
<td>HIS Services</td>
<td>HISSSEsrv</td>
</tr>
</tbody>
</table>
Program call services
Chapter 6. Serialization summary

This topic describes the use of locks and system ENQ/DEQ names. In Table 11, the locks are arranged by hierarchy (from highest to lowest); the table also describes the categories, types of locks, and the bit setting for the lock in the PSACLHS field in the prefixed save area (PSA). The lock interface table is pointed to by PSA location PSA + X'2FC'.

Table 11. Summary of locks

<table>
<thead>
<tr>
<th>Lock Name</th>
<th>Description</th>
<th>Category</th>
<th>Type</th>
<th>PSACLHS (or PSACLHSE) bit</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSMGL</td>
<td>Real storage manager (RSM) lock.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>00 08 00 00</td>
</tr>
<tr>
<td>VSMFIX</td>
<td>Virtual storage management (VSM) fixed subpools lock - serializes global VSM queues and the VSMWK for global fixed subpools.</td>
<td>Global</td>
<td>Spin</td>
<td>00 04 00 00</td>
</tr>
<tr>
<td>ASM</td>
<td>Auxiliary storage manager (ASM) lock - serializes ASM resources on an address space level.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>00 00 08 00</td>
</tr>
<tr>
<td>ASMGL</td>
<td>ASM global lock - serializes ASM resources on a global level.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>00 02 00 00</td>
</tr>
<tr>
<td>RSMDS</td>
<td>RSM lock.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>00 00 01 00</td>
</tr>
<tr>
<td>RSMST</td>
<td>RSM lock.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>00 01 00 00</td>
</tr>
<tr>
<td>RSMCM</td>
<td>RSM lock.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>00 10 00 00</td>
</tr>
<tr>
<td>RSMXM</td>
<td>RSM lock.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>00 00 80 00</td>
</tr>
<tr>
<td>RSMAD</td>
<td>RSM lock.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>00 00 40 00</td>
</tr>
<tr>
<td>RSM</td>
<td>RSM lock.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>00 00 00 00</td>
</tr>
<tr>
<td>BMFLSD</td>
<td>BMF Class lock.</td>
<td>Global</td>
<td>SHR/EXCL</td>
<td>08 00 00 00 (in PSACLHSE)</td>
</tr>
<tr>
<td>VSMPAG</td>
<td>VSM pageable subpools lock - serializes the VSWK for the VSWK for global pageable subpools.</td>
<td>Global</td>
<td>Spin</td>
<td>00 00 20 00</td>
</tr>
<tr>
<td>XCFDS</td>
<td>Cross-system coupling facility (XCF) data space lock.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>40 00 00 00 (in PSACLHSE)</td>
</tr>
<tr>
<td>SSD</td>
<td>Supervisor lock.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>00 01 00 00 (in PSACLHSE)</td>
</tr>
<tr>
<td>DISP</td>
<td>Dispatcher - serializes certain global functions, for example, TIMER queues.</td>
<td>Global</td>
<td>Spin</td>
<td>00 00 10 00</td>
</tr>
<tr>
<td>SALLOC</td>
<td>Space allocation lock - serializes external routines that enable a processor for either an emergency signal (EMS) or a malfunction alert (MA).</td>
<td>Global</td>
<td>Spin</td>
<td>00 00 04 00</td>
</tr>
<tr>
<td>IXLDS</td>
<td>Cross-system extended services (XES) data space lock.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>01 00 00 00 (in PSACLHSE)</td>
</tr>
<tr>
<td>IXLSCCH</td>
<td>Cross-system extended services (XES) subchannel lock.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>04 00 00 00 (in PSACLHSE)</td>
</tr>
<tr>
<td>IXLREQST</td>
<td>Cross-system extended services (XES) request lock.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>00 20 00 00 (in PSACLHSE)</td>
</tr>
<tr>
<td>IXLHESHEL</td>
<td>Cross-system extended services (XES) shell lock.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>00 80 00 00 (in PSACLHSE)</td>
</tr>
</tbody>
</table>
### Serialization summary

**Table 11. Summary of locks (continued)**

<table>
<thead>
<tr>
<th>Lock Name</th>
<th>Description</th>
<th>Category</th>
<th>Type</th>
<th>PSACLHS (or PSACLHSE) bit</th>
</tr>
</thead>
<tbody>
<tr>
<td>IXLSHR</td>
<td>Cross-system extended services (XES) SHR/EXCL lock.</td>
<td>Global</td>
<td>SHR/EXCL</td>
<td>02 00 00 00 (in PSACLHSE)</td>
</tr>
<tr>
<td>XCFRES</td>
<td>XCF signalling path lock.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>20 00 00 00 (in PSACLHSE)</td>
</tr>
<tr>
<td>IOSYNCH</td>
<td>I/O supervisor (IOS) synchronization locks - serializes IOS resources, such as intermediate status processing, IOS storage manager page scanning, and HOT I/O.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>00 00 02 00</td>
</tr>
<tr>
<td>IOSUCB</td>
<td>IOS unit control block (UCB) lock - serializes access and updates to the UCBs. One IOSUCB exists per UCB.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>00 00 00 80</td>
</tr>
<tr>
<td>IOSULUT</td>
<td>IOS lock.</td>
<td>Global</td>
<td>SHR/EXCL</td>
<td>00 40 00 00 (in PSACLHSE)</td>
</tr>
<tr>
<td>IOS</td>
<td>IOS lock - serializes storage access maintained by the IOS IOQ storage manager.</td>
<td>Global</td>
<td>SHR/EXCL</td>
<td>02 00 00 00</td>
</tr>
<tr>
<td>HCWDRLK1</td>
<td>HCWDRLK1 lock.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>00 00 01 00 (in PSACLHSE)</td>
</tr>
<tr>
<td>HCWDRLK2</td>
<td>HCWDRLK2 lock.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>00 00 02 00 (in PSACLHSE)</td>
</tr>
<tr>
<td>XCFQ</td>
<td>XCF queue lock.</td>
<td>Global</td>
<td>SHR/EXCL</td>
<td>10 00 00 00 (in PSACLHSE)</td>
</tr>
<tr>
<td>REGSRV</td>
<td>Registration services lock used to serialize registration services structures</td>
<td>Global</td>
<td>SHR/EXCL</td>
<td>00 02 00 00 (in PSACLHSE)</td>
</tr>
<tr>
<td>CONTEXT</td>
<td>Context services lock used to serialize context services structures.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>00 04 00 00 (in PSACLHSE)</td>
</tr>
<tr>
<td>TPACBDEB</td>
<td>ATCAM lock.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>00 00 00 08</td>
</tr>
<tr>
<td>SRM</td>
<td>System resource management (SRM) lock - serializes SRM control blocks and associated data.</td>
<td>Global</td>
<td>Spin</td>
<td>00 00 00 04</td>
</tr>
<tr>
<td>WLMRES</td>
<td>WLMRES lock - workload management lock.</td>
<td>Global</td>
<td>Spin/Class</td>
<td>00 10 00 00 (in PSACLHSE)</td>
</tr>
<tr>
<td>WLMQ</td>
<td>WLMQ lock - workload management lock.</td>
<td>Global</td>
<td>SHR/EXCL</td>
<td>00 08 00 00 (in PSACLHSE)</td>
</tr>
<tr>
<td>TRACE</td>
<td>Trace lock (shared exclusive) - serializes the system trace buffer structure.</td>
<td>Global</td>
<td>SHR/EXCL</td>
<td>04 00 00 00</td>
</tr>
<tr>
<td>ETRSET</td>
<td>Timer supervision lock.</td>
<td>Global</td>
<td>Spin</td>
<td>08 00 00 00 (in PSACLHSE)</td>
</tr>
<tr>
<td>CPU</td>
<td>Processor lock - provides legal disablement.</td>
<td>Global</td>
<td>Legal disablement lock</td>
<td>80 00 00 00</td>
</tr>
<tr>
<td>CMSSMF</td>
<td>SMF cross memory services (CMS) lock - serializes SMF functions and control blocks.</td>
<td>Global</td>
<td>Suspend</td>
<td>00 00 00 02</td>
</tr>
<tr>
<td>CMSEQDQ</td>
<td>ENQ/DEQ CMS lock - serializes ENQ/DEQ functions and control blocks.</td>
<td>Global</td>
<td>Suspend</td>
<td>00 00 00 02</td>
</tr>
<tr>
<td>CMS</td>
<td>General cross memory services (CMS) lock - serializes on more than one address space when this serialization is not provided by one or more of the other global locks. The CMS lock provides global serialization when enablement is required.</td>
<td>Global</td>
<td>Suspend</td>
<td>00 00 00 02</td>
</tr>
</tbody>
</table>
Table 11. Summary of locks (continued)

<table>
<thead>
<tr>
<th>Lock Name</th>
<th>Description</th>
<th>Category</th>
<th>Type</th>
<th>PSACLHS (or PSACLHSE) bit</th>
</tr>
</thead>
<tbody>
<tr>
<td>CML</td>
<td>Local cross memory storage lock - serializes functions and storage within an address space other than the home address space. One CML lock exists per address space.</td>
<td>Local</td>
<td>Suspend</td>
<td>00 00 00 01</td>
</tr>
<tr>
<td>LOCAL</td>
<td>Local storage lock - serializes functions and storage within a local address space. One LOCAL lock exists per address space.</td>
<td>Local</td>
<td>Suspend</td>
<td>00 00 00 01</td>
</tr>
</tbody>
</table>

Use of locks

The use of locks is based on the following considerations:

- At any one time, a processor can hold only one lock per hierarchical level (with the exception of the CPU lock).
- The CPU lock has no hierarchy in respect to the other spin type locks. However, once obtained, no suspend locks can be obtained. This lock can be held by any number of units of work. There is only one CPU lock per processor.
- The cross memory services locks (CMSSMF, CMSEQDQ, CMS, and CMSLATCH) are equal to each other in the hierarchy. After obtaining a local lock, the caller can obtain all or any subset of the cross memory services locks (CMSSMF, CMSEQDQ, CMS, and CMSLATCH) in a single lock manager request. If a caller holds any one and requests another, an abend results. When requesting any other lock, it is not necessary for a program to own locks that are lower in the hierarchy.
- The CML and LOCAL locks are equal to each other in the hierarchy. One unit of work can hold one local lock, either a CML or a LOCAL lock, not both.
- Page faults on non-DREF storage are permitted for programs that own the LOCAL, CML, and/or CMS locks, but not for programs that own locks higher in the hierarchy.
- Locks can be requested conditionally or unconditionally. However, only locks higher than those currently held by the processor can be requested unconditionally.
- PSACLHS (also referred to as PSAHLHI (PSA X'2F8')) and PSACLHSE (PSA+X'4C4') indicate the current locks held. There is no hierarchy indicated by the bit positions within the strings. For the valid hierarchy of locks, see the above list.

For information about the use of locks by SVC routines, see Chapter 4, “SVC summary,” on page 95.
**ENQ/DEQ summary**

Table 12 shows major and minor ENQ/DEQ names and the resources that issue the ENQ/DEQ. These names are resources at the SYSTEM or SYSTEMS level.

<table>
<thead>
<tr>
<th>Major (QNAME)</th>
<th>Minor (RNAME)</th>
<th>Resource - Using modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>IGDCDS</td>
<td>COMMDS, ACDS, or SCDS data set name</td>
<td>SMS IGDCSDSS</td>
</tr>
<tr>
<td>IGDCDSXS</td>
<td>COMMDS, ACDS, or SCDS data set name</td>
<td>SMS IGDCSDSS</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note</strong>: This is a device RESERVE rather than an ENQ macro.</td>
</tr>
<tr>
<td>SERLOG</td>
<td>Logrec data set</td>
<td>Logrec data set - IFCZIHND</td>
</tr>
<tr>
<td>SPFDSN</td>
<td>dsname</td>
<td>ISPCRESV, ISPCRELS</td>
</tr>
<tr>
<td>SPFEDIT</td>
<td>dsname + membername (blank for sequential data set)</td>
<td>ISPCNQ, ISPCDQ</td>
</tr>
<tr>
<td>SYSDSN</td>
<td>dsname</td>
<td>Data sets.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note</strong>: Normally issued under initiator TCB.</td>
</tr>
<tr>
<td>SYSIEA01</td>
<td>DMPDSENQ</td>
<td>Serializes DUMPDS commands. IEECB923, IEECB926, IEECB910</td>
</tr>
<tr>
<td></td>
<td>DPLxxx</td>
<td>Used as serialization mechanism for SVC dumps (data set initialization).</td>
</tr>
<tr>
<td></td>
<td>DPLCHAIN</td>
<td>Serializes captured dump queue.</td>
</tr>
<tr>
<td></td>
<td>IEA</td>
<td>Serializes dump data sets. IEAVTABD.</td>
</tr>
<tr>
<td></td>
<td>SDDSQ</td>
<td>Serializes dump data set queue.</td>
</tr>
<tr>
<td></td>
<td>SDPOSTEX</td>
<td>IEAVTDSV, IEAVTSDC, IEAVAD00</td>
</tr>
<tr>
<td></td>
<td>SDUMPENQ</td>
<td>Serializes SVC dump's scheduled dump. IEAVTSDT, IEAVAD00</td>
</tr>
</tbody>
</table>
### Serialization Summary

#### Table 12. Summary of major and minor ENQ/DEQ names and resources (continued)

<table>
<thead>
<tr>
<th>Major (QNAME)</th>
<th>Minor (RNAME)</th>
<th>Resource - Using modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSIEFSD</td>
<td>ALLOCTP</td>
<td>Serializes teleprocessing device allocations.</td>
</tr>
<tr>
<td></td>
<td>ALLOC_PARAMETERS</td>
<td>Using Allocation parameters.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enqueue: IEFAB4A2, IEFAB493, IEFBB401, IEFDAPRM, IEFDB400, IEFIS01, IEFSALLC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dequeue: IEFAB4A2, IEFAB4E4, IEFAB493, IEFBB401, IEFDAPRM, IEFDB400, IEFDB402, IEFIS01, IEFSALLC</td>
</tr>
<tr>
<td>CHNGDEVS</td>
<td>UCB, IEEMB813, ALLOCATION, DFSMSdss</td>
<td></td>
</tr>
<tr>
<td>DDRTPUR</td>
<td>Swap unit record or tape device. IGFDU0, IGFDT0, ALLOCATION</td>
<td></td>
</tr>
<tr>
<td>DDRDA</td>
<td>Swap DASD device. IGFDD0, ALLOCATION</td>
<td></td>
</tr>
<tr>
<td>Q4</td>
<td>UCB, IEEVCPU, IEEVPTH, ALLOCATION. Dequeue only: IGGO0A05I, IEECB838, IEECB844, IEECB851, IEECB857.</td>
<td></td>
</tr>
<tr>
<td>Q6</td>
<td>Protect key resource. IEFSD161, IEFSD166. Dequeue only: IEFIB620.</td>
<td></td>
</tr>
<tr>
<td>Q10</td>
<td>CSB, IEECB800, IEECB866, IEECB810, IEEVMNT1, IEEVND6, IEEVSTAR, IEEVWAIT, IEE0303D, IEE0703D, IEE0803D, IEE3703D, IEE5103D, IEFIRECM, IEFIRECM, IEECB881, IEECB894, IEECFCLS, IEEMB860, IEEVIPL, IEE24110, IEE7903D.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dequeue: IEESB665, IEFISEXR, IEECB894, IEECFCLS, IEEMB860, IEEVIPL, IEE24110, IEE7903D.</td>
<td></td>
</tr>
<tr>
<td>RPLL</td>
<td>Job journal data set. IEFXB501</td>
<td></td>
</tr>
<tr>
<td>STCQUE</td>
<td>Started task control. IEFJSWT, IEEVWAIT, IEEMB860</td>
<td></td>
</tr>
<tr>
<td>TSOQUE</td>
<td>TSO/E data sets. IEFJSWT, IEEVWAIT, IEEMB860</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dequeue: IEEESB670, IEEMB860.</td>
<td></td>
</tr>
<tr>
<td>VARYDEV</td>
<td>Vary device command: IEECB838, IEECB844, IEECB851, IEECB857, IEECB881, IEE20110</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dequeue: IEECB838, IEECB841, IEECB842, IEECB851, IEECB857, IEECB881, IEE22110</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IOS: IOSVCMMN</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dequeue: IOSVCMMN, IOSVCMES</td>
<td></td>
</tr>
<tr>
<td>SYSIEWLP</td>
<td>dsname for SYSLMOD</td>
<td>Data set - HEWLFINT. Dequeue only: HEWLFN1.</td>
</tr>
<tr>
<td>SYSIGGV1</td>
<td>Catalog name</td>
<td>Serializes catalog opens. Using modules: IDACAT11 IGGo0CLF5</td>
</tr>
<tr>
<td>SYSIGGV2</td>
<td>Catalog name</td>
<td>Catalog - IGGo0CLA3.</td>
</tr>
<tr>
<td>SYSIKJBC</td>
<td>RBA</td>
<td>TSO/E broadcast data set (RBA = relative block address) - IEEVSND2, IEEVSND3, IEEVSDN8, IKJEES10, IKJEES40, IKJEES75, IKJRBCR</td>
</tr>
</tbody>
</table>
### Serialization summary

**Table 12. Summary of major and minor ENQ/DEQ names and resources (continued)**

<table>
<thead>
<tr>
<th>Major (QNAME)</th>
<th>Minor (RNAME)</th>
<th>Resource - Using modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSIKJUA</td>
<td>OPENUADS</td>
<td>User attribute data set - IKJEFA10, IKJEFA20, IKJEFA30, IKJEFL, IKJEFLL, IKJRBBCR</td>
</tr>
<tr>
<td></td>
<td>userid</td>
<td>TSO/E users - IKJEFA12, IKJEFA20, IKJEFA30, IKJEFLB, IKJRBBCR, IKJRBBU0. Dequeue only: IKJEFLS.</td>
</tr>
<tr>
<td>SYSSMF01</td>
<td>data set</td>
<td>SYS1.MAN data set - IEEMB829, IFASMFDP</td>
</tr>
<tr>
<td>SYSVSAM</td>
<td>dscatnameL1L2L3*</td>
<td>VSAM data sets (dsn = data set name, catname = catalog name, L1 = RNAME length, L2 = data set name length, L3 = catalog name length, * = ENQ/DEQ control indicator). IDA0200T, IDA0231T, iDA0557A, IGG0CLBG</td>
</tr>
<tr>
<td>SYSVTOC</td>
<td>volser</td>
<td>IGC0007H, IGG020P1, IGG0290E, IGG03001, IGG03213, IGG0325A, IGG0325E, IGG0553A. Serialize volume labelling SCOPE=SYSTEMS. This is usually a device RESERVE rather than an ENQ macro. IGG0290E, IGG05001, IGG05213, IGG0325A, IGG0325E, IGG0553A, IXGC4RPC, IXGD2WRT, IXGL15DS. The reserve is dequeued by IGG0107H, IGG0RR0E, IGG020P3, IGG03217, IGG0325H, IXGC4DIS, IXGC4RBE, IXGC4RPC, IXGD2WRT, IXGF2WRT, IXGL15DS, IXGL1TSK.</td>
</tr>
<tr>
<td>SYSZ#SSI</td>
<td>SSI</td>
<td>Control structures associated with the subsystem interface (SSI). SUBSYS_ + name of subsystem A specific subsystem</td>
</tr>
<tr>
<td>SYSZAPPC</td>
<td>APPC_ADDRESS_SPACE</td>
<td>APPC_PARMLIB</td>
</tr>
<tr>
<td></td>
<td>APPC_PARMLIB</td>
<td>Serializes the use of the API trace data set</td>
</tr>
<tr>
<td></td>
<td>LUM_WORK_QUEUE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SDFMDSN.dataset_name</td>
<td>Serializes the use of the TP profile data set</td>
</tr>
<tr>
<td>SYSZASCH</td>
<td>ASBSCAD</td>
<td>ASBSCIN</td>
</tr>
<tr>
<td></td>
<td>ASCH_ASBSCAD</td>
<td>ASCH_ASBSCST</td>
</tr>
<tr>
<td></td>
<td>ASCH_PARMLIB</td>
<td></td>
</tr>
</tbody>
</table>

---

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Table 12. Summary of major and minor ENQ/DEQ names and resources (continued)

<table>
<thead>
<tr>
<th>Major (QNAME)</th>
<th>Minor (RNAME)</th>
<th>Resource - Using modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSZATR</td>
<td>gname-COMPRESSION</td>
<td>Serializes resource manager restart processing with other RRS log stream processing.</td>
</tr>
<tr>
<td></td>
<td>lgname-RESTART</td>
<td>Serializes access to RRS restart processing and access to restart-related resources. The lgname field is either an installation-defined group of systems or the sysplex name.</td>
</tr>
<tr>
<td></td>
<td>lgname-ACTIVE-sysname</td>
<td>Serializes access to the execution of RRS on a system, identified in sysname. The lgname field is either an installation-defined group of systems or the sysplex name.</td>
</tr>
<tr>
<td></td>
<td>lgname-RM-rmname</td>
<td>Serializes access to the use of a particular resource manager name, identified in rmname, in an installation-defined group of systems or the sysplex, identified in lgname.</td>
</tr>
<tr>
<td></td>
<td>RRS-INITIALIZATION-PROCESS</td>
<td>Serializes access to initialization processing for RRS.</td>
</tr>
<tr>
<td>SYSZATS</td>
<td>NED &lt;ned&gt;</td>
<td>Tape Device Serialization. ALLOCATION. For self describing devices, where NED is followed by the node descriptor of the device.</td>
</tr>
<tr>
<td></td>
<td>DEV &lt;devnum&gt;</td>
<td>Tape Device Serialization. ALLOCATION. For devices that do not support self description, where DEV is followed by the 4-digit hexadecimal device number.</td>
</tr>
<tr>
<td>SYSZATST</td>
<td>DEVICETYPE &lt;devtype&gt;</td>
<td>Device Type Serialization. ALLOCATION. Where devtype is one of 3420, 3480, 348X, 3490, 3590.</td>
</tr>
<tr>
<td></td>
<td>EPIVALUE &lt;epival&gt;</td>
<td>Device Type Serialization. ALLOCATION. Where epival is the EPI value of a 3590 device.</td>
</tr>
<tr>
<td>SYSZAUDT</td>
<td>ENQDEQ</td>
<td>Serializes GRS EQDQ Monitor Instances - ISGAUDIT</td>
</tr>
<tr>
<td></td>
<td>GVTNQMON.SERIALIZATION</td>
<td>Serializes GRS EQDQ Monitor processing - ISGAUDIT, ISGAMED1</td>
</tr>
<tr>
<td></td>
<td>dataset name of EQDQ monitor output</td>
<td>Used to serialize access to a GRS EQDQ Monitor output dataset that is defined by the user - ISGAUDIT, ISGAMEDM, ISGAMED2</td>
</tr>
<tr>
<td>SYSZAVM</td>
<td>AVM PROCESS QUEUE</td>
<td>Serializes various internal AVM queues and data areas - Various AVM modules.</td>
</tr>
<tr>
<td>SYSZAXR</td>
<td>AXR</td>
<td>Used to ensure that only one System REXX address space is active in the system. AXRINIT.</td>
</tr>
<tr>
<td>SYSZBDT</td>
<td>Installation’s MVS/Bulk Data; Transfer Node Name</td>
<td>Controlled resource: BITMAPS.</td>
</tr>
</tbody>
</table>

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## Serialization summary

### Table 12. Summary of major and minor ENQ/DEQ names and resources (continued)

<table>
<thead>
<tr>
<th>Major (QNAME)</th>
<th>Minor (RNAME)</th>
<th>Resource - Using modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSZBNDX</td>
<td>volser</td>
<td>Used by Common VTOC Access Facilities (CVAF) and ICKDSF to serialize the process of rebuilding a volumes INDEX data set while the volume remains online to all sharing systems in an GRSplex. Resource also used to serialize the process of refreshing the volumes VTOC and expanding the volumes VTOC and/or INDEX while the volumes remains online to all sharing systems. CVAF will issue an exclusive, systems enqueue on this resource when it finds the CVAF caller not serialized on SYSVTOC.volser and ICKDSF is in the process of executing one of these functions. <strong>Restriction:</strong> This version of SYSZBNDX should not be in SYSTEMS exclusion RNL. For RNL details, see RNL processing in z/OS MVS Planning: Global Resource Serialization.</td>
</tr>
<tr>
<td>ICKDSF HELD</td>
<td>volserRESERVE</td>
<td>Used by ICKDSF to notify CVAF that is running in all the systems in the GRSplex that the process of rebuilding a volumes INDEX, refreshing a volumes VTOC or expanding a volumes VTOC/INDEX is about to begin. CVAF being notified begins testing if its caller is serialized on SYSVTOC.volser and issues an exclusive enqueue on .volser as needed to obtain proper serialization. <strong>Restriction:</strong> This version of SYSZBNDX should not be in SYSTEMS exclusion RNL. For RNL details, see RNL processing in z/OS MVS Planning: Global Resource Serialization.</td>
</tr>
<tr>
<td>SYSZCAXW</td>
<td>CAXW</td>
<td>Catalog auxiliary work area (CAXWA) - IDACAT11, IDACAT12, IGG0CLBG</td>
</tr>
<tr>
<td>SYSZCEA</td>
<td>CEA</td>
<td>Used to ensure that only one Common Event Adapter (CEA) address space is active in the system. CEAINIT.</td>
</tr>
<tr>
<td>SYSZCMDIS</td>
<td>MTTSWAP</td>
<td>Master trace command - CNZM1TRC</td>
</tr>
<tr>
<td>SYSZCNZ</td>
<td>CONNAME#consname</td>
<td>Serializes on the console name.</td>
</tr>
<tr>
<td></td>
<td>USERID#username or USERID#username</td>
<td></td>
</tr>
<tr>
<td>SYSZCOMM</td>
<td>Various</td>
<td>Serialize access to global resource work areas and processing.</td>
</tr>
<tr>
<td>SYSZCSDF</td>
<td>CSDCPUJS</td>
<td>CSD field - IEFVCPU, IEFCPUA. Dequeue only: IEF18620.</td>
</tr>
<tr>
<td>SYSZCSFV</td>
<td>CSVDYNL</td>
<td>Serializes LNKLST set for the LNKLST concatenation.</td>
</tr>
<tr>
<td>SYSZCT</td>
<td>CTAB or ITTaaa</td>
<td>Resource: aaaa is an address. Serializes component trace data areas.</td>
</tr>
<tr>
<td>SYSZDAE</td>
<td>DATA SET</td>
<td>Serializes updates to the DAE data set in the Sysplex environment.</td>
</tr>
</tbody>
</table>
## Table 12. Summary of major and minor ENQ/DEQ names and resources (continued)

<table>
<thead>
<tr>
<th>Major (QNAME)</th>
<th>Minor (RNAME)</th>
<th>Resource - Using modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSZDMO</td>
<td>DMO_REFVTOC_VOLSER_volser</td>
<td>Used by the DEVMAN address space to serialize requests to perform the DEVMAN function identified in the minor name of the SYSZDMO resource. Scope is SYSTEMS.</td>
</tr>
<tr>
<td>SYSZDSCB</td>
<td>volserno + x + dsname</td>
<td>Serializes certain DSCB fields in OPEN/CLOSE/EOV with an exclusive enqueue with DISP=SHR for PDSs and any DISP with PDSEs. The “x” is A or S. Blanks are truncated from dsname.</td>
</tr>
<tr>
<td>SYSZDSN</td>
<td>DATA SET NAME</td>
<td>Serializes the root file system. (In a shared file system environment, the “root file system” is known as the version file system.) See <a href="chapter6">Mounting your root file system</a> for execution in z/OS UNIX System Services Planning for more information on serialization of the root file system.</td>
</tr>
<tr>
<td>SYSZDSTB</td>
<td>ASID + JCT address</td>
<td>Data Set Information Table - ENQ/DEQ: IEFAB490, IEFAB4A2. DEQ Only: IEFAB4E8, IEFAB4DE.</td>
</tr>
<tr>
<td>SYSZDTSK</td>
<td>ISP/TSO_WINDOW.Serialization + unique ID for the TSO address space</td>
<td>ISP/TSO_WINDOW.Serialization + unique ID for the TSO address space. ISP GUI with TSO line mode support: ISPDTTSDK and ISPDTPC. ISP SVC 93 exit: ISPSC93 and ISPSC93X.</td>
</tr>
<tr>
<td>SYSZEC16</td>
<td>PURGE</td>
<td>Purge data set - IOSPURGA</td>
</tr>
<tr>
<td>SYSZGDHGLG</td>
<td>UCB address and CCHHR of block</td>
<td>Block in a direct (BDAM) data set.</td>
</tr>
<tr>
<td>SYSZGGSYS</td>
<td>group name</td>
<td>The name of a group of systems in a sysplex, as defined by the IEEGSYS samplib member.</td>
</tr>
<tr>
<td>SYSZGTZF1</td>
<td>GTF</td>
<td>Generalized trace facility (GTF) processing.</td>
</tr>
<tr>
<td>SYSZGTZ</td>
<td>IBM Generic Tracker for z/OS</td>
<td>Used to serialize IBM Generic Tracker startup - GTZINIT.</td>
</tr>
<tr>
<td>SYSZHIS</td>
<td>HIS</td>
<td>Serializes hardware instrumentation services startup.</td>
</tr>
<tr>
<td>SYSZHZS</td>
<td>IBM Health Checker For z/OS</td>
<td>Used to serialize IBM Health Checker startup - HZSINIT.</td>
</tr>
<tr>
<td>SYSZIAT</td>
<td>none</td>
<td>In a JES3 environment, include an entry for the checkpoint data set. The name must be generic. <strong>Note:</strong> This is a device RESERVE rather than an ENQ macro.</td>
</tr>
<tr>
<td>SYSZIEF</td>
<td>IEFOPZ</td>
<td>Serializes processing of IEFOPZxx data.</td>
</tr>
<tr>
<td>SYSZIGDI</td>
<td>ICMRT.CMDSADDR_LOCKED_SWITCH_CONFIGURATION</td>
<td>SMS IGDICMS0, IGDSS100, IGDSS101</td>
</tr>
<tr>
<td>SYSZIGF</td>
<td>DDRSSI</td>
<td>Serialize DDR calls to SSI. IGFDT2, IGFDV1, IGFDL1, IGFDL1, IGFDT2, IGFDV1, IGFDL1. Dequeue Only: IGFDE1</td>
</tr>
<tr>
<td>SYSZIGG1</td>
<td>ASID</td>
<td>TSB - IGC0009C, IGC009302</td>
</tr>
<tr>
<td>SYSZIGW0</td>
<td>PDSE</td>
<td></td>
</tr>
<tr>
<td>SYSZIGW1</td>
<td>PDSE</td>
<td></td>
</tr>
</tbody>
</table>
### Serialization summary

**Table 12. Summary of major and minor ENQ/DEQ names and resources (continued)**

<table>
<thead>
<tr>
<th>Major (QNAME)</th>
<th>Minor (RNAME)</th>
<th>Resource - Using modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSZIGW3</td>
<td>IGWSHC01</td>
<td>Serializes updates to the VSAM RLS Sharing Control Data Set.</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>Serialization for VSAM RLS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• initialization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• lock rebuild</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• display command.</td>
</tr>
<tr>
<td>SYSZIGW5</td>
<td>PDSEASRESTART</td>
<td>Insures only one PDSE restart.</td>
</tr>
<tr>
<td>SYSZIO</td>
<td>VIOPGDEL</td>
<td>Serializes PAGEDEL command processing.</td>
</tr>
<tr>
<td>SYSZIOEZ</td>
<td>IOEZNNS</td>
<td>Locks the z/OS File System (zFS) V1R11 namespace across the sysplex.</td>
</tr>
<tr>
<td></td>
<td>IOEZJOIN</td>
<td>Serializes joining the zFS V1R11 namespace across the sysplex.</td>
</tr>
<tr>
<td></td>
<td>IOEZDC.sysname.aggregatename</td>
<td>A temporary ENQ used to ensure not more than one task on a zFS system processes a catchup mount or unmount for a specific aggregate.</td>
</tr>
<tr>
<td></td>
<td>IOEZTM.aggragatename</td>
<td>Serializes administration of an aggregate.</td>
</tr>
<tr>
<td></td>
<td>IOEZLT.aggragatename</td>
<td>Indicates ownership of an aggregate.</td>
</tr>
<tr>
<td></td>
<td>IOEZLR.aggragatename</td>
<td>Indicates ownership of a R/O aggregate by a system before V1R11.</td>
</tr>
<tr>
<td></td>
<td>IOEZLQ.aggragatename-qsysname</td>
<td>Indicates that an aggregate that is attached R/O is quiesced. The qsysname is the system that issued the quiesced.</td>
</tr>
<tr>
<td>SYSZIOS</td>
<td>DISPRSV</td>
<td>Serializes IOS Display Reserve processing.</td>
</tr>
<tr>
<td></td>
<td>DYNAMIC</td>
<td>Serializes against dynamic configuration changes.</td>
</tr>
<tr>
<td></td>
<td>DYNAMIC.groupname</td>
<td>Serializes against dynamic channel path management changes.</td>
</tr>
<tr>
<td></td>
<td>EKM</td>
<td>Serializes against changes to the Encryption Key Manager parameters.</td>
</tr>
<tr>
<td></td>
<td>LPEP</td>
<td>Serialize around checking for devices to Vary online in IOSVLPEP.</td>
</tr>
<tr>
<td></td>
<td>LPEPSYSRES</td>
<td>Serializes multiple instances of IOSVLPEP processing a no paths condition on the SYSRES.</td>
</tr>
<tr>
<td></td>
<td>MIH</td>
<td>Serializes against changes to the MIH information for devices.</td>
</tr>
<tr>
<td></td>
<td>QRQUEUE</td>
<td>Serializes the IOACTION STOP</td>
</tr>
<tr>
<td></td>
<td>SETIOS.groupname</td>
<td>Serializes the SETIOS DCM=ON</td>
</tr>
<tr>
<td></td>
<td>SWITCH</td>
<td>Serializes against accessing the SWITCH table.</td>
</tr>
<tr>
<td></td>
<td>VSWITCH.groupname</td>
<td>Serializes the vary switch command.</td>
</tr>
<tr>
<td>SYSZIQP</td>
<td>IQP</td>
<td>Serializes access to initialization processing for PCIE. Only one PCIE address space is created.</td>
</tr>
<tr>
<td>SYSZISTC</td>
<td>Configuration Restart Data Set ddname</td>
<td>RDT segment/checkpoint data set.</td>
</tr>
<tr>
<td>SYSZJES2</td>
<td></td>
<td>Look at SYSZxxxx below</td>
</tr>
</tbody>
</table>
## Serialization summary

### Table 12. Summary of major and minor ENQ/DEQ names and resources (continued)

<table>
<thead>
<tr>
<th>Major (QNAME)</th>
<th>Minor (RNAME)</th>
<th>Resource - Using modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSZJES2</td>
<td>vvvvvvxxxxx...</td>
<td>Parameter is CKPTDEF CKPTI = (VOLSER=vvvvvv); xxxxx... is the 44 character dsname for the checkpoint data set. Parameter is CKPTDEF CKPTI = (DSNAME=xxxxx...).</td>
</tr>
<tr>
<td>SYSZJWTP</td>
<td>JSCBWTP</td>
<td>Job step messages.</td>
</tr>
<tr>
<td></td>
<td>RPL + asid</td>
<td>Message data set - (RPL = request parameter list pointer, asid = address space identifier). CNZS1WTP, IEEAB401.</td>
</tr>
<tr>
<td>SYSZILLA1</td>
<td>UPDATE</td>
<td>LLACOPY</td>
</tr>
<tr>
<td>SYSZLOGR</td>
<td>L logstreamname</td>
<td>Log stream name - System Logger in a PLEXCFG=MULTISYSTEM environment.</td>
</tr>
<tr>
<td></td>
<td>L systemname logstreamname</td>
<td>Log stream name - System Logger in a PLEXCFG=MONOPLEX environment.</td>
</tr>
<tr>
<td></td>
<td>RECORDER</td>
<td>Logrec data set — IFBSVC76, IFCDiP00, IFCZIHND.</td>
</tr>
<tr>
<td>SYSZMCS</td>
<td>CNZSCLOT</td>
<td>Serializes WTO CONNECT processing.</td>
</tr>
<tr>
<td></td>
<td>DELAYED_SVC_PROCESSING</td>
<td>Serializes the delayed issue queue.</td>
</tr>
<tr>
<td></td>
<td>EMCSMDS#IEAMxxx</td>
<td>Serializes on the EMCS message dataspace.</td>
</tr>
<tr>
<td></td>
<td>MFATABLE</td>
<td>Serializes multiple SET MSGFLD=xx commands.</td>
</tr>
<tr>
<td></td>
<td>MPFTABLE</td>
<td>Serializes on the MPF and general user exit (GENX) table.</td>
</tr>
<tr>
<td></td>
<td>PDMODE_CHANGE</td>
<td>Serializes changes to the PDMODE of the system console.</td>
</tr>
<tr>
<td></td>
<td>ROUTE-GROUP--CNID</td>
<td>Serializes the ROUTE EMCS console during ROUTE group or ROUTE *ALL command processing.</td>
</tr>
<tr>
<td></td>
<td>SETCON MODE COMMAND IN PROGRESS</td>
<td>Serializes on SETCON MODE commands.</td>
</tr>
<tr>
<td></td>
<td>SETCONMIGRATE</td>
<td>Serializes on a system IPLing while performing a migration.</td>
</tr>
<tr>
<td></td>
<td>SMT</td>
<td>Serializes the cleanup of the SMT during system partitioning.</td>
</tr>
<tr>
<td></td>
<td>SMT2</td>
<td>Serializes the overall cleanup of a system during system partitioning.</td>
</tr>
<tr>
<td></td>
<td>SYSMCS#MCS, SYSMCS#CL1, SYSMCS#CL2, SYSMCS#CL3, SYSMCS#EMCS</td>
<td>Serializes on all MCS/EMCS console updates and sysplex wide console commands.</td>
</tr>
<tr>
<td></td>
<td>TRACKING_TAB</td>
<td>Serializes access to the TAB, TIDB, and TEDB.</td>
</tr>
<tr>
<td></td>
<td>UCMSSET</td>
<td>Serializes on subsystem entry table.</td>
</tr>
<tr>
<td></td>
<td>UPDATEVSLEVER</td>
<td>Serializes on console updates and lever processing.</td>
</tr>
<tr>
<td>SYSZMMF1</td>
<td>various</td>
<td>Serialization for RLS Locking</td>
</tr>
<tr>
<td>SYSZNIP</td>
<td>CONSOLE</td>
<td>SVC 35 and 87 paths and SVCUPDTE calls for SVC 35 and 87.</td>
</tr>
<tr>
<td>SYSZOPEN</td>
<td>dsname</td>
<td>Opening data sets - IGC002B</td>
</tr>
<tr>
<td>SYSZPCCB</td>
<td>PCCB</td>
<td>Private catalog control block (PCCB) - ALLOCATION, IGG0CLA3</td>
</tr>
</tbody>
</table>
### Serialization summary

<table>
<thead>
<tr>
<th>Major (QNAME)</th>
<th>Minor (RNAME)</th>
<th>Resource - Using modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSZPGAD</td>
<td>PAGEADD</td>
<td>(1) Serializes PAGEADD command processing. (2) Serializes the paging configuration during DISPLAY ASM command to ensure that the command does not change ILRPGDSP. (3) Serializes the DSNLIST and TPARTBLE during processing of a PAGEDEL command.</td>
</tr>
<tr>
<td>SYSZPGDL</td>
<td>PAGEDEL</td>
<td>Serializes PAGEDEL command processing.</td>
</tr>
<tr>
<td>SYSZPSWD</td>
<td>dsname</td>
<td>Password data set - IFG0195U, IFG0195V. Dequeue only: IFG0RR0E.</td>
</tr>
<tr>
<td>SYSZRBMF</td>
<td>ACTIVE</td>
<td>Indicates that MF/1 is already active - IRBMFMFC</td>
</tr>
<tr>
<td>SYSZRCF</td>
<td>CHPREG</td>
<td>Reconfiguration commands: CONFIG CHP, VARY PATH, DISPLAY M=CHP (IEEVCHTR, IEEVRCHP)</td>
</tr>
<tr>
<td>SYSZRMML</td>
<td>BUFFER CONTROL</td>
<td>Buffer management SCOPE=STEP</td>
</tr>
<tr>
<td></td>
<td>EXIT_IS_ACTIVE</td>
<td>Exit recovery serialization SCOPE=SYSTEM</td>
</tr>
<tr>
<td></td>
<td>EXIT_id_UNAVAIL</td>
<td>Exit recovery serialization, where id can be 100 or 200 representing the last three characters of the DFSMSrmm installation exits EDGUX100 or EDGUX200 SCOPE=SYSTEM</td>
</tr>
<tr>
<td></td>
<td>HSKP.dsn.volser</td>
<td>Inventory management data set serialization SCOPE=SYSTEMS</td>
</tr>
<tr>
<td></td>
<td>INACTIVE</td>
<td>Serialize DFSMSrmm activation enabling only a single WTOR to be issued to the operator SCOPE=SYSTEM</td>
</tr>
<tr>
<td></td>
<td>MASTER.RESERVE</td>
<td>DFSMSrmm control data set serialization at startup and when the CDSID is not yet known SCOPE=SYSTEMS</td>
</tr>
<tr>
<td></td>
<td>MASTER.RESERVE.cdsid</td>
<td>RMM control data set serialization SCOPE=SYSTEMS</td>
</tr>
<tr>
<td></td>
<td>MHKP.ACTIVE</td>
<td>Serialize inventory management functions on the same DFSMSrmm subsystem SCOPE=SYSTEM</td>
</tr>
<tr>
<td></td>
<td>MHKP.dsn.volser</td>
<td>Inventory management data set serialization SCOPE=SYSTEMS</td>
</tr>
<tr>
<td></td>
<td>RMM.ACTIVE</td>
<td>Ensure only one system run per MVS image SCOPE=SYSTEM</td>
</tr>
<tr>
<td></td>
<td>SHUTDOWN</td>
<td>Serialize DFSMSrmm shutdown and refresh processing SCOPE=SYSTEM</td>
</tr>
<tr>
<td></td>
<td>WTOR_ENQ</td>
<td>Exit recovery serialization SCOPE=SYSTEM</td>
</tr>
<tr>
<td>SYSZRPLW</td>
<td>Catalog name + catalog ACB address</td>
<td>Catalog - IGG0CLA3. Dequeue only: IGG0CLA9.</td>
</tr>
<tr>
<td>SYSZssss</td>
<td>MONITOR</td>
<td>Monitor - IGTD00. Note: ssss represents the subsystem name</td>
</tr>
</tbody>
</table>

### Table 12. Summary of major and minor ENQ/DEQ names and resources (continued)

- **SYSZSCM1**: Used by VSAM RLS when DFSMS CF cache structures or volumes are changing state.
- **SYSZSCM2**: Used when the VSAM RLS command V SMS,SMSVSAM,FALLBACK is issued.
- **SYSZSCM3**: Used for >4K DFSMS CF cache processing for VSAM RLS.
- **SYSZSCM4**: Used for >4K DFSMS CF cache processing for VSAM RLS.
- **SYSZSCM5**: Used to serialize special lock requests for VSAM RLS.
### Table 12. Summary of major and minor ENQ/DEQ names and resources (continued)

<table>
<thead>
<tr>
<th>Major (QNAME)</th>
<th>Minor (RNAME)</th>
<th>Resource - Using modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSZSCM6</td>
<td>various</td>
<td>Used during VSAM RLS initialization to serialize &gt;4K DFSMS CF cache processing.</td>
</tr>
<tr>
<td>SYSZSCM7</td>
<td>various</td>
<td>Serialization for RLS Locking</td>
</tr>
<tr>
<td>SYSZSCM8</td>
<td>various</td>
<td>Used for TVS display processing.</td>
</tr>
<tr>
<td>SYSZSCM9</td>
<td>various</td>
<td>Used for TVS initialization.</td>
</tr>
<tr>
<td>SYSZSCMA</td>
<td>various</td>
<td>Used for TVS peer recovery processing.</td>
</tr>
<tr>
<td>SYSZSDO</td>
<td>DLF resource names</td>
<td>Serialize various DLF resources.</td>
</tr>
<tr>
<td>SYSZSMF1</td>
<td>BUF</td>
<td>SMF buffer.</td>
</tr>
<tr>
<td>SYSZSMFD</td>
<td>ExitTable</td>
<td>Used by IFASMFDL, IFASMFDP and SET SMF=xx/SETSMF processing to serialize exit tables built for exit validation.</td>
</tr>
<tr>
<td>SYSZSMFL</td>
<td>Logstream name</td>
<td>Used by IFASMFDL to serialize read and deleting from the logstream specified in the minor name.</td>
</tr>
<tr>
<td>SYSZSPI</td>
<td>LISTENERS</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SERVICECALL</td>
<td></td>
</tr>
<tr>
<td>SYSZSVC</td>
<td>TABLE</td>
<td>Programs that update the SVC table while saving the previous data.</td>
</tr>
<tr>
<td>SYSZSYM</td>
<td>ASASYMBL</td>
<td>Used to serialize updates to system symbols.</td>
</tr>
<tr>
<td>SYSZTIOT</td>
<td>ASID + DSAB QDB address</td>
<td>Task input/output table (TIOT) (ASID = address space identifier, DSAB QDB addr=address of the DSAB QDB). IDACAT11, IDACAT12, IFG0TC0A, IFG019RA, IGC0002A, IGC00030, IGG020RI, IGG08117. Dequeue only: IFG0RR0E, IGG0290D, IGG03001.</td>
</tr>
<tr>
<td>SYSZTRC</td>
<td>SYSTEM TRACE</td>
<td>System trace address space creation - IEAVETAC, IEAVETRM, IEECB8924</td>
</tr>
<tr>
<td>SYSZUSRL</td>
<td>ucbaddr</td>
<td>User label tracks - IFG0202C, IFG0554L</td>
</tr>
<tr>
<td>SYSZVARY</td>
<td>CPU</td>
<td>Reconfiguration commands:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONFIG CPU (IEECB927)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DISPLAY M (IEEMPDM, IEEMPDEV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PATH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reconfiguration commands:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONFIG CHP (IEECB927)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DISPLAY M (IEEMPDM, IEEMPDEV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>VARY PATH (IEEVPTH)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PFID</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reconfiguration commands:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONFIG PFID (IEECB927)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONFIG ONLINE/OFFLINE (IEEDMSD1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DISPLAY M (IEEMPDEV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STORAGE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reconfiguration command:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CONFIG STOR (IEECB927)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DISPLAY M (IEEMPDM, IEEMPDEV)</td>
</tr>
<tr>
<td>SYSZVMV</td>
<td>ucbaddr</td>
<td>Volume mount and verify - ALLOCATION</td>
</tr>
<tr>
<td>SYSZVOLS</td>
<td>volserno</td>
<td>tape or disk volume - ALLOCATION, IFG0194C, IFG0194F, IFG01960, IFG0552N, IFG0554L, IGC0002B, IGC0008B. Dequeue only: IFG0194A, IGG0290D, IGG0194J, IGC0K05B.</td>
</tr>
<tr>
<td>Major (QNAME)</td>
<td>Minor (RNAME)</td>
<td>Resource - Using modules</td>
</tr>
<tr>
<td>---------------------------</td>
<td>------------------------------------</td>
<td>-----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SYSZVVDS</td>
<td>catalog name</td>
<td>Catalog</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note:</strong> This is a device RESERVE and sometimes an ENQ with scope SYSTEM.</td>
</tr>
<tr>
<td></td>
<td>volser</td>
<td>VVDS</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note:</strong> This is a device RESERVED.</td>
</tr>
<tr>
<td>SYSZWLM</td>
<td>WLM_SERVICE_DEFINITION_INSTALL</td>
<td>Programs that install and extract a service definition from the WLM couple data set.</td>
</tr>
<tr>
<td>WR_STATE_CHANGE</td>
<td>IEEMB812, IWMW3CST, IWMW3IN1, IWMW3RBD</td>
<td></td>
</tr>
<tr>
<td>WLM_SYSTEM_IO_PRIORITY</td>
<td>IWMD45IO</td>
<td></td>
</tr>
<tr>
<td>WLM_SYSTEM_RECOVERY_LATCHES</td>
<td>IWMS2LPR</td>
<td></td>
</tr>
<tr>
<td>WLM_SYSTEM_sysname</td>
<td>Where sysname is the name of a system in the sysplex.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IWMS2TIS and IWMS2XRP</td>
<td></td>
</tr>
<tr>
<td>WLM_CACHE_IDENTIFIER_TABLE</td>
<td>Controls access to the WLM cache identifier table used to identify LPAR cache entries in the WLM LPAR cluster structure.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IWMC3CST, IWMC3DST, IWMC3EVP, IWMC3GLI, IWMC3LRP, IWMC3LSR, IWMC4TSK, IWMS2MON</td>
<td></td>
</tr>
<tr>
<td>DCM_SYSZWLM_xxxx-yyyyy</td>
<td>Controls access to the WLM Index Data Entry that is used to identify I/O Subsystem data in the WLM LPAR cluster structure. The CEC is identified by number (xxxx is the serial number, yyyy is the model number).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IWMC4CPY, IWMC4DEL, IWMC4PRI, IWMC4PRO, IWMC4RFS, IWMC4SIO, IWMC4TM2, IWMC4TWK, IWMC4WRI</td>
<td></td>
</tr>
<tr>
<td>SERVER4_appl_env</td>
<td>appl_env is the 32-byte name of an application environment, used to enforce the option of restricting an application environment to one address space per subsystem instance per sysplex.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IWMW2CON acquires the ENQ; IWMW2DIS releases it. Global resource serialization releases it during task or memory termination of the connector.</td>
<td></td>
</tr>
<tr>
<td>SERVER4_ttttaename</td>
<td>tttt is the 4-byte subsystem type; aename - is the 32-byte application environment name. Both tttt and aename must be padded by blanks.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>IWMW2CON acquires the ENQ; IWMW2DIS releases it. Global resource serialization releases it during task or memory termination of the connector.</td>
<td></td>
</tr>
<tr>
<td>SYSZWTOR</td>
<td>REPLYnnnn</td>
<td>WTOR reply nnnn - CNZS1WTO, IEECB811</td>
</tr>
</tbody>
</table>
### Serialization summary

**Table 12. Summary of major and minor ENQ/DEQ names and resources (continued)**

<table>
<thead>
<tr>
<th>Major (QNAME)</th>
<th>Minor (RNAME)</th>
<th>Resource - Using modules</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSZxxxx</td>
<td>TTABaddr</td>
<td>TRACE tables, where xxxx is the JES subsystem (JES2, JESA, and so forth) and addr is a 4-byte address of a JES2 trace table buffer. Enqueued shared by the JES2 subtask and application address space users of TRACE. Enqueues exclusive by the JES2 event trace log processor.</td>
</tr>
<tr>
<td></td>
<td>AWAITING</td>
<td>Issued to serialize when the pool of immediately usable spool track groups is depleted, and address spaces must be queued up until the JES2 address spaces refreshes it. xxxx is the subsystem name.</td>
</tr>
<tr>
<td></td>
<td>SPOOL SPACE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CVCBnnnn</td>
<td>nnnn is the checkpoint version number.</td>
</tr>
<tr>
<td>TRACK GROUP ALLOCATION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYSZZFSC</td>
<td>AGGREGATE NAME</td>
<td>Specified in uppercase. This is issued by zFS during takeover on the target system and on mount, unmount, attach, detach, create file system, delete file system, rename file system, set file system quota, clone file system and during quiesce (for grow and explicit quiesce) and unquiesce (for grow, quiesce owner system gone down).</td>
</tr>
<tr>
<td>SYSZZFSG</td>
<td>GROUP NAME (default is IOEZFS)</td>
<td>Specified in uppercase. This is issued by zFS during initialization when joining the sysplex group and during termination when leaving the sysplex group.</td>
</tr>
<tr>
<td>SYSZZFSP</td>
<td>IOE.ZFS.CONFIG</td>
<td>This is issued by zFS when changing the size of the user cache, the client cache, the vnode cache or the vnode cache limit.</td>
</tr>
</tbody>
</table>
| ZOSMF         | dsname        | Serializes the use of the z/OS Management Facility (z/OSMF) data file system. Do not list the QNAME ZOSMF ENQ in the resource name list (RNL) in the GRSRNLxx member of your installation.
Serialization summary
Chapter 7. Status indicators for system resources

This section describes the various locations used by the system to store status information for its resources. Use Figure 1 on page 232 and Figure 2 on page 233 to help you locate the general placement of the control blocks and fields described in this topic. Figure 1 on page 232 shows the control blocks that contain system and address space indicators in effect during normal operations. Figure 2 on page 233 shows the control blocks that contain status indicators for the system and address spaces after an abnormal operation.

Status information is included in this topic for the following system resources:

- Processors
- ENQ/DEQ control blocks
- WTO buffers and WTOR reply queue elements
- Service request block (SRB)

For a list of ENQ/DEQ names and associated resources, see “ENQ/DEQ summary” on page 218.
Status Indicators

System Level

- PSA - Contains PSW, interruption codes, registers, and register save area for lock manager and FLIHs.
- LCCA - registers saved by FLIHs, program check OPSW.
- WSAVT - Contains table of save area addresses.

Address Space Level

- ASCB - Contains lock indicator
- LDA - Contains information about address space relative virtual storage and VSM control block pointers.
- ASXB - Contains 72 byte save area.
- IHSA - Contains save area for locally locked interrupts, PSW, registers, and FRR stack.
- RB - Contains PSW, register save area, extended save area.
- TCB - Contains task mode register save area
- WSAVT - Contains table of save area addresses.
- XSB - Contains cross memory status, PCLINK stack header, CML lock information.

Figure 1. System and address space status indicator locations - normal status areas
Processor resources

1. The current address space identifier (ASID)
   - The ASCBASID field of the ASCB is the ASID (2 bytes).
2. The current task control block (TCB)

---

**Figure 2. System and address space status indicator locations - error status areas**
Status Indicators

- The PSATNEW field of the PSA is the pointer to the new TCB. The PSATOLD field of the PSA is the pointer to the old TCB. If the old TCB pointer, PSATOLD, is zero, an SRB was dispatched.
- If the TCBRBP field of the TCB points to itself, instead of to a request block (RB), the TCB is the pseudo-wait TCB and is not chained to any other TCB.

3. TCB chain (by priority)
   - The location X’10’ points to the communication vector table (CVT).
   - The CVTASVT field of the CVT points to the address space vector table (ASVT).
   - The ASVTENTY field of the ASVT begins a series of one word entry that points to address space control blocks (ASCB), one for each active ASID.
   - The ASCBASXB field of the ASCB points to the ASXB.
   - The ASXBFTCB field of the ASXB points to the first TCB in the TCB queue.
   - The ASXBLTCB field of the ASXB points to the last TCB in the TCB queue.
   - The TCBBACK field of the TCB points to the previous TCB. In the first TCB on the queue, this field contains a fullword of zeros.

4. Subtask chains (end of the chain is always zero)
   - The TCB field TCBOTC points to the TCB that attached this TCB.
   - The TCB field TCBLTC points to the TCB most recently attached.
   - The TCB field TCBNTC points to another TCB attached by the TCB.
   - The region control task (RCT) TCB is the only TCB not created by an ATTACH.

5. Dispatching
   - Dispatchable task flags are in TCB fields TCBFLGS4 and TCBFLGS5. If any bit in the 2 bytes is set to 1, the TCB is nondispachable.
   - If bit 7 of TCBFLGS5 is set to 1, the reason it’s not dispatchable is indicated by a flag bit that is set to 1 in TCB field TCBNDSP1, TCBNDSP2, or TCBNDSP3. For details, see z/OS MVS Data Areas in http://www.ibm.com/systems/z/os/zos/bkserv/.

Memory resources — ENQ/DEQ control blocks

1. In IPCS, the ANALYZE subcommand performs contention analysis.
2. In IPCS, the VERBEXIT GRSTRACE subcommand formats global resource serialization control blocks.

WTO buffers and WTOR reply queue elements

1. WQE (write-to-operator queue element) exists in the CONSOLE address space.
   - The CVTCUCB field of the CVT points to the UCM.
   - UCM + X’18’ points to the first WQE (or zero).
   - UCM + X’3C’ points to the last WQE (or zero).
   - UCM + X’1C’ points to the first ORE (or zero).
   - WQE + 0 (4 bytes) points to the next WQE (or zero).
   - ORE + 0 (4 bytes) points to the next ORE (or zero).
   - ORE+ X’28’ points to the WQE for the ORE (or zero if the WQE is not queued to the ORE yet).
   - UCM + X’2C’ (2 bytes) is the maximum number of OREs (RLIM).
   - UCM + X’2E’ (2 bytes) is maximum number of WQEs.
Status Indicators

- UCM + X’34’ (4 bytes) is number of active WQEs.
- UCM + X’38’ (2 bytes) is number of outstanding OREs.

2. In IPCS, the COMCHECK subcommand performs console services analysis and lists outstanding WTORs.

Service request block (SRB)

1. Global SRB (enqueued on global service priority list)
   - The CVTGSPL field of the CVT points to SVTGSPL in the SVT.
   - The SVTGSPL field of the SVT points to the SRB on the global service priority list (GSPL).
   - The SVTGSMQ field of the SVT points to the first SRB on the global service management queue (GSMQ).

2. Local SRB (processing based on an address space priority)
   - The ASCBLSPL field of the ASCB points to the local service priority list (LSPL).
   - The ASCBLSMQ field of the ASCB points to the local service management queue (LSMQ).
Status Indicators
Chapter 8. Storage summary

This topic briefly describes the use of storage in MVS. The topics are:

- Storage maps
- Storage protection
- Storage subpools

See z/OS MVS Initialization and Tuning Guide for more information on storage usage.

Storage maps

Figure 3 and Figure 4 on page 238 describe the layout of central and virtual storage, respectively. For a description of the prefixed storage area (PSA), see the PSA control block section in z/OS MVS Data Areas in http://www.ibm.com/systems/z/os/zos/bkserv/.

Figure 3. Virtual storage layout for single address space
Storage protection

For each 4-kilobyte block of central storage, there is a 7-bit control field, called a **storage key**. This key is used as follows:

**Access control bits**: Bits 0-3 are matched against the 4-bit protection key in the program status word (PSW) whenever information is stored, or whenever information is fetched from a location that is protected against fetching.

The 16 protection keys provided by the PSW (and matched against the access control bits) are assigned as follows:

<table>
<thead>
<tr>
<th>Key</th>
<th>Assigned to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Supervisor and other system functions that require access to all areas of storage</td>
</tr>
<tr>
<td>1</td>
<td>Job scheduler, job entry subsystem (JES), APPC, and TSO/E</td>
</tr>
<tr>
<td>2</td>
<td>Reserved</td>
</tr>
<tr>
<td>3</td>
<td>Availability manager (AVM)</td>
</tr>
<tr>
<td>4</td>
<td>Reserved</td>
</tr>
<tr>
<td>5</td>
<td>Data management, including Open/Close/EOV</td>
</tr>
</tbody>
</table>
Storage Summary

<table>
<thead>
<tr>
<th>Subpool</th>
<th>Location</th>
<th>Fetch protection</th>
<th>Type</th>
<th>Storage built</th>
<th>Owner</th>
<th>Storage key</th>
<th>See notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-127</td>
<td>Private low</td>
<td>Yes</td>
<td>Pageable</td>
<td>Bottom-up</td>
<td>Task.</td>
<td>Same as TCB key at the time of the first storage request.</td>
<td>1, 6, 8, 10, 14</td>
</tr>
<tr>
<td>129 (81)</td>
<td>Private low</td>
<td>Yes</td>
<td>Pageable</td>
<td>Bottom-up</td>
<td>Job step.</td>
<td>Selectable. See Table 14 on page 244</td>
<td>1, 11, 14</td>
</tr>
<tr>
<td>130 (82)</td>
<td>Private low</td>
<td>No</td>
<td>Pageable</td>
<td>Bottom-up</td>
<td>Job step.</td>
<td>Selectable. See Table 14 on page 244</td>
<td>1, 11, 14</td>
</tr>
<tr>
<td>131 (83)</td>
<td>Private low</td>
<td>Yes</td>
<td>Pageable</td>
<td>Bottom-up</td>
<td>Job step.</td>
<td>Selectable. See Table 14 on page 244</td>
<td>1, 6, 7, 11, 14</td>
</tr>
<tr>
<td>132 (84)</td>
<td>Private low</td>
<td>No</td>
<td>Pageable</td>
<td>Top-down</td>
<td>Job step.</td>
<td>Selectable. See Table 14 on page 244</td>
<td>1, 6, 7, 11, 14</td>
</tr>
</tbody>
</table>

See z/OS MVS Programming: Authorized Assembler Services Guide for more information about subpools.
### Table 13. Storage subpools and attributes (continued)

<table>
<thead>
<tr>
<th>Subpool dec (Hex)</th>
<th>Location</th>
<th>Fetch protection</th>
<th>Type</th>
<th>Storage built</th>
<th>Owner</th>
<th>Storage key</th>
<th>See notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>203 (CB)</td>
<td>Private</td>
<td>No</td>
<td>DREF</td>
<td>Top-down</td>
<td>Task. TCB shown in Table 15 on page 245</td>
<td>0</td>
<td>2, 4, 13, 15</td>
</tr>
<tr>
<td>204 (CC)</td>
<td>Private</td>
<td>No</td>
<td>DREF</td>
<td>Top-down</td>
<td>Job step. TCB whose address is in TCB</td>
<td>STCB of TCB shown in Table 15 on page 245</td>
<td>0</td>
</tr>
<tr>
<td>205 (CD)</td>
<td>Private</td>
<td>No</td>
<td>DREF</td>
<td>Top-down</td>
<td>Address space</td>
<td>0</td>
<td>2, 4, 13, 15</td>
</tr>
<tr>
<td>213 (D5)</td>
<td>Private</td>
<td>Yes</td>
<td>DREF</td>
<td>Top-down</td>
<td>Task. TCB shown in Table 15 on page 245</td>
<td>0</td>
<td>2, 4, 13, 16</td>
</tr>
<tr>
<td>214 (D6)</td>
<td>Private</td>
<td>Yes</td>
<td>DREF</td>
<td>Top-down</td>
<td>Job step. TCB whose address is in TCB</td>
<td>STCB of TCB shown in Table 15 on page 245</td>
<td>0</td>
</tr>
<tr>
<td>215 (D7)</td>
<td>Private</td>
<td>Yes</td>
<td>DREF</td>
<td>Top-down</td>
<td>Address space</td>
<td>0</td>
<td>2, 4, 13, 16</td>
</tr>
<tr>
<td>223 (DF)</td>
<td>Private</td>
<td>Yes</td>
<td>Fixed</td>
<td>Top-down</td>
<td>Task. TCB shown in Table 15 on page 245</td>
<td>0</td>
<td>2, 4, 17</td>
</tr>
<tr>
<td>224 (E0)</td>
<td>Private</td>
<td>Yes</td>
<td>Fixed</td>
<td>Top-down</td>
<td>Job step. TCB whose address is in TCB</td>
<td>STCB of TCB shown in Table 15 on page 245</td>
<td>0</td>
</tr>
<tr>
<td>225 (E1)</td>
<td>Private</td>
<td>Yes</td>
<td>Fixed</td>
<td>Top-down</td>
<td>Address space</td>
<td>0</td>
<td>2, 4, 17</td>
</tr>
<tr>
<td>226 (E2)</td>
<td>Common</td>
<td>No</td>
<td>Fixed</td>
<td>Top-down</td>
<td>System</td>
<td>0</td>
<td>3, 5</td>
</tr>
<tr>
<td>227 (E3)</td>
<td>Common</td>
<td>Yes</td>
<td>Fixed</td>
<td>Top-down</td>
<td>System</td>
<td>Selectable. See Table 14 on page 244</td>
<td>1</td>
</tr>
<tr>
<td>228 (E4)</td>
<td>Common</td>
<td>No</td>
<td>Fixed</td>
<td>Top-down</td>
<td>System</td>
<td>Selectable. See Table 14 on page 244</td>
<td>1</td>
</tr>
<tr>
<td>229 (E5)</td>
<td>Private high</td>
<td>Yes</td>
<td>Pageable</td>
<td>Top-down</td>
<td>Task. TCB shown in Table 15 on page 245</td>
<td>Selectable. See Table 14 on page 244</td>
<td>1</td>
</tr>
<tr>
<td>230 (E6)</td>
<td>Private high</td>
<td>No</td>
<td>Pageable</td>
<td>Top-down</td>
<td>Task. TCB shown in Table 15 on page 245</td>
<td>Selectable. See Table 14 on page 244</td>
<td>1</td>
</tr>
<tr>
<td>231 (E7)</td>
<td>Common</td>
<td>Yes</td>
<td>Pageable</td>
<td>Top-down</td>
<td>System</td>
<td>Selectable. See Table 14 on page 244</td>
<td>1</td>
</tr>
<tr>
<td>233 (E9)</td>
<td>Private</td>
<td>No</td>
<td>Fixed</td>
<td>Top-down</td>
<td>Task. TCB shown in Table 15 on page 245</td>
<td>0</td>
<td>2, 19</td>
</tr>
</tbody>
</table>
### Table 13. Storage subpools and attributes (continued)

<table>
<thead>
<tr>
<th>Subpool dec (Hex)</th>
<th>Location</th>
<th>Fetch protection</th>
<th>Type</th>
<th>Storage built</th>
<th>Owner</th>
<th>Storage key</th>
<th>See notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>234 (EA)</td>
<td>Private LSQA/ELSQA</td>
<td>No</td>
<td>Fixed</td>
<td>Top-down</td>
<td>Job step. TCB whose address is in TCBJSTCB of TCB shown in Table 15 on page 245</td>
<td>0</td>
<td>2, 20</td>
</tr>
<tr>
<td>235 (EB)</td>
<td>Private LSQA/ELSQA</td>
<td>No</td>
<td>Fixed</td>
<td>Top-down</td>
<td>Address space</td>
<td>0</td>
<td>2, 21</td>
</tr>
<tr>
<td>236 (EC)</td>
<td>Private high</td>
<td>No</td>
<td>Pageable</td>
<td>Top-down</td>
<td>Task. TCB identified in note [12 on page 243]</td>
<td>1</td>
<td>2, 12</td>
</tr>
<tr>
<td>237 (ED)</td>
<td>Private high</td>
<td>No</td>
<td>Pageable</td>
<td>Top-down</td>
<td>Task. TCB identified in note [12 on page 243]</td>
<td>1</td>
<td>2, 12</td>
</tr>
<tr>
<td>239 (EF)</td>
<td>Common SQA/ESQA</td>
<td>Yes</td>
<td>Fixed</td>
<td>Top-down</td>
<td>System</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>240 (F0)</td>
<td>Private low</td>
<td>Yes</td>
<td>Pageable</td>
<td>Bottom-up</td>
<td>Task. TCB identified in note [11 on page 243]</td>
<td>1</td>
<td>9, 10, 11, 14</td>
</tr>
<tr>
<td>241 (F1)</td>
<td>Common CSA/ECSA</td>
<td>No</td>
<td>Pageable</td>
<td>Top-down</td>
<td>System</td>
<td>Selectable. See Table 14 on page 244</td>
<td>1</td>
</tr>
<tr>
<td>244 (F4)</td>
<td>Private Low</td>
<td>No</td>
<td>Pageable</td>
<td>Bottom-up</td>
<td>Job step. TCB whose address is in TCBJSTCB of TCB identified in note [11 on page 243]</td>
<td>Selectable. See Table 14 on page 244</td>
<td>1, 14</td>
</tr>
<tr>
<td>245 (F5)</td>
<td>Common SQA/ESQA</td>
<td>No</td>
<td>Fixed</td>
<td>Top-down</td>
<td>System</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>247 (F7)</td>
<td>Common ESQA</td>
<td>Yes</td>
<td>DREF</td>
<td>Top-down</td>
<td>System</td>
<td>0</td>
<td>2, 4, 13</td>
</tr>
<tr>
<td>248 (F8)</td>
<td>Common ESQA</td>
<td>No</td>
<td>DREF</td>
<td>Top-down</td>
<td>System</td>
<td>0</td>
<td>2, 4, 13</td>
</tr>
<tr>
<td>249 (F9)</td>
<td>Private high</td>
<td>No</td>
<td>Pageable</td>
<td>Top-down</td>
<td>Job step. TCB whose address is in TCBJSTCB of TCB shown in Table 15 on page 245</td>
<td>Selectable. See Table 14 on page 244</td>
<td>1</td>
</tr>
<tr>
<td>250 (FA)</td>
<td>Private low</td>
<td>Yes</td>
<td>Pageable</td>
<td>Top-Down</td>
<td>Task. TCB identified in note 11.</td>
<td>Same as TCB key at the time of the first storage request.</td>
<td>1, 9, 10, 11, 14</td>
</tr>
<tr>
<td>251 (FB)</td>
<td>Private low</td>
<td>Yes</td>
<td>Pageable</td>
<td>Bottom-up</td>
<td>Job step. TCB whose address is in TCBJSTCB of TCB shown in Table 15 on page 245</td>
<td>Same as TCB key at the time of the first storage request.</td>
<td>1, 10, 14</td>
</tr>
<tr>
<td>252 (FC)</td>
<td>Private low</td>
<td>No</td>
<td>Pageable</td>
<td>Bottom-up</td>
<td>Job step. TCB whose address is in TCBJSTCB of TCB shown in Table 15 on page 245</td>
<td>0</td>
<td>1, 14</td>
</tr>
</tbody>
</table>
Table 13. Storage subpools and attributes (continued)

<table>
<thead>
<tr>
<th>Subpool dec (Hex)</th>
<th>Location</th>
<th>Fetch protection</th>
<th>Type</th>
<th>Storage built</th>
<th>Owner</th>
<th>Storage key</th>
<th>See notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>253 (FD)</td>
<td>Private LSQA/ELSQA</td>
<td>No</td>
<td>Fixed</td>
<td>Top-down</td>
<td>Task. Fixed Top-down Task. TCB shown in Table 15 on page 245</td>
<td>0</td>
<td>2, 18</td>
</tr>
<tr>
<td>254 (FE)</td>
<td>Private LSQA/ELSQA</td>
<td>No</td>
<td>Fixed</td>
<td>Top-down</td>
<td>Job step. TCB whose address is in TCBISTCB of TCB shown in Table 15 on page 245</td>
<td>0</td>
<td>2, 18</td>
</tr>
<tr>
<td>255 (FF)</td>
<td>Private LSQA/ELSQA</td>
<td>No</td>
<td>Fixed</td>
<td>Top-down</td>
<td>Address space.</td>
<td>0</td>
<td>2, 18</td>
</tr>
</tbody>
</table>

Note:

1. Virtual storage is first backed by central storage when it is referenced or when it is page-fixed by a program using the PGSER macro. The location of the central storage backing this subpool depends on the value of the LOC parameter on the GETMAIN, STORAGE, or CPOOL macro invocation used to obtain the storage. Central storage is assigned below 16 megabytes only if one of the following is true:
   - The program obtaining the storage specified LOC=BELLOW when obtaining the storage.
   - The program obtaining the storage resides below 16 megabytes, specified LOC=RES either explicitly or by default, and specified a subpool supported below 16 megabytes.
2. Central storage backing this subpool can be above or below 16 megabytes.
3. Central storage backing this subpool resides below 16 megabytes.
4. This subpool is valid only when allocating virtual storage above 16 megabytes.
5. Although central storage for this subpool must be below 16 megabytes, virtual storage for this subpool may be above or below 16 megabytes.
6. Subpools 0-127, 131, and 132 are the only valid subpools for unauthorized programs. A request by an unauthorized program for a subpool other than 0-127, 131, or 132 causes abnormal termination of the program.
7. A program can issue a request to obtain or release storage from subpool 131 or 132 in a storage key that does not match the PSW key under which the program is running. However, the system will accept the storage request only if the requesting program is authorized in one of the following ways:
   - Running in supervisor state
   - Running under PSW key 0-7
   - APF-authorized
   - Having a PSW-key mask (PKM) that allows it to switch its PSW key to match the storage key of the storage specified. On a request to release all the storage in the subpool, the program must be able to switch its PSW key to match all the storage keys in the subpool.
   For information about the function and structure of the PKM, and information about switching the PSW key, see Principles of Operation.
8. Subpool 0 requests by programs in supervisor state and PSW key 0 are translated to subpool 252 requests and assigned a storage key of 0.
9. Subpool 240 and 250 requests are translated to subpool 0 requests. This permits programs running in supervisor state and PSW key 0 to acquire or free subpool 0 storage. If a program is running in supervisor state and key 0, the system translates subpool 0 storage requests to subpool 252 storage requests.

10. The system assigns the storage key based on the key in the requesting task’s TCB at the time of the task’s first storage request, not the current key in the TCB (unless this is the task’s first storage request).

11. The GSPV, SHSPV, and SZERO parameters on the ATTACH or ATTACHX macro invocation used to create the currently active task determine which TCB owns the storage in this subpool. These parameters specify the subpools to be owned by the subtask being attached (GSPV) and the subpools to be shared by the attaching task and the subtask being attached (SHSPV, SZERO). If the currently active task was given ownership of the subpool, then the TCB of the currently active task owns the storage in this subpool. If the currently active task is sharing this subpool with the task that created it, then the TCB of the attaching task owns the storage in this subpool. For more information, see the descriptions of the ATTACH and ATTACHX macros in "z/OS MVS Programming: Authorized Assembler Services Reference ALE-DYN" and the virtual storage management topic in "z/OS MVS Programming: Assembler Services Guide".

12. Virtual storage is located within the scheduler work area (SWA). The storage is freed at the end of the started task or at initiator termination for subpool 236 and at the end of the job for subpool 237. The NSHSPL and NSHSPV parameters on the ATTACH or ATTACHX macro invocation used to create the currently active task determine ownership of the subpool. If the currently active task was given ownership of the subpool, then the TCB of the currently active task owns the storage in this subpool. If the currently active task is sharing this subpool with the task that created it, then the TCB of the attaching task owns the storage in this subpool. For more information, see the description of the ATTACH and ATTACHX macros in "z/OS MVS Programming: Authorized Assembler Services Reference ALE-DYN" and the virtual storage management topic in "z/OS MVS Programming: Assembler Services Guide". For additional information about the SWA, see "z/OS MVS Initialization and Tuning Guide".

13. If a GETMAIN macro is issued in AMODE 31 for a DREF subpool, the LOC=BELOW parameter is ignored. VSM gives the user storage above 16M.

14. Central storage backing this subpool can be pageable 1 MB page frames.

15. These subpools can coexist on the same page of storage.

16. These subpools can coexist on the same page of storage.

17. These subpools can coexist on the same page of storage.

18. These subpools can coexist on the same page of storage.

19. Storage is getmained in subpool 253.

20. Storage is getmained in subpool 254.

21. Storage is getmained in subpool 255.

Storage keys for selectable key subpools

Table 14 on page 244 provides detailed information about the subpools with selectable storage keys (as listed in Table 13 on page 239).
### Table 14. Storage keys for selectable key subpools

<table>
<thead>
<tr>
<th>Subpool</th>
<th>Macros and parameters</th>
<th>Storage key</th>
</tr>
</thead>
<tbody>
<tr>
<td>129-132</td>
<td>• GETMAIN with LC, LU, VC, VU, EC, EU, or R; BRANCH not specified</td>
<td>The storage key equals the caller’s PSW key. (The KEY parameter is not allowed.)</td>
</tr>
<tr>
<td></td>
<td>• FREEMAIN with LC, LU, L, VC, VU, V, EC, EU, E, or R; BRANCH not specified</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• STORAGE with OBTAIN or RELEASE; CALLRKY=YES is specified</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• GETMAIN with LC, LU, VC, VU, EC, EU, or R; BRANCH=YES specified</td>
<td>The storage key is 0. (The KEY parameter is not allowed.)</td>
</tr>
<tr>
<td></td>
<td>• FREEMAIN with LC, LU, L, VC, VU, V, EC, EU, E, or R; BRANCH=YES specified</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• CPOOL with BUILD</td>
<td></td>
</tr>
<tr>
<td>227-231, 241, 244, 249</td>
<td>• All GETMAIN requests with BRANCH not specified</td>
<td>The storage key equals the caller’s PSW key. (For RC, RU, VRC, and VRU, the KEY parameter is ignored. For other GETMAIN and FREEMAIN requests, the KEY parameter is not allowed.)</td>
</tr>
<tr>
<td></td>
<td>• All FREEMAIN requests with BRANCH not specified</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• STORAGE with OBTAIN or RELEASE; CALLRKY=YES is omitted, or CALLRKY=NO is specified</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• GETMAIN with LC, LU, VC, VU, EC, EU, or R; BRANCH=YES specified</td>
<td>The storage key is 0 (The KEY parameter is not allowed.)</td>
</tr>
<tr>
<td></td>
<td>• FREEMAIN with LC, LU, L, VC, VU, V, EC, EU, E, or R; BRANCH=YES specified</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• CPOOL with BUILD</td>
<td></td>
</tr>
</tbody>
</table>

#### Task owned and job step owned storage

Table 15 on page 245 shows how the system determines the input TCB for task or jobstep owned storage. For task owned storage, the owning TCB is the input TCB. For job step owned storage, the owning TCB is the job step task TCB of the input TCB shown in Table 15 on page 245.
### Table 15. How the system determines the input TCB for task owned storage

<table>
<thead>
<tr>
<th>Macro</th>
<th>Conditions</th>
<th>Input TCB</th>
<th>Event causing storage to be freed</th>
</tr>
</thead>
<tbody>
<tr>
<td>GETMAIN and</td>
<td>If the caller specifies SVC entry</td>
<td>TCB of the currently active task, whose address is in PSATOLD</td>
<td>Currently active task terminates</td>
</tr>
<tr>
<td>FREEMAIN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>If the caller specifies local branch entry and specifies GPR 4 with a</td>
<td>TCB owning the cross-memory resources in the target address space,</td>
<td>Task, whose TCB address is in ASCBXTCB</td>
</tr>
<tr>
<td></td>
<td>value of zero</td>
<td>whose address is in ASCBXTCB</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>If the caller specifies local branch entry and specifies GPR 4 with a</td>
<td>TCB address specified by the caller in GPR 4</td>
<td>Task, whose TCB address is passed in GPR 4, terminates</td>
</tr>
<tr>
<td></td>
<td>nonzero value</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STORAGE</td>
<td>If the caller is in task mode and the target address space is the home</td>
<td>TCB of the currently active task, whose address is in PSATOLD</td>
<td>Currently active task terminates</td>
</tr>
<tr>
<td></td>
<td>address space</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>If the caller is in SRB mode or the target address space is not the home</td>
<td>TCB owning the cross-memory resources in the target address space,</td>
<td>Task, whose TCB address is in ASCBXTCB</td>
</tr>
<tr>
<td></td>
<td>address space</td>
<td>whose address is in ASCBXTCB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If the caller specifies the TCBADDR parameter</td>
<td>TCB specified by the caller with the TCBADDR parameter</td>
<td>Task whose TCB address is specified with the TCBADDR parameter terminates</td>
</tr>
<tr>
<td>CPOOL</td>
<td>If the caller omits the TCB parameter</td>
<td>TCB of the currently active task, whose address is in PSATOLD</td>
<td>Currently active task terminates</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>If the caller specifies the TCB parameter with a value of 0</td>
<td>TCB owning the cross-memory resources in the target address space,</td>
<td>Task, whose TCB address is in ASCBXTCB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>whose address is in ASCBXTCB</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If the caller specifies the TCB parameter with a nonzero value</td>
<td>TCB specified by the caller with the TCB parameter</td>
<td>Task, whose TCB address is specified with the TCB parameter, terminates</td>
</tr>
</tbody>
</table>
Storage Summary
Chapter 9. Error recording on the logrec data set

Table 16 lists the incidents and the types of records that can be recorded on the logrec data set for each incident. The following notes describe how to read the figure.

**Note:**
1. When indicated, the notes (A through M) at the end of the figure give more information on the record types specified for the incident.
2. Reading horizontally, the numbers in Table 16 indicate the approximate chronological creation of the record types that can be recorded for each incident. For example, a permanent channel control check incident generates SLH records (Note A) before generating a long OBR record (Note B).
3. An asterisk (*) denotes mutually exclusive, device-dependent records. For example, an EOV request on an IBM magnetic tape drive (3420, 3422, 3430) generates a long OBR record (Note D). The MDR record is ignored (Note E).

See the recording logrec error records chapter of *z/OS MVS Diagnosis: Tools and Service Aids* for information about initializing the logrec data set.

**Table 16. Incident/Record table**

<table>
<thead>
<tr>
<th>Incidents</th>
<th>ANR</th>
<th>CRW</th>
<th>DDR</th>
<th>EOD</th>
<th>IPL</th>
<th>IOS</th>
<th>MCH</th>
<th>MDR</th>
<th>MIH</th>
<th>OBR, Long</th>
<th>OBR, Short</th>
<th>Software</th>
<th>SLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abend</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Address Limit Check</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1(A)</td>
</tr>
<tr>
<td>Buffer Overflow</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Channel Control Check</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2(B)</td>
<td></td>
<td></td>
<td>1(A)</td>
</tr>
<tr>
<td>Channel Data Check</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2(B)</td>
<td></td>
<td></td>
<td>1(A)</td>
</tr>
<tr>
<td>Channel End (Missing)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1(F)</td>
</tr>
<tr>
<td>Channel Report Word</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLOSE Request (Demount)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1*(E)</td>
<td>1*(D)</td>
<td></td>
</tr>
<tr>
<td>Central Processor Failure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1*(E)</td>
<td></td>
<td>1*(D)</td>
<td></td>
</tr>
<tr>
<td>DASD Service Required</td>
<td>1(K)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDR Swap (Demount)</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deallocate Condition (Demount)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1*(E)</td>
<td></td>
<td>1*(D)</td>
<td></td>
</tr>
<tr>
<td>Device End (Missing)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1*(F)</td>
<td></td>
</tr>
<tr>
<td>DFDSS Demount</td>
<td>1(C)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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### Error Recording

**Table 16. Incident/Record table (continued)**

<table>
<thead>
<tr>
<th>Incidents</th>
<th>Record types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic Pathing Validation</td>
<td>1</td>
</tr>
<tr>
<td>EOD Command (Demount or System Ending)</td>
<td>4</td>
</tr>
<tr>
<td>EOV Request (Demount)</td>
<td>1*(E)</td>
</tr>
<tr>
<td>ETR External Interrupt</td>
<td>1(L)</td>
</tr>
<tr>
<td>ETR Failure</td>
<td>1(L)</td>
</tr>
<tr>
<td>ETR-Related Machine Checks</td>
<td>1(L)</td>
</tr>
<tr>
<td>Hot I/O Conditions</td>
<td>1</td>
</tr>
<tr>
<td>Interface Control Check</td>
<td>2(B)</td>
</tr>
<tr>
<td>Intermittent Failure - I/O Devices</td>
<td>1*(G)</td>
</tr>
<tr>
<td>Incorrect SVC Issued</td>
<td>1</td>
</tr>
<tr>
<td>IPL (System Initialization)</td>
<td>1</td>
</tr>
<tr>
<td>Lost Records</td>
<td>1(J)</td>
</tr>
<tr>
<td>Measurement Check</td>
<td>1</td>
</tr>
<tr>
<td>Non-ABEND Software Failure</td>
<td>1</td>
</tr>
<tr>
<td>Paging I/O Error</td>
<td>1</td>
</tr>
<tr>
<td>Path Failures</td>
<td>1</td>
</tr>
<tr>
<td>Permanent Failure - I/O and TP Devices</td>
<td>1*</td>
</tr>
<tr>
<td>Program Check</td>
<td>1</td>
</tr>
<tr>
<td>Restart Key Pressed</td>
<td>1</td>
</tr>
<tr>
<td>Serial Link Degraded</td>
<td>1(M)</td>
</tr>
<tr>
<td>Serial Link Failure</td>
<td>1(M)</td>
</tr>
<tr>
<td>Statistic Counter Overflow</td>
<td>1</td>
</tr>
<tr>
<td>Statistic Counter Overflow - TP Devices and Variable Length Table Entries</td>
<td>1</td>
</tr>
<tr>
<td>Storage Failure</td>
<td>1</td>
</tr>
<tr>
<td>Storage Key Failure</td>
<td>1</td>
</tr>
<tr>
<td>System Restartable Wait</td>
<td>1</td>
</tr>
<tr>
<td>Temporary Device Failure</td>
<td>1*(G)</td>
</tr>
<tr>
<td>Vary Offline</td>
<td>1*(G)</td>
</tr>
</tbody>
</table>

**Note:**
- ANR: 248
- CRW: z/OS V2R2 MVS Diagnosis: Reference
Note: (letters in parentheses indicate the following):

A Created one SLH record for each ERP retry attempt for same incident before considering error to be permanent.

B Created only if condition is permanent (uncorrectable).

C Created only for devices with a buffered log and removable disk packs (such as the IBM 3330, 3340, 3344, and 3850).

D Created only for the IBM magnetic tape drives (3420, 3422, 3430). For EOD command, created randomly and can precede short OBR records or follow MDR records.

E Created only for devices with buffered logs (such as the IBM 3330, 3340, 3344, 3350, 3375, 3380, and 3850). For EOD command, created randomly and can precede or follow short and long OBR records.

F Not created for teleprocessing devices other than the local 3704/3705 and 3791.

G Created only for those devices having an ERP that records certain intermittent or permanent incidents (such as the ERPs for the IBM 3330, 3340, 3344, 3350, 3375, 3380, and 3850).

H Created randomly; MDR and long OBR records can precede short OBR records.

I Created only for hard machine failures which indicate recording on the logrec data set.

J Although lost records are reported in a software record, the records lost may be software or hardware records or both.

K Created to report servicing needs for any I/O device that supports service information message (A3).

L Created for ETR incidents (port changes, failures).

M Created for serial link incidents (degradation, failure).

Record header

All records on the logrec data set contain a standard 24-byte header followed by data that is specific for the record type and the device type or machine model. The header provides the information necessary to identify the type and origin of the record.

- Type information - which defines the specific type of record, the specific source of the record, the general reason the record was made, and any special record-dependent attributes (such as record length, content, hardware features, format).

- Origin information - which includes the operating system the record was generated on, the generating program, the time and date the record was generated, the processor identity, and the processor serial number on which the record was generated. For a multiprocessing system, the processor that generated the record may not be the processor on which the incident occurred.
Error Recording

Record type indicators

Table 17 identifies the valid record types or classes (the first hexadecimal digit, bits 0 through 3, of the record) and specific record sources (second digit, bits 4 through 7).

Table 17. Summary of record type indicators

<table>
<thead>
<tr>
<th>Record</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1x</td>
<td>Machine check (MCH record)</td>
</tr>
<tr>
<td>10</td>
<td>MCH.</td>
</tr>
<tr>
<td>13</td>
<td>MCH in the system.</td>
</tr>
<tr>
<td>2x</td>
<td>Channel subsystem records</td>
</tr>
<tr>
<td>23</td>
<td>SLH.</td>
</tr>
<tr>
<td>25</td>
<td>CRW.</td>
</tr>
<tr>
<td>3x</td>
<td>Unit check (OBR record)</td>
</tr>
<tr>
<td>30</td>
<td>OBR; unit check.</td>
</tr>
<tr>
<td>34</td>
<td>No longer generated (previously TCAM OBR).</td>
</tr>
<tr>
<td>36</td>
<td>VTAM OBR.</td>
</tr>
<tr>
<td>3A</td>
<td>DPA OBR.</td>
</tr>
<tr>
<td>4x</td>
<td>Software error (software record)</td>
</tr>
<tr>
<td>40</td>
<td>Software-detected software error.</td>
</tr>
<tr>
<td>42</td>
<td>Hardware-detected software error.</td>
</tr>
<tr>
<td>44</td>
<td>Operator-detected error.</td>
</tr>
<tr>
<td>48</td>
<td>Hardware-detected hardware error.</td>
</tr>
<tr>
<td>4C</td>
<td>Symptom record.</td>
</tr>
<tr>
<td>4E</td>
<td>Excessive spin CPU list</td>
</tr>
<tr>
<td>4F</td>
<td>Lost record summary.</td>
</tr>
<tr>
<td>5x</td>
<td>System initialization (IPL record)</td>
</tr>
<tr>
<td>50</td>
<td>IPL.</td>
</tr>
<tr>
<td>6x</td>
<td>Reconfiguration (DDR record)</td>
</tr>
<tr>
<td>60</td>
<td>DDR.</td>
</tr>
<tr>
<td>7x</td>
<td>Missing interruption (MIH record)</td>
</tr>
<tr>
<td>71</td>
<td>MIH.</td>
</tr>
<tr>
<td>8x</td>
<td>System ending (EOD record)</td>
</tr>
<tr>
<td>80</td>
<td>EOD.</td>
</tr>
<tr>
<td>81</td>
<td>System-initiated end; restart not possible.</td>
</tr>
<tr>
<td>84</td>
<td>EOD from IOS; restart possible.</td>
</tr>
<tr>
<td>9x</td>
<td>Non-Standard (MDR record)</td>
</tr>
<tr>
<td>90</td>
<td>SVC 91.</td>
</tr>
<tr>
<td>91</td>
<td>MDR.</td>
</tr>
</tbody>
</table>
**Table 17. Summary of record type indicators (continued)**

<table>
<thead>
<tr>
<th>Record</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ax</td>
<td>Asynchronous notification record (ANR)</td>
</tr>
<tr>
<td>A1</td>
<td>ETR</td>
</tr>
<tr>
<td>A2</td>
<td>LMI</td>
</tr>
<tr>
<td>A3</td>
<td>SIM</td>
</tr>
<tr>
<td>Cx</td>
<td>IOS recovery records</td>
</tr>
<tr>
<td>C2</td>
<td>Dynamic pathing services validation (DPSV).</td>
</tr>
</tbody>
</table>

---

**Record format**

The format of the records represented in this topic is:

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The meanings are:

**Offset**  The numeric address of the field relative to the beginning of the data area.

**Dec Hex**  The first number is the offset in decimal, followed by the hexadecimal equivalent in parentheses. Example: 16 (10).

**Size (bytes)**  The field size in bytes.

**Alignment (bits)**  This column also shows the bit settings of switch fields. Significant bit settings are shown and described. Users should not use the reserved bits.

The alignment or state of the bits in a byte is as follows:

- ....  The eight bit positions (0 through 7) in a byte. For ease of scanning, the high-order (left-hand) four bits are separated from the low-order four bits.
- .x...  A reference to bit 1.
- 1...   Bit zero is on.
- 0...   Bit zero is off.
- ....1  A reference to bits 6 and 7.

**Field name**  A symbol that identifies the field.

**Description**  The use of a field. Where the field's use relates directly to a value coded by a user, the coded value is shown. Where the hexadecimal code for a particular bit setting would be helpful, it is shown separated from the rest of the description.
## Logrec data set header record

### Table 18. Format of the logrec data set header record

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>(0) 2</td>
<td>CLASRC</td>
<td>Header record identifier. Each bit in this field is set to 1 unless critical data has been destroyed.</td>
</tr>
<tr>
<td>2</td>
<td>(2) 4</td>
<td>LOWLIMIT</td>
<td>Address of low extent. Track address (in CCHH format) of first extent of the logrec data set.</td>
</tr>
<tr>
<td>6</td>
<td>(6) 4</td>
<td>UPLIMIT</td>
<td>Address of high extent. Track address (in CCHH format) of last extent of the logrec data set.</td>
</tr>
<tr>
<td>10</td>
<td>(A) 1</td>
<td>MSGCNT</td>
<td>Count of the number of times that the LOGREC-full message (IFB040I) has been issued. The maximum number is 15.</td>
</tr>
<tr>
<td>11</td>
<td>(B) 7</td>
<td>RESTART</td>
<td>Address of record entry area and the time stamp record. Starting track address (in BBCCHHR format) for recording area on the logrec data set.</td>
</tr>
<tr>
<td>18</td>
<td>(12) 2</td>
<td>BYTSREM</td>
<td>Remaining bytes on track. Number of bytes remaining on track upon which last record entry was written.</td>
</tr>
<tr>
<td>20</td>
<td>(14) 2</td>
<td>TRKCAP</td>
<td>Total bytes on track. Number of bytes which can be written on a track of volume containing the logrec data set.</td>
</tr>
<tr>
<td>22</td>
<td>(16) 7</td>
<td>LASTTR</td>
<td>Address of last record written. Track address (BBCCHHR format) of last record written on the logrec data set.</td>
</tr>
<tr>
<td>29</td>
<td>(1D) 2</td>
<td>TRKSPER</td>
<td>Highest addressable track for each cylinder on volume containing the logrec data set.</td>
</tr>
<tr>
<td>31</td>
<td>(1F) 2</td>
<td>EWMCNT</td>
<td>Warning count. Number of bytes remaining on early warning message track of the logrec data set when 90% full point of data set is reached. When this is detected by a recording routine, it issues a message and turns on early warning message switch at displacement 38.</td>
</tr>
<tr>
<td>33</td>
<td>(21) 1</td>
<td>DEVCODE</td>
<td>Device code. Code indicating device type of volume on which the logrec data set resides:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Code</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>04</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>07</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>09</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0C</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0D</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0E</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0F</td>
</tr>
<tr>
<td>34</td>
<td>(22) 4</td>
<td>EWMTRK</td>
<td>Early warning message track. Track address (in CCHH format) on which 90% full point for data set exists.</td>
</tr>
<tr>
<td>38</td>
<td>(26) 1</td>
<td>EWMSW</td>
<td>Switch byte:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1... ....</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>xxx xxxxx</td>
</tr>
<tr>
<td>39</td>
<td>(27) 1</td>
<td>SFTYBYTES</td>
<td>Check byte. Each bit in this field is set to 1 and is used to check validity of header record identifier.</td>
</tr>
</tbody>
</table>
### Logrec data set time stamp record

**Table 19. Format of the time stamp record**

<table>
<thead>
<tr>
<th>Offset (Dec)</th>
<th>Offset (Hex)</th>
<th>Size (bytes)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0 (0)</td>
<td>1</td>
<td>CLASRC</td>
<td>Class/Source:</td>
</tr>
<tr>
<td>1</td>
<td>1 (1)</td>
<td>1</td>
<td>OPSYS</td>
<td>System/Release level:</td>
</tr>
<tr>
<td>100.</td>
<td></td>
<td>bits 3-7</td>
<td></td>
<td>Operating System (OS)/Virtual Storage (VS)2.</td>
</tr>
<tr>
<td>0-1F</td>
<td></td>
<td></td>
<td></td>
<td>Release level 0-31.</td>
</tr>
<tr>
<td>2</td>
<td>2 (2)</td>
<td>4</td>
<td>SW1</td>
<td>Record switches:</td>
</tr>
<tr>
<td>Byte 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1... ....</td>
<td></td>
<td></td>
<td></td>
<td>More records follow.</td>
</tr>
<tr>
<td>0... ....</td>
<td></td>
<td></td>
<td></td>
<td>Last record.</td>
</tr>
<tr>
<td>1... ....</td>
<td></td>
<td></td>
<td></td>
<td>Time-of-day clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12.</td>
</tr>
<tr>
<td>...1. ....</td>
<td></td>
<td></td>
<td></td>
<td>Record truncated. (Not used for time stamp record.)</td>
</tr>
<tr>
<td>...1. ....</td>
<td></td>
<td></td>
<td></td>
<td>Record created by MVS/SP Version 2, 3, or 4.</td>
</tr>
<tr>
<td>.... 1...</td>
<td></td>
<td></td>
<td></td>
<td>TIME macro used.</td>
</tr>
<tr>
<td>.... .xxx</td>
<td></td>
<td></td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>Bytes 1 and 2</td>
<td></td>
<td></td>
<td></td>
<td>Not used for time stamp record.</td>
</tr>
<tr>
<td>Byte 3</td>
<td></td>
<td></td>
<td></td>
<td>Incremental release number (alphanumeric) of operating system.</td>
</tr>
<tr>
<td>6</td>
<td>6 (6)</td>
<td>2</td>
<td>DATE</td>
<td>System date for IPL records (updated by input/output supervisor (IOS) outage recorder at 3 minute time intervals).</td>
</tr>
<tr>
<td>8</td>
<td>8 (8)</td>
<td>4</td>
<td>TIME</td>
<td>System time for IPL records (updated by IOS outage recorder at 3 minute time intervals).</td>
</tr>
<tr>
<td>12</td>
<td>C (12)</td>
<td>4</td>
<td>VERNO</td>
<td>Machine version code.</td>
</tr>
<tr>
<td>17</td>
<td>11 (11)</td>
<td>3</td>
<td>CPUSER</td>
<td>Central processor serial number.</td>
</tr>
<tr>
<td>20</td>
<td>14 (14)</td>
<td>2</td>
<td>CPUMODEL</td>
<td>Central processor machine model number (for example, 3990).</td>
</tr>
<tr>
<td>22</td>
<td>16 (16)</td>
<td>2</td>
<td>MCELLNG</td>
<td>Reserved.</td>
</tr>
<tr>
<td>24</td>
<td>18 (18)</td>
<td>16</td>
<td></td>
<td>Reserved.</td>
</tr>
</tbody>
</table>

### Asynchronous notification record (ANR) records

ANR records are recorded on the logrec data set for information:
- Related to the Sysplex Timer
- Gathered for a particular link incident
- To report the need for 3990 or 3390 service

The three types of ANR records are:
- External timer reference (ETR) records for Sysplex Timer incidents (A1)
- Link maintenance information (LMI) records (A2)
- Direct access storage device-service information message (DASD-SIM) records (A3)
Automatic problem reporting

When MVS creates the following logrec records and the error is unique, the Hardware Management Console creates a problem record (PMR) in RETAIN* to notify IBM that service is needed.

- ETR record
- DASD-SIM record

External timer reference (ETR) record

An ETR provides signals that can be used to synchronize all time-of-day (TOD) clocks in an installation. Each ETR provides a number of ports that can be connected to the central processing complexes (CPC). The on-time event (OTE) signal checks that the synchronization is correct. An ETR record is recorded on the logrec data set when an ETR-related event is processed. ETR is the MVS generic name for the IBM Sysplex Timer (9037).

Table 20. Format of the ETR record

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (0)</td>
<td>1</td>
<td>A1KEY1</td>
<td>Class/Source:</td>
</tr>
<tr>
<td></td>
<td>1010 0011</td>
<td></td>
<td>External Timer Reference Record; type = X’A1’.</td>
</tr>
<tr>
<td>1 (1)</td>
<td>1</td>
<td>A1KEY2</td>
<td>System/Release level:</td>
</tr>
<tr>
<td></td>
<td>100. ....</td>
<td></td>
<td>OS/VS2.</td>
</tr>
<tr>
<td></td>
<td>...x xxxx</td>
<td></td>
<td>Release level 0-1F.</td>
</tr>
<tr>
<td>2 (2)</td>
<td>1</td>
<td>A1SMS</td>
<td>Record-independent switches:</td>
</tr>
<tr>
<td></td>
<td>1... ...</td>
<td></td>
<td>More records follow.</td>
</tr>
<tr>
<td></td>
<td>0... ...</td>
<td></td>
<td>Last record.</td>
</tr>
<tr>
<td></td>
<td>.1... ....</td>
<td></td>
<td>Time-of-day (TOD) clock instruction issued.</td>
</tr>
<tr>
<td></td>
<td>..1. ....</td>
<td></td>
<td>Record truncated.</td>
</tr>
<tr>
<td></td>
<td>...1 ....</td>
<td></td>
<td>Record created by MVS/SP Version 2, 3, or 4.</td>
</tr>
<tr>
<td></td>
<td>... 1...</td>
<td></td>
<td>TIME macro issued.</td>
</tr>
<tr>
<td></td>
<td>... xxx</td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>3 (3)</td>
<td>3</td>
<td>A1SW1</td>
<td>Record-dependent switches:</td>
</tr>
<tr>
<td>Byte 0</td>
<td></td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>Byte 1</td>
<td>A1SW2</td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>Byte 2</td>
<td>A1SW3</td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>6 (6)</td>
<td>1</td>
<td>A1RCDCR</td>
<td>Record count:</td>
</tr>
<tr>
<td></td>
<td>xxxx ....</td>
<td></td>
<td>Record sequence number.</td>
</tr>
<tr>
<td></td>
<td>... xxxx</td>
<td></td>
<td>Total number of physical records in this logical record.</td>
</tr>
<tr>
<td>7 (7)</td>
<td>1</td>
<td>A1DT</td>
<td>System date of incident.</td>
</tr>
<tr>
<td>8 (8)</td>
<td>4</td>
<td>A1TIME</td>
<td>System time of incident.</td>
</tr>
<tr>
<td>12 (C)</td>
<td>4</td>
<td>A1VER</td>
<td>Machine version code.</td>
</tr>
<tr>
<td>16 (10)</td>
<td>1</td>
<td>A1SER</td>
<td>Central processor serial number.</td>
</tr>
<tr>
<td>17 (11)</td>
<td>3</td>
<td>A1MOD</td>
<td>Central processor machine model number.</td>
</tr>
<tr>
<td>20 (14)</td>
<td>2</td>
<td>A1CEL</td>
<td>Reserved.</td>
</tr>
<tr>
<td>22 (16)</td>
<td>2</td>
<td></td>
<td>END OF STANDARD HEADER</td>
</tr>
<tr>
<td></td>
<td>Word 1</td>
<td></td>
<td>The ETR-attachment-status word</td>
</tr>
<tr>
<td>24 (18)</td>
<td>bits 0-15</td>
<td>ETRCTRLRG</td>
<td>The current values in the ETR-attachment control register.</td>
</tr>
<tr>
<td></td>
<td>Byte 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
#### Table 20. Format of the ETR record (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>01</td>
<td>CREO</td>
<td>Port 0 selection control.</td>
</tr>
<tr>
<td>1</td>
<td>01</td>
<td>CRE1</td>
<td>Port 1 selection control.</td>
</tr>
<tr>
<td>xx</td>
<td></td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>1</td>
<td>xx</td>
<td>CRETR</td>
<td>ETR installed.</td>
</tr>
<tr>
<td>xx</td>
<td></td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>1</td>
<td>...</td>
<td>CRAPC</td>
<td>Alternate port control.</td>
</tr>
<tr>
<td>Byte 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>(19)</td>
<td>CRP0M</td>
<td>Port availability change mask for port 0.</td>
</tr>
<tr>
<td>1</td>
<td>.1</td>
<td>CRP1M</td>
<td>Port availability change mask for port 1.</td>
</tr>
<tr>
<td>xx</td>
<td>x</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>xx</td>
<td>CREAM</td>
<td>ETR alert interrupt mask.</td>
</tr>
<tr>
<td>1</td>
<td>...</td>
<td>RESM</td>
<td>ETR synchronization check interrupt mask.</td>
</tr>
<tr>
<td>1</td>
<td>...</td>
<td>CRSLM</td>
<td>Switch to local interrupt mask.</td>
</tr>
<tr>
<td>Byte 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>(1A)</td>
<td>CSYN</td>
<td>When 1, indicates that the configuration is currently in local stepping mode; otherwise, the configuration is in the ETR-stepping mode.</td>
</tr>
<tr>
<td>1</td>
<td>xxx</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>...</td>
<td>CCSID</td>
<td>The CPC side ID of the side whose ports are currently supplying ETR signals used by the configuration.</td>
</tr>
<tr>
<td>x</td>
<td></td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.1</td>
<td>CCSPN</td>
<td>When bit 16 is 0, the port number of the stepping port; otherwise, unpredictable.</td>
</tr>
<tr>
<td>1</td>
<td>...</td>
<td>CCDPN</td>
<td>When bit 16 is 0, the port number of the data port; otherwise, unpredictable.</td>
</tr>
<tr>
<td>Byte 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>(1B)</td>
<td>CPS0</td>
<td>The current port 0 state.</td>
</tr>
<tr>
<td>xxxx</td>
<td></td>
<td>CPS1</td>
<td>The current port 1 state.</td>
</tr>
<tr>
<td>Word 2</td>
<td></td>
<td></td>
<td>The ETR-data status word</td>
</tr>
<tr>
<td>28</td>
<td>(1C)</td>
<td>Bytes 0-1</td>
<td>Zeros.</td>
</tr>
<tr>
<td>Byte 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>(1E)</td>
<td>OCSID</td>
<td>The ID of the CPC side with the active ETR port at the most recent ETR OTE.</td>
</tr>
<tr>
<td>1</td>
<td>...</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.xx</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>...</td>
<td>OCPN</td>
<td>The port number of the data port at the most recent ETR-data OTE.</td>
</tr>
<tr>
<td>Byte 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>(1F)</td>
<td>VWORD4</td>
<td>When 1, word 4 of the ETR attachment information is valid.</td>
</tr>
<tr>
<td>1</td>
<td>...</td>
<td>VWORD5</td>
<td>When 1, word 5 of the ETR attachment information is valid.</td>
</tr>
<tr>
<td>1</td>
<td>...</td>
<td>VWORD6</td>
<td>When 1, word 6 of the ETR attachment information is valid.</td>
</tr>
<tr>
<td>1</td>
<td>...</td>
<td>VWORD7</td>
<td>When 1, word 7 of the ETR attachment information is valid.</td>
</tr>
<tr>
<td>xxxx</td>
<td></td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>Words 3 and 4</td>
<td></td>
<td></td>
<td>The TOD-clock value at last OTE.</td>
</tr>
<tr>
<td>Word 5</td>
<td></td>
<td></td>
<td>The ETR-data word 1</td>
</tr>
<tr>
<td>Byte 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>(28)</td>
<td>bits 0-7</td>
<td>The ETR-alert field.</td>
</tr>
</tbody>
</table>
## Error Recording

**Table 20. Format of the ETR record (continued)**

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dec</td>
<td>Hex</td>
<td></td>
</tr>
<tr>
<td>1...</td>
<td>1...</td>
<td>UNTN</td>
<td>The untuned bit. Indicates the tuning status of the link connected to the CPC port by which the ETR data in bytes 16-31 of the ETR-attachment information block was received. When 0, all link segments in the path from the ETR to the CPC are tuned or ETR does not provide the link-tuning function. When 1, the ETR provides the link-tuning function but one or more link segments in the path are not yet tuned.</td>
</tr>
<tr>
<td>.x...</td>
<td>.x...</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>...1</td>
<td>...1</td>
<td>SRV</td>
<td>The service request bit. When this bit changes values a value change in the reason code field occurs.</td>
</tr>
<tr>
<td>...x</td>
<td>...x</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>...1</td>
<td>...1</td>
<td>TADJ</td>
<td>When this bit changes value, a time adjustment has occurred. The contents of either the biased-local-time-offset or the biased-UTC-offset field are also changed.</td>
</tr>
<tr>
<td>Byte 1</td>
<td>41</td>
<td>(29)</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>(2A)</td>
<td>xxx.</td>
<td>Reserved.</td>
</tr>
<tr>
<td>43</td>
<td>(2B)</td>
<td>xxx.</td>
<td>Reserved.</td>
</tr>
<tr>
<td>44</td>
<td>(2C)</td>
<td>bits 0-31</td>
<td>TIMEH</td>
</tr>
<tr>
<td>Word 6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>(30)</td>
<td>xxxx xxxx</td>
<td>RCODE</td>
</tr>
<tr>
<td>Byte 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>(31)</td>
<td>xxx.</td>
<td>Reserved.</td>
</tr>
<tr>
<td>50</td>
<td>(32)</td>
<td>xxxx xxxx</td>
<td>BUO</td>
</tr>
<tr>
<td>Byte 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>(33)</td>
<td>xxxx xxxx</td>
<td>The accumulated number of leap seconds biased by excess-128 notation.</td>
</tr>
<tr>
<td>Word 7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>(34)</td>
<td>bits 0-6</td>
<td>EM</td>
</tr>
<tr>
<td>Byte 0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 20. Format of the ETR record (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>2</td>
<td>TALC</td>
<td>The ETR time at the last time the master ETR correctly received the signal from an external time standard.</td>
</tr>
<tr>
<td>38</td>
<td>Words 8-11</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>Word 12</td>
<td>Information for the Alternate Port</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>Byte 0</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td></td>
<td>bits 0-7</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Byte 1 &lt;</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>Byte 2</td>
<td>SCID</td>
<td>The ETR-network ID. Identifies the time source for all CPCs directly connected to the ETR.</td>
</tr>
<tr>
<td>51</td>
<td>Byte 3</td>
<td>ID</td>
<td>The ETR ID of the ETR to which the alternate CPC port is connected.</td>
</tr>
<tr>
<td>52</td>
<td>Word 12</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td></td>
<td>84 bytes</td>
<td>Reserved</td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>96 bytes</td>
<td>Character data containing the text of a message issued to the console or to the system log (SYSLOG).</td>
<td></td>
</tr>
</tbody>
</table>

Link maintenance information (LMI) record

The LMI record provides detailed device/CPC node information that is gathered for a particular link incident. An LMI record describes link-degraded and link-failure incidents.

Table 21. Format of the LMI record

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes)</th>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>A2KEY1</td>
<td>Class/Source</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>A2KEY2</td>
<td>Release level of LMI record (type = 'X'A2').</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>A2KEY2</td>
<td>System/release level:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OS/VS2 and later MVS systems.</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>A2KEY5</td>
<td>More records follow.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Last record.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Time-of-Day (TOD) clock instruction issued.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>IBM System/360</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>IBM System/370</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Record truncated.</td>
</tr>
</tbody>
</table>
### Error Recording

**Table 21. Format of the LMI record (continued)**

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes)</th>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>370 XA mode record.</td>
<td></td>
</tr>
<tr>
<td>... 1</td>
<td>...</td>
<td>TIME macro used.</td>
<td></td>
</tr>
<tr>
<td>... 1..</td>
<td>...</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>... 1..</td>
<td>...</td>
<td>Record-dependent switches:</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>(3) 3</td>
<td>A2SW1</td>
<td>Reserved.</td>
</tr>
<tr>
<td>3</td>
<td>(3) 3</td>
<td>A2SW2</td>
<td>Reserved.</td>
</tr>
<tr>
<td>3</td>
<td>(3) 3</td>
<td>A2SW3</td>
<td>Reserved.</td>
</tr>
<tr>
<td>6</td>
<td>(6) 1</td>
<td>A2RCDCT</td>
<td>Record count:</td>
</tr>
<tr>
<td>xxxx</td>
<td>...</td>
<td>Sequence number of this physical record.</td>
<td></td>
</tr>
<tr>
<td>... xxx</td>
<td>...</td>
<td>Total number of physical records in this logical record.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>(7) 1</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>(8) 8</td>
<td>A2DT</td>
<td>System date and time of incident:</td>
</tr>
<tr>
<td>8</td>
<td>(8) 4</td>
<td>A2DATE</td>
<td>System date of failure.</td>
</tr>
<tr>
<td>12</td>
<td>(C) 4</td>
<td>A2TIME</td>
<td>System time of failure.</td>
</tr>
<tr>
<td>16</td>
<td>(10) 8</td>
<td>A2CPUID</td>
<td>CPU identification.</td>
</tr>
<tr>
<td>16</td>
<td>(10) 1</td>
<td>A2VER</td>
<td>Machine version code:</td>
</tr>
<tr>
<td>xxyy</td>
<td>...</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>... xx.</td>
<td>...</td>
<td>Version I CPUs.</td>
<td></td>
</tr>
<tr>
<td>... .1</td>
<td>...</td>
<td>Version II CPUs.</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>(11) 3</td>
<td>A2SER</td>
<td>CPU serial number.</td>
</tr>
<tr>
<td>20</td>
<td>(14) 2</td>
<td>A2MOD</td>
<td>CPU machine model number</td>
</tr>
<tr>
<td>22</td>
<td>(16) 2</td>
<td>A2CEL</td>
<td>Reserved.</td>
</tr>
<tr>
<td>24</td>
<td>(18) 1</td>
<td>A2INQUAL</td>
<td>Incident qualifiers.</td>
</tr>
<tr>
<td>1...</td>
<td>...</td>
<td>Null.</td>
<td></td>
</tr>
<tr>
<td>1...</td>
<td>...</td>
<td>Resend. Report or record has already been sent to a channel.</td>
<td></td>
</tr>
<tr>
<td>1...</td>
<td>...</td>
<td>Dynamic connectivity control element. Incident node is a dynamic switch port.</td>
<td></td>
</tr>
<tr>
<td>1...</td>
<td>...</td>
<td>Dedicated connection; static connection state.</td>
<td></td>
</tr>
<tr>
<td>... xx.</td>
<td>...</td>
<td>Reporting class.</td>
<td></td>
</tr>
<tr>
<td>... 00.</td>
<td>...</td>
<td>Information report.</td>
<td></td>
</tr>
<tr>
<td>... 01.</td>
<td>...</td>
<td>Link degraded but operational.</td>
<td></td>
</tr>
<tr>
<td>... 10.</td>
<td>...</td>
<td>Link not operational.</td>
<td></td>
</tr>
<tr>
<td>... 11.</td>
<td>...</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>... xx</td>
<td>...</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>(19) 1</td>
<td>A2INCODE</td>
<td>Incident code.</td>
</tr>
<tr>
<td>x...</td>
<td>...</td>
<td>Primary/Secondary report.</td>
<td></td>
</tr>
<tr>
<td>0...</td>
<td>...</td>
<td>Primary report.</td>
<td></td>
</tr>
<tr>
<td>1...</td>
<td>...</td>
<td>Secondary report.</td>
<td></td>
</tr>
<tr>
<td>xxxxxxx</td>
<td>...</td>
<td>Incident code type (IC). X07- X7F reserved.</td>
<td></td>
</tr>
<tr>
<td>x000 0001</td>
<td></td>
<td>Implicit incident.</td>
<td></td>
</tr>
<tr>
<td>x000 0010</td>
<td></td>
<td>Bit error rate threshold exceeded.</td>
<td></td>
</tr>
<tr>
<td>x000 0011</td>
<td></td>
<td>Link failure, loss of signal or synchronization.</td>
<td></td>
</tr>
<tr>
<td>x000 0100</td>
<td></td>
<td>Link failure, nonoperational sequence recognized.</td>
<td></td>
</tr>
<tr>
<td>Offset</td>
<td>Size (bytes)</td>
<td>Field Name</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>--------------</td>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td>x000 0101</td>
<td>Link failure, sequence timeout.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>x000 0110</td>
<td>Link failure, illegal sequence for link-level facility state.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26 (1A)</td>
<td>2</td>
<td>A2DEDCIF</td>
<td>Statically Connected Switch Interface (SCSI).</td>
</tr>
<tr>
<td>28 (1C)</td>
<td>32</td>
<td>A2INODES</td>
<td>INCIDENT Node Descriptor.</td>
</tr>
<tr>
<td>Byte 0</td>
<td>Incident flags.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>...X ....</td>
<td>Incident Node Type:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>...0 ....</td>
<td>Device node</td>
<td></td>
<td></td>
</tr>
<tr>
<td>...1 ....</td>
<td>CPC node</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.... xxxx</td>
<td>Reserved.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bytes 1-3</td>
<td>A2NODPAR</td>
<td>DEVICE Node Parameters if byte 0 bit 3 = 0.</td>
<td></td>
</tr>
<tr>
<td>Byte 1</td>
<td>Reserved, X'00'.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 2</td>
<td>Class:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0000 0000</td>
<td>Unspecified Class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0000 0001</td>
<td>Direct Access Storage (DASD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0000 0010</td>
<td>Magnetic Tape</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0000 0011</td>
<td>Unit Record (input)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0000 0100</td>
<td>Unit Record (output)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0000 0101</td>
<td>Printer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0000 0110</td>
<td>Communications Controller</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0000 0111</td>
<td>Terminal (full screen)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0000 1000</td>
<td>Terminal (line mode)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0000 1001</td>
<td>Stand-alone Channel-to-Channel (CTC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0000 1010</td>
<td>Switch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>xxxx xxxx</td>
<td>Reserved (11 - 255)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 3</td>
<td>Reserved, X'00'.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bytes 1-3</td>
<td>A2NODPAR</td>
<td>CPCNode Parameters if byte 0 bit 3 = 1.</td>
<td></td>
</tr>
<tr>
<td>Byte 1</td>
<td>Reserved, X'00'.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 2</td>
<td>Interface Class:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0000 0000</td>
<td>Unspecified Class</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0000 0001</td>
<td>ESA/370 channel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0000 0010</td>
<td>Integrated channel-to-channel adapter (CTCA)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>xxxx xxxx</td>
<td>Reserved (3 - 255)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 3</td>
<td>Identification:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>xxxx xxxx</td>
<td>CHPID.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bytes 4-9</td>
<td>A2ITYPE</td>
<td>Incident type number EBCDIC decimal value right justified.</td>
<td></td>
</tr>
<tr>
<td>Bytes 10-12</td>
<td>A2IMOD</td>
<td>Incident model number EBCDIC alphameric right justified.</td>
<td></td>
</tr>
<tr>
<td>Bytes 13-15</td>
<td>A2IMEG</td>
<td>Incident manufacturer EBCDIC alphameric right justified.</td>
<td></td>
</tr>
<tr>
<td>Bytes 16-17</td>
<td>A2IPMFG</td>
<td>Incident plant of manufacture EBCDIC alphameric right justified.</td>
<td></td>
</tr>
<tr>
<td>Bytes 18-29</td>
<td>A2ISEQ</td>
<td>Incident sequence number EBCDIC alphameric right justified.</td>
<td></td>
</tr>
<tr>
<td>Bytes 30-31</td>
<td>A2IID</td>
<td>Incident hexadecimal interface ID.</td>
<td></td>
</tr>
</tbody>
</table>
### Table 21. Format of the LMI record (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes)</th>
<th>Field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 (3C)</td>
<td>32</td>
<td>A2ANODES</td>
<td>ATTACHED Node Descriptor.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Incident flags.</td>
</tr>
<tr>
<td></td>
<td>xxx ....</td>
<td>Attached node-ID validity. X'3' - X'7' reserved.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>000. ....</td>
<td>Valid node ID.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>001. ....</td>
<td>Valid node ID which may not be current.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>010. ....</td>
<td>Invalid node ID; bytes 1-31 are not valid.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>...x ....</td>
<td>Attached Node Type:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>...0 ....</td>
<td>Device node</td>
<td></td>
</tr>
<tr>
<td></td>
<td>...1 ....</td>
<td>CPCnode</td>
<td></td>
</tr>
<tr>
<td></td>
<td>... xxxx</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bytes 1-3</td>
<td>A2NOPARM</td>
<td>DEVICE Node Parameters if byte 0 bit 3 = 0.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Reserved, X'00'.</td>
</tr>
<tr>
<td></td>
<td>Byte 1</td>
<td></td>
<td>Reserved, X'00'.</td>
</tr>
<tr>
<td></td>
<td>Byte 2</td>
<td></td>
<td>Class:</td>
</tr>
<tr>
<td></td>
<td>0000 0000</td>
<td>Unspecified Class</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0000 0001</td>
<td>Direct Access Storage (DASD)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0000 0010</td>
<td>Magnetic Tape</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0000 0011</td>
<td>Unit Record (input)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0000 0100</td>
<td>Unit Record (output)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0000 0101</td>
<td>Printer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0000 0110</td>
<td>Communications Controller</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0000 0111</td>
<td>Terminal (full screen)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0000 1000</td>
<td>Terminal (line mode)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0000 1001</td>
<td>Stand-alone Channel-to-Channel (CTC)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0000 1010</td>
<td>Switch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>xxx xxx</td>
<td>Reserved (11 - 255)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Byte 3</td>
<td>Reserved, X'00'.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bytes 1-3</td>
<td>A2NOPARM</td>
<td>CPCNode Parameters if byte 0 bit 3 = 1.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Reserved, X'00'.</td>
</tr>
<tr>
<td></td>
<td>Byte 1</td>
<td></td>
<td>Reserved, X'00'.</td>
</tr>
<tr>
<td></td>
<td>Byte 2</td>
<td></td>
<td>Interface Class:</td>
</tr>
<tr>
<td></td>
<td>0000 0000</td>
<td>Unspecified Class</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0000 0001</td>
<td>ESA/370 channel</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0000 0010</td>
<td>Integrated channel-to-channel adapter (CTCA)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>xxx xxx</td>
<td>Reserved (3 - 255)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Byte 3</td>
<td>Identification:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>xxx xxx</td>
<td>CHPID.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bytes 4-9</td>
<td>A2ATYPE</td>
<td>Attached type number EBCDIC decimal value right justified.</td>
</tr>
<tr>
<td></td>
<td>Bytes 10-12</td>
<td>A2AMOD</td>
<td>Attached model number EBCDIC alphanumeric right justified.</td>
</tr>
<tr>
<td></td>
<td>Bytes 13-15</td>
<td>A2AMFG</td>
<td>Attached manufacturer EBCDIC alphanumeric right justified.</td>
</tr>
<tr>
<td></td>
<td>Bytes 16-17</td>
<td>A2AMFG</td>
<td>Attached plant of manufacture EBCDIC alphanumeric right justified.</td>
</tr>
<tr>
<td></td>
<td>Bytes 18-29</td>
<td>A2ASEQ</td>
<td>Attached sequence number EBCDIC alphanumeric right justified.</td>
</tr>
<tr>
<td></td>
<td>Bytes 30-31</td>
<td>A2AIID</td>
<td>Attached hexadecimal interface ID.</td>
</tr>
<tr>
<td>92 (5C)</td>
<td>36</td>
<td>A2INDEP</td>
<td>Incident node-dependent information.</td>
</tr>
</tbody>
</table>
Direct access storage device-service information message (DASD-SIM) record

A SIM record is recorded on the logrec data set to show a symptom code associated with a failure. A sense record, requesting logging as an A3 record, is produced when information about maintenance requirements needs to be presented. A SIM record contains the following information:

- Identification of unit needing service
- Definition of the impact of the failure
- Definition of the impact of the repair

Table 22. Format of the SIM record

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td>alignment (bits)</td>
<td>Name</td>
</tr>
<tr>
<td>0 (0)</td>
<td>1</td>
<td>1</td>
<td>A3KEY1</td>
</tr>
<tr>
<td></td>
<td>1010 0011</td>
<td></td>
<td>Service Information Message Record; type = X’A3’.</td>
</tr>
<tr>
<td>1 (1)</td>
<td>1</td>
<td>1</td>
<td>A3KEY2</td>
</tr>
<tr>
<td></td>
<td>100. ...</td>
<td></td>
<td>OS/VS2 and later MVS systems.</td>
</tr>
<tr>
<td></td>
<td>...x ...</td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td></td>
<td>... xxxx</td>
<td></td>
<td>Release level (0-1F).</td>
</tr>
<tr>
<td>2 (2)</td>
<td>1</td>
<td>1</td>
<td>A3SMS</td>
</tr>
<tr>
<td></td>
<td>1... ....</td>
<td></td>
<td>More records follow.</td>
</tr>
<tr>
<td></td>
<td>0... ....</td>
<td></td>
<td>Last record.</td>
</tr>
<tr>
<td></td>
<td>...1...</td>
<td></td>
<td>Time-of-day (TOD) clock instruction issued.</td>
</tr>
<tr>
<td></td>
<td>...1...</td>
<td></td>
<td>Record truncated.</td>
</tr>
<tr>
<td></td>
<td>...1...</td>
<td></td>
<td>370 XA mode record.</td>
</tr>
<tr>
<td></td>
<td>... 1...</td>
<td></td>
<td>TIME macro used.</td>
</tr>
<tr>
<td></td>
<td>... xxx</td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>3 (3)</td>
<td>3</td>
<td>1</td>
<td>A3RCDCT</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Byte 0</td>
</tr>
<tr>
<td></td>
<td>0001 ...</td>
<td></td>
<td>SIM record.</td>
</tr>
<tr>
<td></td>
<td>... xxx</td>
<td></td>
<td>Severity Code.</td>
</tr>
<tr>
<td></td>
<td>... 0000</td>
<td></td>
<td>Severity not defined.</td>
</tr>
<tr>
<td></td>
<td>... 0001</td>
<td></td>
<td>Information provided as part of PD or repair activity.</td>
</tr>
<tr>
<td></td>
<td>... 0010</td>
<td></td>
<td>Degradation or intermittent failures for nonfunctional unit.</td>
</tr>
<tr>
<td></td>
<td>... 0100</td>
<td></td>
<td>Permanent failure in nonfunctional unit.</td>
</tr>
<tr>
<td></td>
<td>... 1000</td>
<td></td>
<td>No immediate performance impact. Expected loss or degradation of function if no action taken.</td>
</tr>
<tr>
<td></td>
<td>... 1001</td>
<td></td>
<td>Degradation or intermittent failures for functional unit.</td>
</tr>
<tr>
<td></td>
<td>... 1100</td>
<td></td>
<td>Permanent failure causing loss of function.</td>
</tr>
<tr>
<td></td>
<td>... 1111</td>
<td></td>
<td>Permanent failure in functional unit which has redundant hardware.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Byte 1</td>
</tr>
<tr>
<td></td>
<td>1... ....</td>
<td></td>
<td>CHPID is incorrect.</td>
</tr>
<tr>
<td></td>
<td>xxx xxx</td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Byte 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>6 (6)</td>
<td>1</td>
<td>1</td>
<td>A3RCDCT</td>
</tr>
<tr>
<td></td>
<td>xxxx ...</td>
<td></td>
<td>Sequence number of this physical record.</td>
</tr>
<tr>
<td></td>
<td>... xxx</td>
<td></td>
<td>Total number of physical records in this logical record.</td>
</tr>
<tr>
<td>7 (7)</td>
<td>1</td>
<td>1</td>
<td>Reserved.</td>
</tr>
</tbody>
</table>
## Error Recording

**Table 22. Format of the SIM record (continued)**

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>(8) 8</td>
<td>A3DT</td>
<td>System date and time of incident:</td>
</tr>
<tr>
<td>8</td>
<td>(8) 4</td>
<td>A3DATE</td>
<td>System date of failure.</td>
</tr>
<tr>
<td>12</td>
<td>(C) 4</td>
<td>A3TIME</td>
<td>System time of failure.</td>
</tr>
<tr>
<td>16</td>
<td>(10) 8</td>
<td>A3CPUID</td>
<td>Central processor identification.</td>
</tr>
<tr>
<td>16</td>
<td>(10) 1</td>
<td>A3VER</td>
<td>Machine version code:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>xxx xxx</td>
<td>Reserved.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.... ...0</td>
<td>Version I central processors.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.... ...1</td>
<td>Version II central processors.</td>
</tr>
<tr>
<td>17</td>
<td>(11) 3</td>
<td>A3SER</td>
<td>Central processor serial number.</td>
</tr>
<tr>
<td>20</td>
<td>(14) 2</td>
<td>A3MOD</td>
<td>Central processor machine model number (3033, 4341, etc.).</td>
</tr>
<tr>
<td>22</td>
<td>(16) 2</td>
<td>A3CEL</td>
<td>Reserved.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>END OF STANDARD HEADER</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>(18) 7</td>
<td>Reporting unit type or 0s. Type and model of device reporting the error.</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>(1F) 7</td>
<td>Control unit type or 0s. Type and model of control unit of device reporting the error (included if the reporting unit is connected to a control unit).</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>(26) 1</td>
<td>Manufacturer identity or 0s. Identity of device manufacturer.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0000 0001</td>
<td>IBM.</td>
</tr>
<tr>
<td>39</td>
<td>(27) 9</td>
<td>Unique identifier or 0s. The manufacturing plant and serial number of the reporting device.</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>(30) 1</td>
<td>Length of SSI data field beginning at end of SI field. &gt;</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>(31) 3</td>
<td>A3SECUA</td>
<td>Byte 0 contains the channel path ID (CHPID) and Bytes 1 and 2 contain the reporting device number. (No retry is performed for DASD X’A3’ records.)</td>
</tr>
<tr>
<td>52</td>
<td>(34) 1</td>
<td>Device type for the device associated with the error.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Byte 0</td>
<td>1,... ...</td>
<td>Byte 1 contains a control unit ID.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>xxx xxxxx</td>
<td>Reserved.</td>
</tr>
<tr>
<td></td>
<td>Byte 1</td>
<td>Control unit ID if (Byte 0(Bit 0))=1. Otherwise system dependent data unused by EREP.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Byte 2</td>
<td>Device class code.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Byte 3</td>
<td>Device type code.</td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>(38) 1</td>
<td>Length of SI data field.</td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>(39) 3</td>
<td>A3PCUA</td>
<td>This field contains the device number.</td>
</tr>
<tr>
<td>60</td>
<td>(3C) Variable</td>
<td>SI data. Device dependent information from control program. Bytes 0-5 include the VOLID if it is contained in the record.</td>
<td></td>
</tr>
<tr>
<td>Var.</td>
<td>Var.</td>
<td>SSI data. Device dependent information from reporting subsystem.</td>
<td></td>
</tr>
</tbody>
</table>

## Channel report word (CRW) record

CRW records are recorded on the logrec data set for all software- and hardware-generated channel report words. Software-generated CRWs are created by IOS modules to invoke channel path recovery. Hardware-generated CRWs are created by the channel to provide information describing a machine malfunction affecting a specific, or a collection of, channel subsystem facilities.
### Table 23. Format of the CRW Record

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>CRWKEY1</td>
<td>Dec Hex</td>
</tr>
<tr>
<td>.1</td>
<td>.1</td>
<td>CRW record; type=X'25'.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>CRWKEY2</td>
<td>Dec Hex</td>
</tr>
<tr>
<td>100.</td>
<td>. . . . . .</td>
<td>OS/VS2.</td>
<td></td>
</tr>
<tr>
<td>.. x</td>
<td>xxxx</td>
<td>Release level 0-31.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>CRWSMS</td>
<td>Dec Hex</td>
</tr>
<tr>
<td>1. . .</td>
<td>. .</td>
<td>More records follow.</td>
<td></td>
</tr>
<tr>
<td>0.</td>
<td>. . .</td>
<td>Last record.</td>
<td></td>
</tr>
<tr>
<td>.1.</td>
<td>. . .</td>
<td>Time-of-day (TOD) clock instruction issued.</td>
<td></td>
</tr>
<tr>
<td>.1.</td>
<td>. . .</td>
<td>Record truncated.</td>
<td></td>
</tr>
<tr>
<td>. .</td>
<td>1 . .</td>
<td>Record created by MVS/SP Version 2, 3, or 4.</td>
<td></td>
</tr>
<tr>
<td>. .</td>
<td>1 . .</td>
<td>TIME macro issued.</td>
<td></td>
</tr>
<tr>
<td>. .</td>
<td>. . xx . .</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>CRWBYTE1</td>
<td>Reserved.</td>
</tr>
<tr>
<td>Byte 0</td>
<td></td>
<td>CRWBYTE2</td>
<td>Reserved.</td>
</tr>
<tr>
<td>Byte 1</td>
<td></td>
<td>CRWBYTE3</td>
<td>Reserved.</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
<td>CRWRCDCT</td>
<td>Record count:</td>
</tr>
<tr>
<td>. . .</td>
<td>x x x x x .</td>
<td>CRWRCSEQ</td>
<td>Record sequence number.</td>
</tr>
<tr>
<td>. . .</td>
<td>xxxx</td>
<td>CRWFZREC</td>
<td>Total number of physical records in this logical record.</td>
</tr>
<tr>
<td>7</td>
<td>7</td>
<td>CRWRNRM</td>
<td>Reserved.</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>CRWDATE</td>
<td>System date of incident.</td>
</tr>
<tr>
<td>12</td>
<td>12</td>
<td>CRWTIME</td>
<td>System time of incident.</td>
</tr>
<tr>
<td>16</td>
<td>16</td>
<td>CRWVER</td>
<td>Machine version code.</td>
</tr>
<tr>
<td>17</td>
<td>17</td>
<td>CRWSER</td>
<td>Central processor serial number.</td>
</tr>
<tr>
<td>20</td>
<td>20</td>
<td>CRWMOD</td>
<td>Central processor machine model number.</td>
</tr>
<tr>
<td>22</td>
<td>22</td>
<td>CRWCEL</td>
<td>Reserved.</td>
</tr>
<tr>
<td>24</td>
<td>24</td>
<td>CRWMODUL</td>
<td>CSECT name of module doing recording.</td>
</tr>
<tr>
<td>32</td>
<td>32</td>
<td>CRWRECCD</td>
<td>CRW recording code: Identifies the format of the variable portion of the record.</td>
</tr>
<tr>
<td>33</td>
<td>33</td>
<td>CRWFLAG1</td>
<td>Flag byte 1.</td>
</tr>
<tr>
<td>1. . .</td>
<td>. .</td>
<td>Hardware-stored CRW.</td>
<td></td>
</tr>
<tr>
<td>.1.</td>
<td>. . .</td>
<td>Software-created CRW.</td>
<td></td>
</tr>
<tr>
<td>. . xx</td>
<td>. . .</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>. . .</td>
<td>1 . .</td>
<td>Incorrect CRW recording.</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>34</td>
<td>CRWFLAG2</td>
<td>Flag byte 2.</td>
</tr>
<tr>
<td>35</td>
<td>35</td>
<td>CRWCODE</td>
<td>CRW origin code.</td>
</tr>
<tr>
<td>0000</td>
<td>0000</td>
<td>CRW origin unknown.</td>
<td></td>
</tr>
<tr>
<td>0000</td>
<td>0001</td>
<td>CRW pending machine check.</td>
<td></td>
</tr>
<tr>
<td>0000</td>
<td>0010</td>
<td>System damage machine check.</td>
<td></td>
</tr>
<tr>
<td>0000</td>
<td>0011</td>
<td>Alternate central processor recovery (ACR).</td>
<td></td>
</tr>
<tr>
<td>0000</td>
<td>0100</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>0000</td>
<td>0101</td>
<td>Reserved.</td>
<td></td>
</tr>
</tbody>
</table>
Error Recording

Table 23. Format of the CRW Record (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td>alignment (bits)</td>
<td></td>
</tr>
<tr>
<td>0000</td>
<td>0110</td>
<td>Hot I/O recover channel path.</td>
<td></td>
</tr>
<tr>
<td>0000</td>
<td>0111</td>
<td>Hot I/O remove channel path.</td>
<td></td>
</tr>
<tr>
<td>0000</td>
<td>1000</td>
<td>Vary channel path - forced.</td>
<td></td>
</tr>
<tr>
<td>0000</td>
<td>1001</td>
<td>Reset Event Occurred - recover channel path</td>
<td></td>
</tr>
<tr>
<td>0000</td>
<td>1010</td>
<td>Link Level Error Occurred</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X'0B'-X'FF'</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>(24)</td>
<td>2 CRWCP</td>
<td>Processor address CRW retrieved on.</td>
</tr>
<tr>
<td>38</td>
<td>(26)</td>
<td>2</td>
<td>Reserved.</td>
</tr>
<tr>
<td>40</td>
<td>(28)</td>
<td>4 CRWCRW</td>
<td>Channel report word (CRW).</td>
</tr>
<tr>
<td>44</td>
<td>(2C)</td>
<td>2</td>
<td>CRWDEV</td>
</tr>
<tr>
<td>46</td>
<td>(30)</td>
<td>4</td>
<td>CRWSEQNO</td>
</tr>
<tr>
<td>48</td>
<td>(32)</td>
<td>4</td>
<td>CRWSEQN</td>
</tr>
<tr>
<td>50</td>
<td>(34)</td>
<td>4</td>
<td>CRWASEQN</td>
</tr>
<tr>
<td>52</td>
<td>(36)</td>
<td>2</td>
<td>CRWDEVST</td>
</tr>
<tr>
<td>56</td>
<td>(38)</td>
<td>2</td>
<td>CRWPMCW</td>
</tr>
<tr>
<td>60</td>
<td>(40)</td>
<td>2</td>
<td>CRWCHPCT</td>
</tr>
<tr>
<td>61</td>
<td>(44)</td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>63</td>
<td>(48)</td>
<td>1</td>
<td>CRWLEVEL</td>
</tr>
<tr>
<td>64</td>
<td>(52)</td>
<td>4</td>
<td>CRWLVMSK</td>
</tr>
<tr>
<td>68</td>
<td>(56)</td>
<td>4</td>
<td>CRWSCHRC</td>
</tr>
<tr>
<td>72</td>
<td>(60)</td>
<td>1</td>
<td>CRWICHPT</td>
</tr>
<tr>
<td>74</td>
<td>(64)</td>
<td>8</td>
<td>CRWISDT</td>
</tr>
</tbody>
</table>

Dynamic device reconfiguration (DDR) record

DDR records are recorded on the logrec data set for each operator-initiated or system-initiated swap between direct access storage and magnetic tape devices and for each operator-initiated swap on a unit record device. The system requests DDR after a permanent (uncorrectable) I/O error has occurred. The operator can request DDR at any time by entering the SWAP command.

Table 24. Format of the DDR record

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td>alignment (bits)</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>1 LRBHTYPE</td>
<td>Record key:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.11 ....</td>
<td>DDR record; type=X'60'.</td>
</tr>
<tr>
<td>1</td>
<td>(1)</td>
<td>1 LRBHSYS</td>
<td>System/Release level:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100. ....</td>
<td>OS/VS2.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>bits 3-7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0-1F</td>
<td>Release level 0-31.</td>
</tr>
<tr>
<td>2</td>
<td>(2)</td>
<td>1 LRBHSWO</td>
<td>Record-independent switches:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1... ....</td>
<td>More records follow.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0... ....</td>
<td>Last record.</td>
</tr>
</tbody>
</table>
### Table 24. Format of the DDR record (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td>alignment (bits)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.1. ....</td>
<td>Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.1. ....</td>
<td>Record truncated. (Not used for DDR record.)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>...1 ....</td>
<td>Record created by MVS/SP Version 2, 3, or 4.</td>
<td></td>
</tr>
<tr>
<td>...</td>
<td>1...</td>
<td>TIME macro used.</td>
<td></td>
</tr>
<tr>
<td>...</td>
<td>.xxx</td>
<td>Reserved.</td>
<td></td>
</tr>
</tbody>
</table>

#### 3 (3) 3 LRBHSW1
Record-dependent switches:
- Byte 0
  - 1... Primary storage reconfiguration.
  - .1.. Secondary storage reconfiguration.
  - ..1. Operator requested reconfiguration.
  - ...1 Permanent error caused reconfiguration.
  - .... xxxxx Reserved.

#### Bytes 1 and 2
Reserved.

#### 6 (6) 1 LRBHCNT
Record count:
- bits 0-3 Sequence number of this physical record.
- bits 4-7 Total number of physical records in this logical record.

#### 7 (7) 1 Reserved.

#### 8 (8) 4 LRBHDATE
System date of incident.

#### 12 (C) 4 LRBHTIME
System time of incident.

#### 16 (10) 1 LRBHCPID
Machine version code.

#### 17 (11) 3 LRBHCSER
Central processor serial number.

#### 20 (14) 2 LRBHMDL
Central processor machine model number.

#### 22 (16) 2 LRBHMCEL
Reserved.

#### END OF STANDARD HEADER

#### 24 (18) 8 LRBRJOB
Name of job using ‘FROM’ device. Field valid only if system initiated swap for permanent error or for operator initiated tape swaps.

#### 32 (20) 6 LRBRVOL1
VOLSER of volume mounted on ‘FROM’ swap device.

#### 38 (26) 6 LRBRVOL2
VOLSER of volume mounted on ‘TO’ swap devices. Field is zero if no volume is mounted on ‘TO’ device.

#### 44 (2C) 1 LRBRPH1
Physical ID of ‘FROM’ device (not the address). DASD only.

#### 45 (2D) 3 LRBRCUA1
Device number of ‘FROM’ device.

#### 48 (30) 4 LRBRDEV1
Device type of ‘FROM’ device.

#### 52 (34) 1 LRBRPH2
Physical ID of ‘TO’ device. DASD only.

#### 53 (35) 3 LRBRCUA2
Device number of ‘TO’ device.

#### 56 (38) 4 LRBRDEV2
Device type of ‘TO’ device.

---

### System ending (EOD) record

An EOD record is recorded on the logrec data set when either of the following occur:
- The system operator enters the HALT EOD command to end the system. The system operator usually enters the HALT EOD command before one of the following conditions:
  - When the power is turned off.
Error Recording

- When the system is going to enter a long wait state.
- An abnormal end occurs because of a serious error that requires operator intervention (such as hot I/O).

For a normal end, the record consists of the 24-byte header. For an abnormal end, the header is followed by fields containing data related to the error.

Table 25. Format of the EOD record

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td>1</td>
<td>CLASRC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1... ...</td>
<td>EOD record; type=X'80'.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1... ...</td>
<td>System end (non-restartable); type=X'81'.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1... ...</td>
<td>EOD from IOS (restartable wait state); type=X'84'.</td>
</tr>
<tr>
<td>1</td>
<td>(1) 1</td>
<td>OPSYS</td>
<td>System/Release level:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>100. ...</td>
<td>OS/VS2.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>bits 3-7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0-1F</td>
<td>Release level 0-31.</td>
</tr>
<tr>
<td>2</td>
<td>(2) 4</td>
<td>SW1</td>
<td>Record switches:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Byte 0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1... ...</td>
<td>More records follow.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0... ...</td>
<td>Last record.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.1... ...</td>
<td>Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>...1. ...</td>
<td>Record truncated. (Not used for EOD record.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>...1 ...</td>
<td>Record created by MVS/SP Version 2, 3, or 4.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>...1...</td>
<td>TIME macro used.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>...xxx</td>
<td>Reserved.</td>
</tr>
<tr>
<td>Bytes 1 and 2</td>
<td></td>
<td></td>
<td>Not used for EOD record.</td>
</tr>
<tr>
<td>Byte 3</td>
<td></td>
<td></td>
<td>Incremental release number (alphanumeric) of operating system.</td>
</tr>
<tr>
<td>6</td>
<td>(6) 2</td>
<td></td>
<td>Not used for EOD record.</td>
</tr>
<tr>
<td>8</td>
<td>(8) 4</td>
<td>DATE</td>
<td>System date of condition.</td>
</tr>
<tr>
<td>12</td>
<td>(C) 4</td>
<td>TIME</td>
<td>System time of condition.</td>
</tr>
<tr>
<td>16</td>
<td>(10) 1</td>
<td>Verno</td>
<td>Machine version code.</td>
</tr>
<tr>
<td>17</td>
<td>(11) 3</td>
<td>CPUSER</td>
<td>Central processor serial number.</td>
</tr>
<tr>
<td>20</td>
<td>(14) 2</td>
<td>CPUMODEL</td>
<td>Central processor model number.</td>
</tr>
<tr>
<td>22</td>
<td>(16) 2</td>
<td>MCELLNG</td>
<td>Reserved.</td>
</tr>
<tr>
<td>END OF STANDARD HEADER</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>(18) 40</td>
<td>EOD extension (see note).</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>(18) 4</td>
<td>Length of user data plus 8.</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>(IC) 4</td>
<td>Wait state code.</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>(20) 32</td>
<td>User data.</td>
<td></td>
</tr>
</tbody>
</table>

Note: If the wait state code is X'110', X'111' or X'112', hot I/O recovery processing writes this ending record. The 32-byte user data field contains the SCD entry for the channel with the “hot” condition. See z/OS MVS Data Areas in [http://www.ibm.com/systems/z/os/zos/zkserv/](http://www.ibm.com/systems/z/os/zos/zkserv/) for a detailed description of the SCD.

For other wait state codes that use the EOD extension, the length of the data field and the extension may vary.
**Input/Output Supervisor (IOS) recovery record**

IOS recovery records are recorded on the logrec data set to record IOS recovery information. The dynamic pathing services validation (DPSV) record is the only IOS recovery record.

**Dynamic pathing services validation (DPSV) record**

DPSV records are recorded on the logrec data set for DPSV recovery actions.

DPSV analyzes the sense path group identifier (SNID) to determine if the hardware dynamic pathing group is still valid and in synchronization with the software mapping.

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>(0) 1</td>
<td>LRBHTYPE</td>
<td>Type of Record:</td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td>DPSV Record; type=‘X’C2’.</td>
</tr>
<tr>
<td>1</td>
<td>(1) 1</td>
<td>LRBHREL</td>
<td>System/Release level:</td>
</tr>
<tr>
<td>100.</td>
<td></td>
<td></td>
<td>OS/VS2.</td>
</tr>
<tr>
<td>bits 3-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(2) 1</td>
<td>LRBHSW0</td>
<td>Record independent switches:</td>
</tr>
<tr>
<td>0.</td>
<td></td>
<td></td>
<td>More records follow.</td>
</tr>
<tr>
<td>0-1F</td>
<td></td>
<td></td>
<td>Release level 0-31.</td>
</tr>
<tr>
<td>2</td>
<td>(3) 1</td>
<td>LRBHSW1</td>
<td>Reserved.</td>
</tr>
<tr>
<td>4</td>
<td>(4) 1</td>
<td>LRBHSW2</td>
<td>Reserved.</td>
</tr>
<tr>
<td>5</td>
<td>(5) 1</td>
<td>LRBHSW3</td>
<td>Reserved.</td>
</tr>
<tr>
<td>6</td>
<td>(6) 1</td>
<td>LRBHSW4</td>
<td>Reserved.</td>
</tr>
<tr>
<td>7</td>
<td>(7) 1</td>
<td>LRBHCNT</td>
<td>Reserved.</td>
</tr>
<tr>
<td>8</td>
<td>(8) 4</td>
<td>LRBHDATE</td>
<td>System date of incident.</td>
</tr>
<tr>
<td>12</td>
<td>(C) 4</td>
<td>LRBHTIME</td>
<td>System time of incident.</td>
</tr>
<tr>
<td>16</td>
<td>(10) 1</td>
<td>LRBHCPID</td>
<td>Machine version code.</td>
</tr>
<tr>
<td>17</td>
<td>(11) 3</td>
<td>LRBHCSER</td>
<td>Central processor serial number. &lt;</td>
</tr>
<tr>
<td>20</td>
<td>(14) 2</td>
<td>LRBHMDL</td>
<td>Central processor machine model number.</td>
</tr>
<tr>
<td>22</td>
<td>(16) 2</td>
<td>LRBHMCEL</td>
<td>Reserved.</td>
</tr>
<tr>
<td>24</td>
<td>(18) 8</td>
<td>LXCHDESC</td>
<td>Name of the module requesting the dynamic pathing validation.</td>
</tr>
<tr>
<td>32</td>
<td>(20) 1</td>
<td>LXCHVERS</td>
<td>Cx record’s common header version field.</td>
</tr>
<tr>
<td>33</td>
<td>(21) 1</td>
<td>LXCHFLAG</td>
<td>Cx record’s common header flag field.</td>
</tr>
<tr>
<td>34</td>
<td>(22) 2</td>
<td>LXCHDVNM</td>
<td>Device number in hexadecimal.</td>
</tr>
<tr>
<td>36</td>
<td>(24) 4</td>
<td>LXCHDTYP</td>
<td>Device type information field.</td>
</tr>
<tr>
<td>40</td>
<td>(28) 8</td>
<td>LXCHRSD</td>
<td>Reserved.</td>
</tr>
<tr>
<td>48</td>
<td>(30) 1</td>
<td>LXC2CODE</td>
<td>DPSV recording code.</td>
</tr>
</tbody>
</table>

**Table 26. Format of the DPSV record**
### System initialization program load (IPL) record

IPL records are recorded on the logrec data set to document system initializations. The system creates one IPL record for each initialization of the system. The IPL record provides a way of measuring the approximate time interval between the ending and reinitializing of the system.

#### Table 27. Format of the IPL record

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>(0)</td>
<td>CLASRC</td>
<td>Class/Source:</td>
</tr>
<tr>
<td></td>
<td>.1.</td>
<td></td>
<td>IPL record; type=X’50’.</td>
</tr>
<tr>
<td>1</td>
<td>(1)</td>
<td>OPSYS</td>
<td>System/Release level:</td>
</tr>
<tr>
<td></td>
<td>100.</td>
<td></td>
<td>OS/VS2.</td>
</tr>
<tr>
<td></td>
<td>bits 3-7</td>
<td></td>
<td>Release level 0-31.</td>
</tr>
<tr>
<td>2</td>
<td>(2)</td>
<td>SW1</td>
<td>Record switches:</td>
</tr>
<tr>
<td></td>
<td>1...</td>
<td></td>
<td>More records follow.</td>
</tr>
<tr>
<td></td>
<td>0...</td>
<td></td>
<td>Last record.</td>
</tr>
<tr>
<td></td>
<td>.1.</td>
<td></td>
<td>Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12.</td>
</tr>
<tr>
<td></td>
<td>...1</td>
<td></td>
<td>Record truncated. (Not used for IPL record.)</td>
</tr>
<tr>
<td></td>
<td>...1</td>
<td></td>
<td>Record created by MVS/SP Version 2, 3, or 4.</td>
</tr>
<tr>
<td></td>
<td>....1</td>
<td></td>
<td>TIME macro used.</td>
</tr>
<tr>
<td></td>
<td>.... xxx</td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>Bytes 1 and 2</td>
<td></td>
<td>Not used for IPL record.</td>
<td></td>
</tr>
<tr>
<td>Byte 3</td>
<td></td>
<td>Incremental release number ( alphanumeric) of operating system.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>(6)</td>
<td>DATE</td>
<td>Not used for IPL record.</td>
</tr>
<tr>
<td>8</td>
<td>(8)</td>
<td>TIME</td>
<td>System date when system was initialized.</td>
</tr>
<tr>
<td>12</td>
<td>(C)</td>
<td>CPUSER</td>
<td>System time when system was initialized.</td>
</tr>
<tr>
<td>16</td>
<td>(10)</td>
<td>CPUSER1</td>
<td>Machine version code.</td>
</tr>
<tr>
<td>17</td>
<td>(11)</td>
<td>CPUMODEL</td>
<td>Central processor serial number.</td>
</tr>
<tr>
<td>20</td>
<td>(14)</td>
<td></td>
<td>Central processor machine model number.</td>
</tr>
</tbody>
</table>
### Table 27. Format of the IPL record (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>(16)</td>
<td>MCELLNG</td>
<td>Reserved.</td>
</tr>
<tr>
<td>24</td>
<td>(18)</td>
<td>SUBSYSID</td>
<td>Device type or program that caused restart. See Table 29 on page 270.</td>
</tr>
<tr>
<td>25</td>
<td>(19)</td>
<td></td>
<td>Not used for IPL record.</td>
</tr>
<tr>
<td>28</td>
<td>(1C)</td>
<td>REASON</td>
<td>Alphanumeric reason for IPL. See Table 28.</td>
</tr>
<tr>
<td>30</td>
<td>(1E)</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>(20)</td>
<td>CHANASSN</td>
<td>Reserved.</td>
</tr>
<tr>
<td>40</td>
<td>(28)</td>
<td>HIGHADDR</td>
<td>Address of last valid byte of storage found at IPL time.</td>
</tr>
<tr>
<td>44</td>
<td>(2C)</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>(30)</td>
<td>LASTACT</td>
<td>Last activity time and date from the time stamp record. When logrec is recording to log streams, the value in this field is zero.</td>
</tr>
</tbody>
</table>

### IPL recording

If the reliability data extractor (RDE) is in effect, the system issues message IFB010D:

id IFB010D ENTER 'IPL REASON, SUBSYSTEM ID' or 'U'

Message IFB010D requests the operator to provide one of the following:

- The reason for the IPL and the subsystem (device or program) responsible for the restart
- 'U' to continue with default values

The IPL reason code, (see Table 28), and the subsystem ID, (see Table 29 on page 270), are then included in the record when it is written.

Restart continues after either a valid reply or a 'U' reply. In the case of a 'U' reply, the IPL record is formatted with zeros in the subsystem ID field and a DF (default values) in the IPL reason field.

### Table 28. IPL reason codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Reason</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NM</td>
<td>Normal.</td>
<td>Normal system initialization.</td>
</tr>
<tr>
<td>IE</td>
<td>IBM hardware/programming problem, CE/PSR not required.</td>
<td>System restarted after a stop caused by a hardware failure or IBM programming problem, and a customer engineer (CE)/program support engineer (PSR) was not required.</td>
</tr>
<tr>
<td>IM</td>
<td>IBM hardware/programming problem, CE/PSR required.</td>
<td>System restarted after a stop caused by a hardware failure or IBM programming problem, and it was necessary for a CE/PSR to correct problem.</td>
</tr>
<tr>
<td>ME</td>
<td>Media.</td>
<td>An IBM hardware unit failed because of faulty or damaged media, such as a damaged tape or disk.</td>
</tr>
<tr>
<td>UN</td>
<td>Unknown.</td>
<td>An undetermined hardware or software failure.</td>
</tr>
<tr>
<td>OP</td>
<td>Operational.</td>
<td>An operator error or procedural problem.</td>
</tr>
<tr>
<td>UP</td>
<td>User program.</td>
<td>A program other than an IBM supplied control program or programming product failed in such a way as to cause a system restart.</td>
</tr>
</tbody>
</table>
## Error Recording

### Table 28. IPL reason codes (continued)

<table>
<thead>
<tr>
<th>Code</th>
<th>Reason</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN</td>
<td>Environmental.</td>
<td>A failure other than hardware/software or operational (such as power failure, air conditioning, etc.) caused system to be restarted.</td>
</tr>
<tr>
<td>CE</td>
<td>CE/PSR has system.</td>
<td>System restarted at CE/PSR request to correct problem.</td>
</tr>
<tr>
<td>DF</td>
<td>Default.</td>
<td>Operator replied ‘U’ or entered a null line in response to system message IFB010D.</td>
</tr>
</tbody>
</table>

### Table 29. Subsystem ID codes

<table>
<thead>
<tr>
<th>ID</th>
<th>Subsystem Name</th>
<th>Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Null.</td>
<td>Subsystem is unknown or subsystem code is not required by reason code.</td>
</tr>
<tr>
<td>10</td>
<td>Processor.</td>
<td>Central processor, channels, storage units, operator consoles.</td>
</tr>
<tr>
<td>20</td>
<td>Direct access storage device (DASD).</td>
<td>Direct access storage devices and their control units.</td>
</tr>
<tr>
<td>30</td>
<td>Other.</td>
<td>All devices other than those specified under other subsystem IDs.</td>
</tr>
<tr>
<td>40</td>
<td>Tape.</td>
<td>Magnetic tape devices and their control units.</td>
</tr>
<tr>
<td>50</td>
<td>Card/Print.</td>
<td>Card (unit record) and printing devices.</td>
</tr>
<tr>
<td>60</td>
<td>MICR/OCR.</td>
<td>Magnetic ink (MICR) and optical (OCR) character recognition devices.</td>
</tr>
<tr>
<td>70</td>
<td>Teleprocessing.</td>
<td>Teleprocessing devices and their control units.</td>
</tr>
<tr>
<td>80</td>
<td>Graphics/Display/Audio.</td>
<td>Graphic, display, and audio devices.</td>
</tr>
<tr>
<td>90</td>
<td>IBM system control program.</td>
<td>IBM system control program.</td>
</tr>
<tr>
<td>92</td>
<td>IBM programming product.</td>
<td>IBM programming products such as FORTRAN, COBOL, or RPG.</td>
</tr>
</tbody>
</table>

### Machine check handler (MCH) record

MCH records ([Table 30 on page 271](#)) are recorded on the logrec data set when any of the following machine failures occur:
- Central processor
- Storage
- Storage key
- Timer

When a machine failure occurs, the machine check handler (MCH) receives control by way of a machine check interruption for a soft failure (one that was corrected by the hardware retry features: hardware instruction retry (HIR) or error checking and correction (ECC)), or for a hard failure (one that could not be corrected by HIR and ECC).

#### Soft failures

The MODE command can be used to limit the number of MCH records that are recorded on the logrec data set. This command allows some records to be recorded on the logrec data set for diagnostic purposes, but prevents the logrec data set from becoming filled with records which describe failures that have already been detected and corrected by HIR and ECC.

#### Hard failures

If the machine check interruption is for a hard failure, MCH analyzes the information in the model independent logout area to isolate the error.

Before the records are written, the system inserts the same error identifier in various pieces of diagnostic data that pertains to a particular error, so that all
Error Recording

pieces can be used together for diagnosis. The system inserts the same error identifier in the software record(s), the SVC dump output associated with this particular error, and the console message that indicates an SVC dump was taken. See Chapter 4, “SVC summary,” on page 95 for information on SVC dumps; see z/OS MVS System Messages, Vol 7 (IEB-IEE) for information on console messages.

The error identifier has the form:
SEQxxxxx CPUyy ASIDzzzz TIMEhh.mm.ss.t

xxxxx  Sequence number.

yy  Logical central processor identifier.

zzzz  Address space identifier (ASID).

hh.mm.ss.t  Time stamp, in hours, minutes, seconds, and tenths of a second.

With each IPL, the system begins a sequential count of errors. The sequence number is therefore unique for each software error or machine failure. It indicates which number this is since the most recent IPL. The sequence number remains constant for subsequent software records associated with the same error, although the time stamp may change.

Note: If the logrec data set record has no associated error identifier, the system prints the message NO ERRORID ASSOCIATED WITH THIS RECORD where the error identifier normally would be printed.

If the failure is going to cause the central processor to end and the system has only one central processor, the system collects environmental, model-independent, and model-dependent information to describe the failure. After formatting the information, the system writes this information on the logrec data set as an MCH record and issues a message to the operator. Then, before the system enters a wait state, the system writes MCH records to the logrec data set. Offset 3 of the MCH record format indicates that the failure resulted in system ending.

If, in a multiprocessing system, a failure occurs in one central processor, the system invokes alternate central processor recovery (ACR) on another central processor. The system records the error as a hard failure that does not cause the processor to end.

Note: System damage is recorded as a hard error (offset 33 bit 3) and not an ending error (offset 32 bit 6). See Principles of Operation for a detailed description of the machine check interruption code shown in the MCH record format.

Table 30. Format of the MCH record

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td>alignment (bits)</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>(0) 1</td>
<td>LRBHTYPE</td>
<td>Class/Source:</td>
</tr>
<tr>
<td>...1 11</td>
<td>LRBMCH</td>
<td>MCH record recorded in the system environment; type=X'13'.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>(1) 1</td>
<td>LRBHSYS</td>
<td>System/Release level:</td>
</tr>
<tr>
<td>100. ...</td>
<td>OS/VS2.</td>
<td>bits 3-7</td>
<td></td>
</tr>
<tr>
<td>0-1F</td>
<td></td>
<td>Release level 0-31.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>(2) 1</td>
<td>LRBHSW0</td>
<td>Record-independent switches:</td>
</tr>
<tr>
<td>1... ...</td>
<td>More records follow.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 30. Format of the MCH record (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td>Last record.</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12.</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>Record truncated. (Not used for MCH record.)</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>LRBHEAB</td>
<td>Extended addressing hardware.</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>TIME macro used.</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>xxx</td>
<td>Reserved.</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>LRBHSW1</td>
<td>Record-dependent switches:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Byte 0</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>LRBNOIO</td>
<td>IOS (IOSRMCH) informing IGFPTSIG not to perform any I/O.</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>LRBNVF</td>
<td>LRB may not be valid.</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>LRBMSYST</td>
<td>System ended by MCH.</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>LRBTRACE</td>
<td>Set to 1 by IGFPMCIH before ALTRTRCsuspend and set to 0 after.</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>LRDAT</td>
<td>Set to 1 by IGFPMICH before loading aDATON PSW to go to IGFPMAIN. Set to 0 when IGFPMAIN receives control.</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>LRBRECV</td>
<td>Set to 1 when an error is totally recovered.</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>LRBMEFA</td>
<td>Set to 1 after a malfunction alert.</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>LRBMACT</td>
<td>Buffer contains a record to be recorded on the logrec data set or moved to another buffer.</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>LRBMCLB</td>
<td>MCH the logrec data set record buffer overlaid with another record. If this byte is X'FF', SVC 76 does not record this record on the logrec data set.</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>LRBHCNT</td>
<td>Record count:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>bits 0-3</td>
<td>Sequence number of this physical record.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>bits 4-7</td>
<td>Total number of physical records in this logical record.</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>LRBHDATE</td>
<td>System date of incident.</td>
</tr>
<tr>
<td>12</td>
<td>C</td>
<td>LRBHTIME</td>
<td>System time of incident.</td>
</tr>
<tr>
<td>16</td>
<td>10</td>
<td>LRBHCPID</td>
<td>Machine version code.</td>
</tr>
<tr>
<td>17</td>
<td>11</td>
<td>LRBHCSER</td>
<td>Central processor serial number.</td>
</tr>
<tr>
<td>20</td>
<td>14</td>
<td>LRBHMDL</td>
<td>Central processor machine model number.</td>
</tr>
<tr>
<td>22</td>
<td>16</td>
<td>LRBHMCEL</td>
<td>Reserved.</td>
</tr>
<tr>
<td>24</td>
<td>18</td>
<td>LRBMLNH</td>
<td>Length of record for the logrec data set.</td>
</tr>
<tr>
<td>28</td>
<td>1C</td>
<td>LRBMWSC</td>
<td>Wait state code.</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>LRBMAMOD</td>
<td>If the remaining bits in this byte are non zero, then this bit must be zero; otherwise a program check occurs when a PSW containing this bit in its address part is loaded.</td>
</tr>
<tr>
<td>32</td>
<td>20</td>
<td>LRBMCEIA</td>
<td>Machine check error indication area.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Byte 0</td>
<td>Terminal error flags:</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>LRBMTIOS</td>
<td>IOSRMCH has requested that this processor be ended.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>LRMTHTHR</td>
<td>Hard error threshold flag.</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>LRBMTSEC</td>
<td>Secondary error.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Check stop.</td>
</tr>
</tbody>
</table>
### Error Recording

Table 30. Format of the MCH record (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36 (24)</td>
<td>1</td>
<td>LRBMPDAR</td>
<td>PDAR (program damage assessment and repair) data supplied by RTM:</td>
</tr>
<tr>
<td></td>
<td>xxx. ...</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LRBMINVP</td>
<td>Storage reconfigured; page invalidated.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LRBMRSMRC</td>
<td>Storage reconfiguration status available at displacement 37.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LRBMRSRF</td>
<td>Storage reconfiguration not attempted.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>xxx. xx</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>37 (25)</td>
<td>2</td>
<td>LRBMRSRBS</td>
<td>Status returned to IGFPMRTH by IARXMCKS; the status and key error storage routine. The details of the bits are described by IEERSRRB.</td>
</tr>
<tr>
<td>39 (27)</td>
<td>1</td>
<td>LRBMPWL</td>
<td>Length of checking block used by machine model.</td>
</tr>
<tr>
<td>40 (28)</td>
<td>8</td>
<td>LRBMMOSW</td>
<td>Machine check old PSW from storage locations 48-55.</td>
</tr>
<tr>
<td>48 (30)</td>
<td>8</td>
<td>LRBMCIC</td>
<td>Machine check interruption code (from storage locations 232-239) as stored by hardware routines at time of machine check:</td>
</tr>
</tbody>
</table>
### Table 30. Format of the MCH record (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Byte 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1...</td>
<td></td>
<td>LRBMFSD</td>
<td>System damage (SD).</td>
</tr>
<tr>
<td>...</td>
<td></td>
<td>LRBMFPD</td>
<td>Instruction-processing damage (PD).</td>
</tr>
<tr>
<td>..1...</td>
<td></td>
<td>LRBMFSR</td>
<td>System recovery (SR).</td>
</tr>
<tr>
<td>...x</td>
<td></td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>LRBMFCD</td>
<td>Timer-facility damage (CD).</td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>LRBMFED</td>
<td>External damage (ED).</td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>LRBMFVF</td>
<td>Vector facility failure (VF).</td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>LRBMFDG</td>
<td>Degradation (DG).</td>
</tr>
<tr>
<td>Byte 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1...</td>
<td></td>
<td>LRBMFWM</td>
<td>Power warning (W).</td>
</tr>
<tr>
<td>...</td>
<td></td>
<td>LRBMFLP</td>
<td>Available CRW is pending (CP).</td>
</tr>
<tr>
<td>..1...</td>
<td></td>
<td>LRBMFSFD</td>
<td>Service processor damage (SP).</td>
</tr>
<tr>
<td>...x</td>
<td></td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>LRBMFCK</td>
<td>Channel subsystem damage (CK).</td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>LRBMFVS</td>
<td>Vector facility source (VS).</td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>LRBMIBU</td>
<td>Backed up indicator (B).</td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>LRBMIDY</td>
<td>Reserved.</td>
</tr>
<tr>
<td>Byte 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1...</td>
<td></td>
<td>LRBMFSE</td>
<td>Storage error uncorrected (SE).</td>
</tr>
<tr>
<td>...</td>
<td></td>
<td>LRBMFSC</td>
<td>Storage error corrected (SC).</td>
</tr>
<tr>
<td>..1...</td>
<td></td>
<td>LRBMFKE</td>
<td>Storage key error uncorrected (KE).</td>
</tr>
<tr>
<td>...1...</td>
<td></td>
<td>LRBMDFDS</td>
<td>Storage degradation (DS).</td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>LRBMVWP</td>
<td>PSW-MWP is valid (WP).</td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>LRBMVMS</td>
<td>PSW masks and key are valid (MS).</td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>LRBMVPM</td>
<td>PSW program masks and condition code are valid (PM).</td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>LRBMVIA</td>
<td>PSW Instruction address is valid (IA).</td>
</tr>
<tr>
<td>Byte 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1...</td>
<td></td>
<td>LRBMVFA</td>
<td>Failing storage address is valid (FA).</td>
</tr>
<tr>
<td>...</td>
<td></td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>...1...</td>
<td></td>
<td>LRBMVED</td>
<td>External damage code is valid (EC).</td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>LRBMVFP</td>
<td>Floating point register is valid (FP).</td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>LRBMVGR</td>
<td>General purpose register is valid (GR).</td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>LRBMVCR</td>
<td>Control register is valid (CR).</td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>LRBMVST</td>
<td>Storage logical is valid (ST).</td>
</tr>
<tr>
<td>Byte 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>LRBMARV</td>
<td>Access register is valid.</td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>LRBMMDAE</td>
<td>Delayed access exception.</td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>....</td>
<td></td>
<td>LRBMVST</td>
<td>ETR sync check.</td>
</tr>
</tbody>
</table>
### Table 30. Format of the MCH record (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>xxxx x..</td>
<td>Reserved.</td>
<td>LRBMVAP</td>
<td>Ancillary Report</td>
</tr>
<tr>
<td>.... 1....</td>
<td>LRBMVPT</td>
<td>Processor timer is valid (CT).</td>
<td></td>
</tr>
<tr>
<td>.... ..1.</td>
<td>LRBMVCC</td>
<td>Clock comparator is valid (CC).</td>
<td></td>
</tr>
<tr>
<td>Bytes 6, 7</td>
<td>Reserved.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>56 (38)</td>
<td>4</td>
<td>LRBMEDCD</td>
<td>240-243 storage data.</td>
</tr>
<tr>
<td>60 (3C)</td>
<td>4</td>
<td>LRBMEDC1</td>
<td>244-247 storage data: External damage code.</td>
</tr>
<tr>
<td>Byte 0</td>
<td>LRBMEDC</td>
<td>Data from 244.</td>
<td></td>
</tr>
<tr>
<td>Byte 1</td>
<td>LRBMEDC1</td>
<td>Data from 245.</td>
<td></td>
</tr>
<tr>
<td>1... ....</td>
<td>LRBMEDXN</td>
<td>Extended (expanded) storage not operational.</td>
<td></td>
</tr>
<tr>
<td>.... 1...</td>
<td>LRBMEDXF</td>
<td>Extended (expanded) storage control failure.</td>
<td></td>
</tr>
<tr>
<td>Byte 2</td>
<td>LRBMEDC2</td>
<td>Data from 246.</td>
<td></td>
</tr>
<tr>
<td>1... ....</td>
<td>LRBMEDPS</td>
<td>Primary Sync damage.</td>
<td></td>
</tr>
<tr>
<td>.... 1...</td>
<td>LRBMEDAD</td>
<td>ETR attachment damage.</td>
<td></td>
</tr>
<tr>
<td>.... 1...</td>
<td>LRBMEDSL</td>
<td>Switch to local.</td>
<td></td>
</tr>
<tr>
<td>.... 1...</td>
<td>LRBMEDSC</td>
<td>ETR sync check.</td>
<td></td>
</tr>
<tr>
<td>.... 1...</td>
<td>LRBMEDEC</td>
<td>Side Control Element/Side Id Change.</td>
<td></td>
</tr>
<tr>
<td>Byte 3</td>
<td>LRBMEDC3</td>
<td>Data from 247.</td>
<td></td>
</tr>
<tr>
<td>.... 1...</td>
<td>LRBMEDSS</td>
<td>STP sync check.</td>
<td></td>
</tr>
<tr>
<td>.... 1...</td>
<td>LRBMEDSI</td>
<td>STP island condition.</td>
<td></td>
</tr>
<tr>
<td>.... 1...</td>
<td>LRBMEDCC</td>
<td>STP configuration change.</td>
<td></td>
</tr>
<tr>
<td>.... 1...</td>
<td>LRBMEDCS</td>
<td>STP clock source error.</td>
<td></td>
</tr>
<tr>
<td>64 (40)</td>
<td>4</td>
<td>LRBMFSA</td>
<td>248-251 storage data: Failing storage address</td>
</tr>
<tr>
<td>68 (44)</td>
<td>4</td>
<td>LRBSPSW</td>
<td>252-255 storage data.</td>
</tr>
<tr>
<td>72 (48)</td>
<td>8</td>
<td>LRBSPSW</td>
<td>256-263 storage data: Store status PSW.</td>
</tr>
<tr>
<td>80 (50)</td>
<td>7</td>
<td>LRBSPSW</td>
<td>264-270 storage data.</td>
</tr>
<tr>
<td>87 (57)</td>
<td>1</td>
<td>LRBADRSI</td>
<td>271 storage data: CPU address &amp; site code.</td>
</tr>
<tr>
<td>88 (58)</td>
<td>16</td>
<td>LRBADRSI</td>
<td>272-287 storage data.</td>
</tr>
<tr>
<td>104 (68)</td>
<td>64</td>
<td>LRBAREGS</td>
<td>288-351 storage data: Access Registers.</td>
</tr>
<tr>
<td>168 (A8)</td>
<td>32</td>
<td>LRBAREGS</td>
<td>352-383 storage data.</td>
</tr>
<tr>
<td>200 (C8)</td>
<td>64</td>
<td>LRBCREGS</td>
<td>384-447 storage data: General Purpose Registers.</td>
</tr>
<tr>
<td>264 (108)</td>
<td>64</td>
<td>LRBCREGS</td>
<td>448-511 storage data: Control Registers.</td>
</tr>
<tr>
<td>328 (148)</td>
<td>1</td>
<td>LRBMEVIA</td>
<td>Event Indicator Area.</td>
</tr>
<tr>
<td>329 (149)</td>
<td>63</td>
<td>LRBMEVIA</td>
<td>Reserved.</td>
</tr>
</tbody>
</table>
| 392 (188) | 10 | ERRORID | Error identifier, consisting of:
| | | | • 2-byte sequence number |
| | | | • 2-byte central processor identifier |
| | | | • 2-byte ASID |
| | | | • 4-byte time stamp |
Miscellaneous data (MDR) record

MDR records are recorded on the logrec data set for buffered log devices when the following conditions occur:

- Buffer overflow in a buffered log device
- Demount of a device
- Device failure
- Operator-initiated end of day (EOD), record on demand (ROD), or VARY OFFLINE commands
- Invocations of EREP that force the writing of statistical data

An MDR record is also recorded on the logrec data set for device failures on teleprocessing devices connected to an IBM 3704, 3705, or 3725 Communication Controller.

The buffered log devices (devices attached to a control unit with a buffer for recording or logging device-dependent status and sense information) are listed in offset 26 of the MDR record format (Table 31).

Table 31. Format of the MDR record

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td>alignment (bits)</td>
<td>Field name</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
<td>MCLASRC</td>
</tr>
<tr>
<td>1.1...</td>
<td>...</td>
<td>MDR record formatted by SVC 91; type=X'90'.</td>
<td></td>
</tr>
<tr>
<td>1.1...</td>
<td>...1</td>
<td>MDR record; type=X'91'.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>MSYSREL</td>
<td>System/Release level:</td>
</tr>
<tr>
<td>100...</td>
<td>....</td>
<td>OS/VS2.</td>
<td></td>
</tr>
<tr>
<td>bits 3-7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-1F</td>
<td></td>
<td>Release level 0 through 31.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>4</td>
<td>MSWITCHS</td>
</tr>
<tr>
<td>Byte 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1...</td>
<td>...</td>
<td>More records follow.</td>
<td></td>
</tr>
<tr>
<td>0... ...</td>
<td></td>
<td>Last record.</td>
<td></td>
</tr>
<tr>
<td>.1...</td>
<td>...</td>
<td>Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12.</td>
<td></td>
</tr>
<tr>
<td>..1...</td>
<td>...</td>
<td>Record truncated. (Not used for MDR record.)</td>
<td></td>
</tr>
<tr>
<td>...1...</td>
<td>1...</td>
<td>Record created by MVS/SP Version 2, 3, or 4.</td>
<td></td>
</tr>
<tr>
<td>...1...</td>
<td></td>
<td>TIME macro used.</td>
<td></td>
</tr>
<tr>
<td>....</td>
<td>xxx</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>Byte 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x... ...</td>
<td></td>
<td>Not used by MDR record.</td>
<td></td>
</tr>
<tr>
<td>.1...</td>
<td>...</td>
<td>Record incomplete.</td>
<td></td>
</tr>
<tr>
<td>...xxx</td>
<td>xxxxxxx</td>
<td>Not used by MDR record.</td>
<td></td>
</tr>
<tr>
<td>Byte 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1...</td>
<td>...</td>
<td>Variable length sub-ID field used by record.</td>
<td></td>
</tr>
<tr>
<td>...xxx</td>
<td>...</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>bits 4-7</td>
<td></td>
<td>Number of characters in sub-ID field of device identified at displacement 26.</td>
<td></td>
</tr>
</tbody>
</table>
Table 31. Format of the MDR record (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td>alignment (bits)</td>
<td>Field name</td>
</tr>
<tr>
<td>6 (6)</td>
<td>1</td>
<td>MRCDNT</td>
<td>Record count:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>bits 0-3</td>
<td>Sequence number of this physical record.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>bits 4-7</td>
<td>Total number of physical records in this logical record.</td>
</tr>
<tr>
<td>7 (7)</td>
<td>1</td>
<td>MCHPID</td>
<td>Channel path identifier.</td>
</tr>
<tr>
<td>8 (8)</td>
<td>4</td>
<td>MDATE</td>
<td>System date of incident.</td>
</tr>
<tr>
<td>12 (C)</td>
<td>4</td>
<td>MTIME</td>
<td>System time of incident.</td>
</tr>
<tr>
<td>16 (10)</td>
<td>1</td>
<td>MVERNO</td>
<td>Machine version code.</td>
</tr>
<tr>
<td>17 (11)</td>
<td>3</td>
<td>MCPUSER</td>
<td>Central processor serial number.</td>
</tr>
<tr>
<td>20 (14)</td>
<td>2</td>
<td>MCPUMOD</td>
<td>Central processor machine model number.</td>
</tr>
<tr>
<td>22 (16)</td>
<td>2</td>
<td>MCELLNG</td>
<td>Reserved.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>End of standard header</td>
<td></td>
</tr>
<tr>
<td>24 (18)</td>
<td>2</td>
<td>BUFRECID</td>
<td>Device number of data identified in this record.</td>
</tr>
<tr>
<td>26 (1A)</td>
<td>variable</td>
<td>BUSUBID</td>
<td>Identification field (2-15 bytes) to identify device at displacement 24. Length of this field (2-15 bytes) is defined at displacement 5. <strong>Note:</strong> Depending on device, field can denote serial number or CUA of unit.</td>
</tr>
<tr>
<td></td>
<td>variable</td>
<td>BUFINFO</td>
<td>Device-dependent information supplied by ERP that detected error.</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>MRCTWD</td>
<td>Flag bytes from the RCT used to create this record if the new OBR/MDR interface was used.</td>
</tr>
</tbody>
</table>

**Missing interruption handler (MIH) record**

An MIH record is recorded on the logrec data set for a missing interruption on a device, except teleprocessing (TP) devices attached through a 3704 or 3705 in EP mode, or expiration of the I/O timing limit for an I/O request. The system, invoked at time intervals specified by the user or by the system, invokes the missing interruption handler (MIH) to check the unit control blocks (UCB) for pending conditions. If MIH detects that the time limit for an I/O request has been exceeded, it considers that interrupt to be missing and does the following:

- Attempts to clear the failing device or subchannel.
- Issues a message to the system operator.
- Obtains information about the missing interruption (such as the device number, recovery actions, and time interval used by MIH) to build an MIH record.

**I/O timing**

The system invokes the I/O timing facility to monitor I/O requests. If an active I/O request has exceeded the I/O timing limit, the system abnormally ends the request and does the following:

- Clears the subchannel of all active, start pending, or halt pending I/O requests.
- Issues a message to the system operator.
- Obtains information about the terminated request (such as whether the request was queued or started) to build an MIH record.

If a queued I/O request has exceeded the I/O timing limit, the system abnormally ends the request and does the following:
### Error Recording

- Issues a message to the system hardcopy log
- Obtains information about the terminated request (such as whether the request was queued or started) to build an MIH record.

#### Table 32. Format of the MIH record

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td>LRBHCTYPE</td>
<td>Type of Record: MIH record; type=X'71'.</td>
</tr>
<tr>
<td>0</td>
<td>(0)</td>
<td>LRBHREL</td>
<td>System/Release level: OS/VS2.</td>
</tr>
<tr>
<td>1-1F</td>
<td></td>
<td>LRBHSW0</td>
<td>Record independent switches:</td>
</tr>
<tr>
<td>2</td>
<td>(2)</td>
<td>LRBHSW1</td>
<td>Reserved.</td>
</tr>
<tr>
<td>3</td>
<td>(3)</td>
<td>LRBHSW2</td>
<td>Reserved.</td>
</tr>
<tr>
<td>4</td>
<td>(4)</td>
<td>LRBHSW3</td>
<td>Reserved.</td>
</tr>
<tr>
<td>5</td>
<td>(5)</td>
<td>LRBHSW4</td>
<td>Reserved.</td>
</tr>
<tr>
<td>6</td>
<td>(6)</td>
<td>LRBHCNT</td>
<td>Record count:</td>
</tr>
<tr>
<td>7</td>
<td>(7)</td>
<td>LRBSEQ</td>
<td>Record sequence number.</td>
</tr>
<tr>
<td>8</td>
<td>(8)</td>
<td>LRBNUM</td>
<td>Total number of physical records in this logical record.</td>
</tr>
<tr>
<td>12</td>
<td>(C)</td>
<td>LRBHDATE</td>
<td>System date of incident.</td>
</tr>
<tr>
<td>16</td>
<td>(10)</td>
<td>LRBHCPID</td>
<td>Machine version code.</td>
</tr>
<tr>
<td>17</td>
<td>(11)</td>
<td>LRBHCSER</td>
<td>Central processor serial number.</td>
</tr>
<tr>
<td>20</td>
<td>(14)</td>
<td>LRBHMDL</td>
<td>Central processor machine model number.</td>
</tr>
<tr>
<td>22</td>
<td>(16)</td>
<td>LRBHMCEL</td>
<td>Reserved.</td>
</tr>
<tr>
<td>24</td>
<td>(18)</td>
<td>MIRJOBNM</td>
<td>Job name from the ASID.</td>
</tr>
<tr>
<td>32</td>
<td>(20)</td>
<td>MIRSCHIB</td>
<td>Subchannel information block.</td>
</tr>
<tr>
<td>32</td>
<td>(20)</td>
<td>MIRPMCW0</td>
<td>Interruption parameter.</td>
</tr>
<tr>
<td>36</td>
<td>(24)</td>
<td>MIRPMCW1</td>
<td>Path manage control word 1.</td>
</tr>
<tr>
<td>40</td>
<td>(28)</td>
<td>MIRLPM</td>
<td>Logical path mask.</td>
</tr>
<tr>
<td>41</td>
<td>(29)</td>
<td>MIRPNOM</td>
<td>Path not operational mask.</td>
</tr>
<tr>
<td>42</td>
<td>(2A)</td>
<td>MIRLPMU</td>
<td>Last path used mask.</td>
</tr>
<tr>
<td>43</td>
<td>(2B)</td>
<td>MIRPIM</td>
<td>Path installed mask.</td>
</tr>
<tr>
<td>44</td>
<td>(2C)</td>
<td>MIRMBI</td>
<td>Measurement block index.</td>
</tr>
<tr>
<td>46</td>
<td>(2E)</td>
<td>MIRPOM</td>
<td>Path operational mask.</td>
</tr>
<tr>
<td>47</td>
<td>(2F)</td>
<td>MIRPAM</td>
<td>Path available mask.</td>
</tr>
</tbody>
</table>

**END OF STANDARD HEADER**
Table 32. Format of the MIH record  (continued)

<table>
<thead>
<tr>
<th>Offset (Dec)</th>
<th>Offset (Hex)</th>
<th>Size (bytes)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>48</td>
<td>30</td>
<td>8</td>
<td>MIRCHPID</td>
<td>CHPIDs 0-7.</td>
</tr>
<tr>
<td>56</td>
<td>38</td>
<td>4</td>
<td>MIRPMCW6</td>
<td>Path manage control word 6.</td>
</tr>
<tr>
<td>60</td>
<td>3C</td>
<td>12</td>
<td>MIRSCSW</td>
<td>Subchannel status words.</td>
</tr>
<tr>
<td>72</td>
<td>48</td>
<td>12</td>
<td>MIRMDEP</td>
<td>Model dependent area.</td>
</tr>
<tr>
<td>84</td>
<td>54</td>
<td>8</td>
<td>MIRINTVL</td>
<td>Interval used for detection.</td>
</tr>
<tr>
<td>92</td>
<td>5C</td>
<td>1</td>
<td>MIRTYPE</td>
<td>Type of missing interrupt:</td>
</tr>
<tr>
<td>93</td>
<td>5D</td>
<td>1</td>
<td>MIRACTND</td>
<td>Default actions to attempt.</td>
</tr>
<tr>
<td>94</td>
<td>5E</td>
<td>1</td>
<td>MIRACTNA</td>
<td>Actions to be attempted.</td>
</tr>
<tr>
<td>95</td>
<td>5F</td>
<td>1</td>
<td>MIRACTNS</td>
<td>Actions actually tried:</td>
</tr>
<tr>
<td>96</td>
<td>60</td>
<td>4</td>
<td>MIRPSID</td>
<td>Subchannel ID number.</td>
</tr>
<tr>
<td>100</td>
<td>64</td>
<td>2</td>
<td>MIRPPMCW</td>
<td>Path management control word from UCBPMCW1.</td>
</tr>
<tr>
<td>102</td>
<td>66</td>
<td>1</td>
<td>MIRPLPM</td>
<td>Logical path mask from UCBLPM.</td>
</tr>
<tr>
<td>103</td>
<td>67</td>
<td>1</td>
<td>MIRPLPUM</td>
<td>Last path used mask from UCBLPUM.</td>
</tr>
<tr>
<td>104</td>
<td>68</td>
<td>1</td>
<td>MIRPPIM</td>
<td>UCBPIM.</td>
</tr>
<tr>
<td>105</td>
<td>69</td>
<td>8</td>
<td>MIRPCCHPS</td>
<td>CHPIDs from UCBCHPID.</td>
</tr>
<tr>
<td>113</td>
<td>71</td>
<td>1</td>
<td>MIRPLEVL</td>
<td>UCB level byte.</td>
</tr>
<tr>
<td>114</td>
<td>72</td>
<td>1</td>
<td>MIRPIOSF</td>
<td>IOS flags.</td>
</tr>
<tr>
<td>115</td>
<td>73</td>
<td>4</td>
<td>MIRPLVMS</td>
<td>Level mask from UCBLVMSK.</td>
</tr>
<tr>
<td>119</td>
<td>77</td>
<td>1</td>
<td>MIRPMIHT</td>
<td>MIH flag proc. (UCBMIHTI).</td>
</tr>
<tr>
<td>120</td>
<td>78</td>
<td>1</td>
<td>MIRFLAG1</td>
<td>Flag byte.</td>
</tr>
<tr>
<td>121</td>
<td>79</td>
<td>1</td>
<td>MIRUFLC</td>
<td>Flag byte from UCBFLC.</td>
</tr>
<tr>
<td>122</td>
<td>7A</td>
<td>2</td>
<td>MIRUCHAN</td>
<td>Device number from UCBCHAN.</td>
</tr>
<tr>
<td>124</td>
<td>7C</td>
<td>2</td>
<td>MIRUSFLS</td>
<td>Flag bytes from UCBFSLS.</td>
</tr>
<tr>
<td>126</td>
<td>7E</td>
<td>4</td>
<td>MIRUTYPE</td>
<td>UCB device class/type.</td>
</tr>
<tr>
<td>130</td>
<td>82</td>
<td>6</td>
<td>MIRDVOL1</td>
<td>Volume serial.</td>
</tr>
<tr>
<td>136</td>
<td>88</td>
<td>1</td>
<td>MIRFLAG4</td>
<td>Flag byte.</td>
</tr>
<tr>
<td>137</td>
<td>89</td>
<td>1</td>
<td>MIRDMOUN</td>
<td>UCBMOUNT.</td>
</tr>
</tbody>
</table>
### Error Recording

#### Table 32. Format of the MIH record (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>137 (89)</td>
<td>1</td>
<td>MIRDFL5</td>
<td>Flag byte from UCBFL4 (DASD only).</td>
</tr>
<tr>
<td>138 (8A)</td>
<td>1</td>
<td>MIRFLG1</td>
<td>MIH record flags.</td>
</tr>
<tr>
<td>139 (8B)</td>
<td>1</td>
<td>MIRFLG2</td>
<td>Reserved.</td>
</tr>
<tr>
<td>140 (8C)</td>
<td>1</td>
<td>MIRRSNC</td>
<td>Reason code associated with MIRTYPE.</td>
</tr>
<tr>
<td>141 (8D)</td>
<td>3</td>
<td>MIRRSV1</td>
<td>Reserved</td>
</tr>
<tr>
<td>144 (80)</td>
<td>1</td>
<td>MIRHLTRC</td>
<td>Halt request return code from IOSVHSCH.</td>
</tr>
<tr>
<td>145 (81)</td>
<td>1</td>
<td>MIRCLRRC</td>
<td>Clear request return code from IOSVHSCH.</td>
</tr>
<tr>
<td>146 (82)</td>
<td>1</td>
<td>MIRSTRC1</td>
<td>Store subchannel request return code from IOSVSTSQ.</td>
</tr>
<tr>
<td>147 (83)</td>
<td>1</td>
<td>MIRSTRC2</td>
<td>Store subchannel request return code from IOSVSTSQ.</td>
</tr>
<tr>
<td>148 (84)</td>
<td>4</td>
<td>MIRCIRB1</td>
<td>CSCH IRB word 1.</td>
</tr>
<tr>
<td>152 (88)</td>
<td>4</td>
<td>MIRSIRB1</td>
<td>STSCH SCHIB IRB word 0.</td>
</tr>
<tr>
<td>156 (8C)</td>
<td>8</td>
<td>MIRRSV2</td>
<td>Reserved.</td>
</tr>
</tbody>
</table>

#### Outboard (OBR) Record

OBR records [Table 33 on page 281](#) and [Table 34 on page 283](#) are recorded on the logrec data set for any of the following:
- Permanent (uncorrectable or unit check) device failures
- Path failures handled by alternate path recovery
- Temporary or intermittent I/O device failures
- Paging I/O errors
- Counter overflow statistics for I/O devices
- End-of-day requests
- Statistical recording by EREP
- Counter overflow statistics and device failures on teleprocessing devices
- Demount conditions on an IBM magnetic tape device (3420, 3422, 3430)

#### Statistical recording

Error statistics, the number of times I/O devices have failed for specific device-dependent failures, are kept in a main storage table called the device statistics table. The device's error recovery procedure (ERP) updates the table.

**Note:** Intermediate counters for buffered log devices, such as the IBM 3330 and 3850, are kept in the device's error recording buffer and are updated by the device's ERP. An overflow condition or end-of-day (EOD) request on these devices causes the information to be recorded on the logrec data set as an MDR record.
Error Recording

Counter overflow
When a counter for a device with a 10-byte entry in the statistics table reaches its device-dependent maximum setting or threshold, the system writes a short OBR record (Table 34 on page 283).

When a counter for a device with a variable-length statistics table entry (such as the IBM 3420 Magnetic Tape Unit, which has more than one 10-byte field in its entry) reaches its threshold, the system writes a long OBR record.

The system writes both long and short records to the logrec data set. Offset 2 of the OBR record format indicates that the record was written because of counter overflow.

End-of-Day (EOD) request
When the operator enters a HALT EOD command, the system writes a long OBR record. Offset 2 of the OBR record format indicates that the record was written because of an end-of-day request.

Device failures
The system builds a long OBR record to describe these errors:

- A permanent or temporary device failure (unit check) occurs on a TP device supported by Virtual Telecommunications Access Method (VTAM).
- The device is connected to the central processor by a channel path

Magnetic tape drive (3420, 3422, 3430) demount recording
A demount (DDR swap, CLOSE/EOV request, EOD command or deallocation condition) that involves an IBM magnetic tape drive (3420, 3422, 3430) causes a record to be built. The record contains environmental and statistical data that describes the magnetic tape drive having the tape demounted. Offset 2 of the OBR record format indicates that the record was written because of a volume demount.

Note: For magnetic tape drive (3420, 3422, 3430) demounts, the sense information, failing CCW in residence in an address space or a data space, and SCSW fields of the OBR record formats are not valid.

Long OBR record

Table 33. Format of the long OBR record

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>CLASRC</td>
<td>Class/Source:</td>
</tr>
<tr>
<td></td>
<td>..11 ...</td>
<td>OBR (unit check) record; type=X'30'.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>..11 .1...</td>
<td>No longer generated.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>..11 .11.</td>
<td>TP access method (VTAM) OBR record; type=X'36'.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>..11 1.1...</td>
<td>Dynamic pathing availability (DPA) OBR record; type=X'3A'.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>SYSREL</td>
<td>System/Release level:</td>
</tr>
<tr>
<td></td>
<td>100. ...</td>
<td>OS/VS2.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>bits 3-7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0-1F</td>
<td>Release level 0-31.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>SWITCHES</td>
<td>Record switches:</td>
</tr>
<tr>
<td></td>
<td>Byte 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1...  ...</td>
<td>More records follow.</td>
<td></td>
</tr>
</tbody>
</table>
### Error Recording

#### Table 33. Format of the long OBR record (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0...</td>
<td>Last record.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.1...</td>
<td>Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>..1...</td>
<td>Record truncated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>...1...</td>
<td>Record created by MVS/SP Version 2 or 3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>... 1..</td>
<td>TIME macro used.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>... .xx</td>
<td>Reserved.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 1</td>
<td>SDR counters dumped at EOD.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.1...</td>
<td>Temporary error.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>..1...</td>
<td>Short record (0 for long record).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>... 1..</td>
<td>MP system.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>... 0..</td>
<td>Central processor A issued last SSCH.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>... 1..</td>
<td>Central processor B issued last SSCH.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>... .1.</td>
<td>Volume demount.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>......</td>
<td>Reserved.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>... ...</td>
<td>SECUA contains polling characters (instead of CUA). Only set for TP (teleprocessing) devices.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 2</td>
<td>Not used for OBR record.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 3</td>
<td>Reserved.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>RCDCNT Record count:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>bits 0-3</td>
<td>Sequence number of this physical record.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>bits 4-7</td>
<td>Total number of physical records in this logical record.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Reserved.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>DATE System date of incident.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>TIME System time of incident.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Verno Machine version code.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>CPUSER Central processor serial number.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>CPUMOD Central processor machine model number.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>MCELLNG Reserved.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>JOBID Alphabetic name assigned to job (as identified, for example, by a job name on a JCL job statement) being processed or requesting service at time of failure.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>FAILCCW CCW being processed at time of failure.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>Reserved.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>DEVDEPC Count of double words for device-dependent data.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>CHPID Channel path identifier of path that encountered the error.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Low order two digits of device number.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>DEVUA Reserved.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>DEVTYPE Device type associated with failing device.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 33. Format of the long OBR record (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>56 (38)</td>
<td>1</td>
<td>SDRCNT</td>
<td>Number of bytes of statistical data recorded in the statistical data recorder (SDR) work area.</td>
</tr>
<tr>
<td>57 (39)</td>
<td>3</td>
<td>DEVNUM</td>
<td>Device number of device being used when failure occurred. For IBM 3330, 3340, 3375, or 3380 series of devices, field contains physical location (not address) of failing unit.</td>
</tr>
<tr>
<td>60 (3C)</td>
<td>2</td>
<td>IORETRY</td>
<td>Number of I/O retries attempted for this error incident.</td>
</tr>
<tr>
<td>62 (3E)</td>
<td>2</td>
<td>SENSECNT</td>
<td>Number of bytes of data in SENSE field.</td>
</tr>
<tr>
<td>64 (40)</td>
<td>variable</td>
<td>DEVDEP</td>
<td>Device dependent information.</td>
</tr>
<tr>
<td>66 (42)</td>
<td>variable</td>
<td>SDRINF</td>
<td>SDR counter area that contains statistical counter/indicator data from device statistics table.</td>
</tr>
<tr>
<td>68 (44)</td>
<td>variable</td>
<td>SENSE</td>
<td>Device-dependent sense information that was received on first sense command to failing device.</td>
</tr>
<tr>
<td>16</td>
<td>IRB</td>
<td>Interrupt request block stored at time of error.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>RCTWD</td>
<td>Flag bytes from the RCT used to create this record if the new OBR/MDR interface was used.</td>
<td></td>
</tr>
</tbody>
</table>

### Short OBR record

### Table 34. Format of the short OBR record

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (0)</td>
<td>1</td>
<td>CLASRC</td>
<td>Class/Source:</td>
</tr>
<tr>
<td>..11 ...</td>
<td>OBR (unit check) record; type=X'30'.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>..11 .1..</td>
<td>No longer generated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>..11 .1.</td>
<td>TP access method (VTAM) OBR record; type=X'36'.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 (1)</td>
<td>1</td>
<td>SYSREL</td>
<td>System/Release level:</td>
</tr>
<tr>
<td>100. ...</td>
<td>OS/VS2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>bits 3-7</td>
<td>Release level 0-31.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-1F</td>
<td>Release level 0-31.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 (2)</td>
<td>4</td>
<td>SWITCHES</td>
<td>Record switches:</td>
</tr>
<tr>
<td>Byte 0</td>
<td>More records follow.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1... ...</td>
<td>Last record.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.1... ...</td>
<td>Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>...1. ...</td>
<td>Record truncated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>...1 ...</td>
<td>Record created by MVS/SP Version 2 or 3.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>... 1...</td>
<td>TIME macro used.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>... .xxx</td>
<td>Reserved.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Byte 1</td>
<td>SDR counters dumped at EOD.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1... ...</td>
<td>Temporary error.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>.1... ...</td>
<td>Short record (0 for long record).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>...1 ...</td>
<td>MP system.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>... 0...</td>
<td>Central processor A issued last SSCH.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>... 1...</td>
<td>Central processor B issued last SSCH.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>... .1...</td>
<td>Volume demount.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 34. Format of the short OBR record (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>(6) 1</td>
<td>RDCNT</td>
<td>Record count:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>bits 0-3: Sequence number of this physical record.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>bits 4-7: Total number of physical records in this logical record.</td>
</tr>
<tr>
<td>7</td>
<td>(7) 1</td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>8</td>
<td>(8) 4</td>
<td>DATE</td>
<td>System date of incident.</td>
</tr>
<tr>
<td>12</td>
<td>(C) 4</td>
<td>TIME</td>
<td>System time of incident.</td>
</tr>
<tr>
<td>16</td>
<td>(10) 1</td>
<td>Verno</td>
<td>Machine version code.</td>
</tr>
<tr>
<td>17</td>
<td>(11) 3</td>
<td>CPUSER</td>
<td>Central processor serial number.</td>
</tr>
<tr>
<td>20</td>
<td>(14) 2</td>
<td>CPUMOD</td>
<td>Central processor machine model number.</td>
</tr>
<tr>
<td>22</td>
<td>(16) 2</td>
<td>MCELLNG</td>
<td>Reserved.</td>
</tr>
<tr>
<td>24</td>
<td>(18) 4</td>
<td>SDEVTYP</td>
<td>Device type associated with failing device.</td>
</tr>
<tr>
<td>28</td>
<td>(1C) 1</td>
<td>SSDRCNT</td>
<td>Number of bytes of statistical data to be recorded from SDR work area at displacement 32.</td>
</tr>
<tr>
<td>29</td>
<td>(1D) 3</td>
<td>SCUA</td>
<td>Device number being used when failure occurred.</td>
</tr>
<tr>
<td>32</td>
<td>variable</td>
<td>SDR</td>
<td>SDR counter area containing statistical counter/indicator data from device statistics table.</td>
</tr>
</tbody>
</table>

### Subchannel logout handler (SLH) record

The system writes a SLH record for any of the following channel-detected errors:
- Channel control check
- Interface control check
- Channel data check
- Address limit check
- Measurement check

### Table 35. Format of the SLH record

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>(0) 1</td>
<td>LRBHTYPE</td>
<td>Class/Source:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>SLH Record; type=X’23’.</td>
</tr>
<tr>
<td>1</td>
<td>(1) 1</td>
<td>LRBHREL</td>
<td>System/Release level:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>OS/VS2.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>bits 3-7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Release level 0-31.</td>
</tr>
<tr>
<td>2</td>
<td>(2) 1</td>
<td>LRBHSW0</td>
<td>Record-independent switches:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>More records follow.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Last record.</td>
</tr>
</tbody>
</table>
### Table 35. Format of the SLH record (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1..</td>
<td>...</td>
<td>Time-of-day (TOD) clock instruction issued.</td>
<td></td>
</tr>
<tr>
<td>..1...</td>
<td>...</td>
<td>Record truncated.</td>
<td></td>
</tr>
<tr>
<td>...1...</td>
<td>...</td>
<td>Record created by MVS/SP Version 2 or 3.</td>
<td></td>
</tr>
<tr>
<td>....</td>
<td>1...</td>
<td>TIME macro issued.</td>
<td></td>
</tr>
<tr>
<td>....</td>
<td>...</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>(3)</td>
<td>3</td>
<td>Record-dependent switches:</td>
</tr>
<tr>
<td>Byte 0</td>
<td>LRBHSW1</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>Byte 1</td>
<td>LRBHSW2</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>Byte 2</td>
<td>LRBHSW3</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>bits 0-5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bits 6-7</td>
<td></td>
<td>'01' - Hard error - failure not recovered by the system. One or more jobs, or the operating system, may be lost or impacted. Hardware resources may be lost.</td>
<td></td>
</tr>
<tr>
<td>'02' - Degrade mode - failure was successfully recovered by the system. However, hardware resources may be lost, performance may be degraded, or a time-dependent application may be impacted.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>'03' - Soft error - failure was successfully recovered by the system. A time-dependent application may be impacted.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>(6)</td>
<td>1</td>
<td>Record count:</td>
</tr>
<tr>
<td>bits 0-3</td>
<td>LRBSEQ</td>
<td>Record sequence number.</td>
<td></td>
</tr>
<tr>
<td>bits 4-7</td>
<td>LRBNUM</td>
<td>Total number of physical records in this logical record.</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>(7)</td>
<td>1</td>
<td>Reserved.</td>
</tr>
<tr>
<td>8</td>
<td>(8)</td>
<td>4</td>
<td>System date of incident.</td>
</tr>
<tr>
<td>12</td>
<td>(C)</td>
<td>4</td>
<td>System time of incident.</td>
</tr>
<tr>
<td>16</td>
<td>(10)</td>
<td>1</td>
<td>Machine version code.</td>
</tr>
<tr>
<td>17</td>
<td>(11)</td>
<td>3</td>
<td>Central processor serial number.</td>
</tr>
<tr>
<td>20</td>
<td>(14)</td>
<td>2</td>
<td>Central processor machine model number.</td>
</tr>
<tr>
<td>22</td>
<td>(16)</td>
<td>2</td>
<td>Reserved.</td>
</tr>
<tr>
<td>24</td>
<td>(18)</td>
<td>8</td>
<td>Job name or user ID.</td>
</tr>
<tr>
<td>32</td>
<td>(20)</td>
<td>8</td>
<td>Last processed CCW.</td>
</tr>
<tr>
<td>40</td>
<td>(28)</td>
<td>4</td>
<td>Device type.</td>
</tr>
<tr>
<td>44</td>
<td>(2C)</td>
<td>8</td>
<td>ERP information block.</td>
</tr>
<tr>
<td>44</td>
<td>(2C)</td>
<td>1</td>
<td>First byte of ESW.</td>
</tr>
<tr>
<td>45</td>
<td>(2D)</td>
<td>3</td>
<td>Reserved.</td>
</tr>
<tr>
<td>48</td>
<td>(30)</td>
<td>1</td>
<td>Flag byte.</td>
</tr>
<tr>
<td>0...</td>
<td>...</td>
<td>SLHSSCH</td>
<td>No status stored after SSCH.</td>
</tr>
<tr>
<td>1...</td>
<td>...</td>
<td>SLHINT</td>
<td>Status stored after I/O interruption.</td>
</tr>
<tr>
<td>0...</td>
<td>...</td>
<td>SLHTSCH</td>
<td>No status stored after TSCH.</td>
</tr>
<tr>
<td>0...</td>
<td>...</td>
<td>SLHHHCHE</td>
<td>No status stored after HSCH.</td>
</tr>
<tr>
<td>....</td>
<td>x...</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>....</td>
<td>1...</td>
<td>SLHSENSE</td>
<td>Sense data was stored.</td>
</tr>
<tr>
<td>....</td>
<td>1...</td>
<td>SLHCWCT</td>
<td>CSW count is valid.</td>
</tr>
<tr>
<td>....</td>
<td>1...</td>
<td>SLHRETRY</td>
<td>If on, operation cannot be retried.</td>
</tr>
</tbody>
</table>
### Table 35. Format of the SLH record (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>49  (31)</td>
<td>1</td>
<td>SLHLPPUM</td>
<td>Last path used mask.</td>
</tr>
<tr>
<td>50  (32)</td>
<td>1</td>
<td>SLHVALID</td>
<td>Validity indicators.</td>
</tr>
<tr>
<td>......</td>
<td></td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>.1...</td>
<td></td>
<td>SLHVLPUM</td>
<td>LPUM consistent with log indicators.</td>
</tr>
<tr>
<td>...1..</td>
<td></td>
<td>SLHVTERM</td>
<td>Abnormal end code validity.</td>
</tr>
<tr>
<td>...1..</td>
<td></td>
<td>SLHVSEQC</td>
<td>Sequence code validity.</td>
</tr>
<tr>
<td>....1..</td>
<td></td>
<td>SLHVDVST</td>
<td>Device status validity.</td>
</tr>
<tr>
<td>....1..</td>
<td></td>
<td>SLHVCCW</td>
<td>CCW address validity.</td>
</tr>
<tr>
<td>....1..</td>
<td></td>
<td>SLHVVDNO</td>
<td>Device number validity.</td>
</tr>
<tr>
<td>....1..</td>
<td></td>
<td>SLHVVDNU</td>
<td>Device number validity.</td>
</tr>
<tr>
<td>51  (33)</td>
<td>1</td>
<td>SLHTRMSQ</td>
<td>Ending and sequence codes:</td>
</tr>
<tr>
<td>......</td>
<td></td>
<td>SLHTRMCD</td>
<td>Ending code:</td>
</tr>
<tr>
<td>...0...</td>
<td></td>
<td></td>
<td>Interface disconnect.</td>
</tr>
<tr>
<td>...0...</td>
<td></td>
<td></td>
<td>Stop, stack or normal end.</td>
</tr>
<tr>
<td>...1...</td>
<td></td>
<td></td>
<td>Selective reset.</td>
</tr>
<tr>
<td>...xx</td>
<td></td>
<td>SLHIOALT</td>
<td>I/O error alert.</td>
</tr>
<tr>
<td>...xxx</td>
<td></td>
<td>SLHSEQCD</td>
<td>Sequence code</td>
</tr>
<tr>
<td>....000</td>
<td></td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>....001</td>
<td></td>
<td>Command sent but status not analyzed.</td>
<td></td>
</tr>
<tr>
<td>....010</td>
<td></td>
<td>Command accepted by device but no data transferred.</td>
<td></td>
</tr>
<tr>
<td>....011</td>
<td></td>
<td>At least one byte of data has been transferred.</td>
<td></td>
</tr>
<tr>
<td>....100</td>
<td></td>
<td>Command not sent or sent but not yet accepted.</td>
<td></td>
</tr>
<tr>
<td>....101</td>
<td></td>
<td>Command accepted but data transfer unpredictable.</td>
<td></td>
</tr>
<tr>
<td>....110</td>
<td></td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>....111</td>
<td></td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>52  (34)</td>
<td>64</td>
<td>SLHIRB</td>
<td>IRB, which includes the SCSW (subchannel status word) and the ESW (extended status word). See z/OS MVS Data Areas in <a href="http://www.ibm.com/systems/z/os/zos/bkserv/">http://www.ibm.com/systems/z/os/zos/bkserv/</a> for the detailed format of the IRB.</td>
</tr>
<tr>
<td>116  (74)</td>
<td>4</td>
<td>SLHUCBAD</td>
<td>UCB or RDEV address.</td>
</tr>
<tr>
<td>120  (78)</td>
<td>2</td>
<td>SLHDEVNO</td>
<td>Device number.</td>
</tr>
<tr>
<td>122  (7A)</td>
<td>6</td>
<td>SLHVOLSR</td>
<td>Volume serial number.</td>
</tr>
<tr>
<td>128  (80)</td>
<td>5</td>
<td>SLHUCBLV</td>
<td>UCB level byte and mask.</td>
</tr>
<tr>
<td>133  (85)</td>
<td>2</td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>135  (87)</td>
<td>1</td>
<td>SLHCHPID</td>
<td>Channel path id.</td>
</tr>
<tr>
<td>136  (88)</td>
<td>4</td>
<td>SLHSID</td>
<td>Subchannel ID number.</td>
</tr>
<tr>
<td>140  (8C)</td>
<td>4</td>
<td>SLHRSMAD</td>
<td>Absolute address of storage or key error if available.</td>
</tr>
<tr>
<td>144  (90)</td>
<td>2</td>
<td>SLHRSMRC</td>
<td>RSM return code for storage or key error.</td>
</tr>
<tr>
<td>146  (92)</td>
<td>2</td>
<td>SLHRSMER</td>
<td>Error type.</td>
</tr>
<tr>
<td>Byte 0</td>
<td></td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>Byte 1</td>
<td></td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>xxxx xx...</td>
<td></td>
<td></td>
<td>Reserved.</td>
</tr>
<tr>
<td>....00</td>
<td></td>
<td>Other.</td>
<td></td>
</tr>
<tr>
<td>....01</td>
<td></td>
<td>Storage error.</td>
<td></td>
</tr>
</tbody>
</table>
Software records

Software records are recorded on the LOGREC data set for any of the following conditions:
- Hardware-detected hardware errors, such as software recovery attempts for hard machine failures
- Hardware-detected software errors, such as program checks
- Operator-detected errors, such as pressing the restart key
- Software-detected software errors that are detected when:
  - The CALLRTM TYPE=ABTERM macro or the ABEND macro was started.
  - A non-abend error occurred and the detecting program invoked the symptom record reporting facility.
  - An abend occurred and a recovery routine requested that RTM record a system diagnostic work area (SDWA).
  - A program issued an incorrect SVC
  - There was an excessive spin condition.
- Records for hardware-detected or software-detected errors that were lost because they cannot be written to the LOGREC data set

The types of software records are as follows:
- SDWA record
- Lost record summary record
- Symptom record
- Excessive spin processor list.

For more information about the LOGREC data set, see z/OS MVS Diagnosis: Tools and Service Aids

System diagnostic work area (SDWA) record

When a software error occurs, the system gathers diagnostic information for the error and places it into a system diagnostic work area (SDWA) control block. A recovery routine can request that the system create a software-type record from the information in the SDWA and record it to the logrec data set. This software record contains the following information (Table 36 on page 288):
- Standard record header information.
- SDWA information such as registers, PSW, locks held at the time of error, completion code, data describing reasons and conditions for entering the recovery exit routine, the CSECT in which the error occurred, module name, and FRR ID. See z/OS MVS Data Areas in http://www.ibm.com/systems/z/os/zos/bkserv/ for the detailed format of the SDWA.
- Variable information that assists in isolating the specific error. A description of the specific variable information is in the program listing.
- Error identifier to identify any associated machine check record or SVC dump.
## Table 36. Format of the SDWA record

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>(0) 1</td>
<td>HDRTYP</td>
<td>Class/Source:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.1... ...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.1... ...1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.1...1...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.1...1...</td>
</tr>
<tr>
<td>1</td>
<td>(1) 1</td>
<td>HDROPRN</td>
<td>System/Release level:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>bits 3-7</td>
</tr>
<tr>
<td>2</td>
<td>(2) 1</td>
<td>HDRIS</td>
<td>Record-independent switches:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>x... ...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.1... ...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>..1... ...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>... 1...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>... xxx</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>... xxxxx</td>
</tr>
<tr>
<td>3</td>
<td>(3) 3</td>
<td>HDRDS</td>
<td>Record-dependent switches:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Byte 0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>.1... ...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>... x xxxx</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Byte 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Byte 2</td>
</tr>
<tr>
<td>6</td>
<td>(6) 1</td>
<td>HDRCNT</td>
<td>Not used for SDWA record.</td>
</tr>
<tr>
<td>7</td>
<td>(7) 1</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>(8) 8</td>
<td>HDRTM</td>
<td>Time-of-day clock.</td>
</tr>
<tr>
<td>16</td>
<td>(10) 1</td>
<td>HDRCPID</td>
<td>Machine version code.</td>
</tr>
<tr>
<td>17</td>
<td>(11) 3</td>
<td>Reserved.</td>
<td>Central processor serial number.</td>
</tr>
<tr>
<td>20</td>
<td>(14) 2</td>
<td>Reserved.</td>
<td>Central processor machine model number.</td>
</tr>
<tr>
<td>22</td>
<td>(16) 2</td>
<td>Reserved.</td>
<td></td>
</tr>
</tbody>
</table>

**END OF STANDARD HEADER**

| 24     | (18) 8                      | JOBID      | Alphabetic name assigned to job (as identified, for example, by a job name on a JCL JOB statement) being processed or requesting service at time of failure. |
| 32     | (20) 400                    | SDWA       | The SDWA is described by the IHASDWA mapping macro. See z/OS MVS Data Areas in [http://www.ibm.com/systems/z/os/zos/bkserv](http://www.ibm.com/systems/z/os/zos/bkserv) for the detailed SDWA data area. |
| 432    | (1B0) 264                   | SDWARA     | Variable recording area. |
| 435    | (1B3) 1                     | SDWURAL    | Length of the variable recording area (SDWAVRA) containing recovery exit data. |
### Table 37. Format of the logrec excessive spin CPU record

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>LESCL_Version</td>
<td>Version number, currently 1</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>LESCL_NumEntries</td>
<td>Number of CPUs in the CPU list below.</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>LESCL_LogicalToPhysicalMask</td>
<td>Mask (obtained from ECVTLogicalToPhysicalMask) to convert a logical CPUID to a physical CPUID. Add this value with a CPU's logical ID to obtain its physical ID.</td>
</tr>
</tbody>
</table>
### Lost record summary record

When the in-storage logrec data set buffer becomes filled before the recording task can be dispatched to write the stacked records to the logrec data set and remove them from the buffer, write-to-the-logrec data set requests (via the RECORD service) that occur during this time are lost and cannot be written to the logrec data set. This can happen for either hardware-detected or software-detected errors. Types of errors that often result in lost records are:

- Channel checks occurring continuously and so quickly that the recording task cannot keep up
- Repetitive program checks in the supervisor

In both these cases, the incidents occur so close together that records cannot be written to the buffer. A count of these lost records is accumulated and later written to the logrec data set in the lost record summary (Table 38).

The lost record summary record is 25 bytes long (Table 38). The first 24 bytes is the standard software record header; byte 25 contains a count (1 to 255) of the lost records that could not be written to the logrec data set since the last lost record summary was written.

### Table 37. Format of the logrec excessive spin CPU record (continued)

<table>
<thead>
<tr>
<th>Offset Hex</th>
<th>Offset Dec</th>
<th>Size</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>6</td>
<td>2</td>
<td>LESCL_Offset</td>
<td>Offset from the beginning of the header to an array of CPU entries. Each CPU entry is 2 bytes long, and there are LESCL_NumEntries CPU entries. A non-zero value indicates the CPU for that entry is spinning and contains the logical CPU id of the CPU causing it to spin. A zero value indicates the CPU is not spinning. The first entry of the array represents CPU 0, the second entry represents CPU1, and the same.</td>
</tr>
</tbody>
</table>

### Table 38. Format of the lost record summary record

<table>
<thead>
<tr>
<th>Offset Dec</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>(0)</td>
<td>HDRTYP</td>
<td>Class/Source:</td>
</tr>
<tr>
<td></td>
<td>.1.. 1111</td>
<td></td>
<td>Lost record summary; type=X'4F'.</td>
</tr>
<tr>
<td>1</td>
<td>(1)</td>
<td>HDROPRN</td>
<td>System/Release level:</td>
</tr>
<tr>
<td></td>
<td>.100. ...</td>
<td></td>
<td>OS/VS2.</td>
</tr>
<tr>
<td></td>
<td>bits 3-7</td>
<td></td>
<td>Release level 0-31.</td>
</tr>
<tr>
<td>2</td>
<td>(2)</td>
<td>HDRIS</td>
<td>Record-independent switches:</td>
</tr>
<tr>
<td></td>
<td>x... ...</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>.1... ...</td>
<td>Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacement 8.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>.1... ...</td>
<td>Record truncated. (When EREP detects this bit being on, it does not edit record but prints it out in hexadecimal.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>...1 ...</td>
<td>Record created by MVS/SP Version 2 or 3.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>... 1...</td>
<td>TIME macro used.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>... xxx</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>(3)</td>
<td>HDRDS</td>
<td>Record-dependent switches:</td>
</tr>
</tbody>
</table>
Table 38. Format of the lost record summary record (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>HDRCNT</td>
<td>Not used for lost record summary.</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>HDRCNT</td>
<td>Reserved.</td>
</tr>
<tr>
<td>2</td>
<td>8</td>
<td>HDRTM</td>
<td>Time-of-day clock.</td>
</tr>
<tr>
<td>16</td>
<td>1</td>
<td>HDRCPID</td>
<td>Machine version code.</td>
</tr>
<tr>
<td>17</td>
<td>3</td>
<td>HDRCPID</td>
<td>Central processor serial number.</td>
</tr>
<tr>
<td>20</td>
<td>2</td>
<td>HDRCPID</td>
<td>Central processor machine model number.</td>
</tr>
<tr>
<td>22</td>
<td>2</td>
<td>HDRCPID</td>
<td>Reserved.</td>
</tr>
<tr>
<td>24</td>
<td>1</td>
<td>RCBLCNT</td>
<td>Last field in the lost record summary. Contains the number of records that could not be written to the logrec data set.</td>
</tr>
</tbody>
</table>

Table 39. Format of the symptom record (section 1)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>HDRTYP</td>
<td>Class/Source:</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>HDROPRN</td>
<td>Symptom record; type=X'4C'.</td>
</tr>
<tr>
<td>1</td>
<td>8</td>
<td>HDROPRN</td>
<td>System/Release level:</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>HDROPRN</td>
<td>OS/VS2.</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>HDROPRN</td>
<td>Record-independent switches:</td>
</tr>
</tbody>
</table>

Symptom record

When a module detects a programming failure, it constructs a symptom record containing a description of the failure.

A symptom record contains structured data base (SDB) symptom strings. Symptom strings are valuable problem determination aids. Symptom strings can be used by installations and the IBM Support Center to search for matching problems in a problem reporting data base.

The record is processed by two macros:
- The ADSR macro, which maps the record.
- SYMREC allows authorized programs to write records to the logrec data set. Unauthorized programs are allowed to write to the logrec data set only if an installation provided user exit has been installed.

For more information on how to write an exit routine, see z/OS MVS Installation Exits.
## Error Recording

Table 39. Format of the symptom record (section 1) (continued)

<table>
<thead>
<tr>
<th>Offset (Dec)</th>
<th>Size (Hex) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>x,...</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.1,...</td>
<td>Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacement 8.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>..1,...</td>
<td>Record truncated. (When EREP detects this bit being on, it does not edit record but prints it out in hexadecimal.)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>...1,...</td>
<td>Record created by MVS/SP Version 2 or 3.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>...1...</td>
<td>TIME macro used.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.... x...</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>HDRDS</td>
<td>Record-dependent switches:</td>
</tr>
<tr>
<td>3</td>
<td>Byte 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>x,...</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>.1,...</td>
<td>Record incomplete. (Record truncated because of lack of buffer space.)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>...x xxxx</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>(6) 1</td>
<td>HDRCNT</td>
<td>Not used for symptom record.</td>
</tr>
<tr>
<td>7</td>
<td>(7) 1</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>(8) 8</td>
<td>HDRTM</td>
<td>Time-of-day clock.</td>
</tr>
<tr>
<td>16</td>
<td>(10) 1</td>
<td>HDRCPID</td>
<td>Machine version code.</td>
</tr>
<tr>
<td>17</td>
<td>(11) 3</td>
<td>Central processor serial number.</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>(14) 2</td>
<td>Central processor machine model number.</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>(16) 2</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>(18) 2</td>
<td>ADSRID</td>
<td>‘SR’ symptom record id.</td>
</tr>
<tr>
<td>26</td>
<td>(1A) 4</td>
<td>ADSRCPM</td>
<td>Central processor model number.</td>
</tr>
<tr>
<td>30</td>
<td>(1E) 6</td>
<td>ADSRCPS</td>
<td>Central processor serial number.</td>
</tr>
<tr>
<td>36</td>
<td>(24) 4</td>
<td>ADSRGM7</td>
<td>Local time zone conversion factor.</td>
</tr>
<tr>
<td>40</td>
<td>(28) 4</td>
<td>ADSRTIME</td>
<td>Time stamp.</td>
</tr>
<tr>
<td>44</td>
<td>(2C) 8</td>
<td>ADSRTOD</td>
<td>Time stamp (HHMMSSSTH).</td>
</tr>
<tr>
<td>52</td>
<td>(34) 6</td>
<td>ADSRDATE</td>
<td>Date (YYMMDD).</td>
</tr>
<tr>
<td>58</td>
<td>(3A) 8</td>
<td>ADSRSID</td>
<td>Customer assigned system/node name.</td>
</tr>
<tr>
<td>66</td>
<td>(42) 4</td>
<td>ADSRSYS</td>
<td>Product ID of BCP</td>
</tr>
<tr>
<td>70</td>
<td>(46) 8</td>
<td>ADSRCML</td>
<td>Feature and level of SYMREC macro.</td>
</tr>
<tr>
<td>78</td>
<td>(4E) 1</td>
<td>ADSRFL1</td>
<td>Record status flags.</td>
</tr>
<tr>
<td>80</td>
<td>1,</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>81</td>
<td>.1,</td>
<td>ADSRTRNC</td>
<td>Symptom record was truncated.</td>
</tr>
<tr>
<td>81</td>
<td>.1,</td>
<td>ADSRPMOD</td>
<td>The section 3 symptom string has been modified.</td>
</tr>
<tr>
<td>81</td>
<td>.1,</td>
<td>ADSRSGEN</td>
<td>No record from component.</td>
</tr>
<tr>
<td>81</td>
<td>... 1,...</td>
<td>ADSRSMOD</td>
<td>The section 4 symptom string has been modified.</td>
</tr>
<tr>
<td>81</td>
<td>... .1...</td>
<td>Reserved.</td>
<td></td>
</tr>
<tr>
<td>79</td>
<td>(4F) 1</td>
<td>ADSRFL2</td>
<td>Record status flags.</td>
</tr>
</tbody>
</table>
## Error Recording

### Table 39. Format of the symptom record (section 1) (continued)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1...</td>
<td>ADSRNOTD</td>
<td></td>
<td>ADSRTOOD and ADSRDATE have not been computed.</td>
</tr>
<tr>
<td>1...</td>
<td>ADSRASYN</td>
<td></td>
<td>Record was created asynchronously from the error.</td>
</tr>
<tr>
<td>11 1111</td>
<td>Reserved.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>(50) 8</td>
<td>ADSRDTP</td>
<td>Type of dump taken for this event.</td>
</tr>
</tbody>
</table>

### Table 40. Format of the symptom record (section 2)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes)</th>
<th>field Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>88</td>
<td>(58) 2</td>
<td>ADSRARID</td>
<td>Architectural level of the symptom record.</td>
</tr>
<tr>
<td>90</td>
<td>(5A) 2</td>
<td>ADSRL</td>
<td>Length of section 2.</td>
</tr>
<tr>
<td>92</td>
<td>(5C) 2</td>
<td>ADSRCSL</td>
<td>Length of section 2.1 (ADSRCPMS).</td>
</tr>
<tr>
<td>94</td>
<td>(5E) 2</td>
<td>ADSRCSO</td>
<td>Offset of section 2.1 (ADSRCPMS).</td>
</tr>
<tr>
<td>96</td>
<td>(60) 2</td>
<td>ADSRDBL</td>
<td>Length of section 3 (ADSRDBST).</td>
</tr>
<tr>
<td>98</td>
<td>(62) 2</td>
<td>ADSRDBO</td>
<td>Offset of section 3 (ADSRDBST).</td>
</tr>
<tr>
<td>100</td>
<td>(64) 2</td>
<td>ADSRROSL</td>
<td>Length of section 4 (ADSRROSD).</td>
</tr>
<tr>
<td>102</td>
<td>(66) 2</td>
<td>ADSRROSA</td>
<td>Offset of section 4 (ADSRROSD).</td>
</tr>
<tr>
<td>104</td>
<td>(68) 2</td>
<td>ADSRRONL</td>
<td>Length of section 5 (ADSR5ST).</td>
</tr>
<tr>
<td>106</td>
<td>(6A) 2</td>
<td>ADSRRONA</td>
<td>Offset of section 5 (ADSR5ST).</td>
</tr>
<tr>
<td>108</td>
<td>(6C) 2</td>
<td>ADSRRSL</td>
<td>Reserved.</td>
</tr>
<tr>
<td>110</td>
<td>(6E) 2</td>
<td>ADSRRISA</td>
<td>Reserved.</td>
</tr>
<tr>
<td>112</td>
<td>(70) 8</td>
<td>ADSRSRES</td>
<td>System data.</td>
</tr>
<tr>
<td>120</td>
<td>(78) 16</td>
<td>Reserved.</td>
<td></td>
</tr>
</tbody>
</table>

### Table 41. Format of the symptom record (at offset ADSRCSO in ADSR) (section 2.1)

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec</td>
<td>Hex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>(0) 100</td>
<td>ADSRCMPS</td>
<td>Identifier for section 2.1.</td>
</tr>
<tr>
<td>0</td>
<td>(0) 4</td>
<td>ADSRC</td>
<td>Architectural level of the symptom record.</td>
</tr>
<tr>
<td>4</td>
<td>(4) 2</td>
<td>ADSRCL</td>
<td>Component identifier.</td>
</tr>
<tr>
<td>6</td>
<td>(6) 9</td>
<td>ADSRCID</td>
<td>Component status flags.</td>
</tr>
<tr>
<td>15</td>
<td>(F) 1</td>
<td>ADSRFLC</td>
<td>Reserved.</td>
</tr>
<tr>
<td>1...</td>
<td>ADSRNIBM</td>
<td>Non-IBM program.</td>
<td></td>
</tr>
<tr>
<td>1111</td>
<td>Reserved.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>(10) 4</td>
<td>ADSRLVL</td>
<td>Component level.</td>
</tr>
<tr>
<td>20</td>
<td>(14) 8</td>
<td>ADSRPFT</td>
<td>PTF level.</td>
</tr>
<tr>
<td>28</td>
<td>(1C) 8</td>
<td>ADSRPID</td>
<td>PID level.</td>
</tr>
<tr>
<td>36</td>
<td>(24) 8</td>
<td>ADSRPIDL</td>
<td>PID release level.</td>
</tr>
<tr>
<td>44</td>
<td>(2C) 32</td>
<td>ADSRCDSC</td>
<td>Text description.</td>
</tr>
<tr>
<td>76</td>
<td>(4C) 4</td>
<td>ADSRRET</td>
<td>Return code.</td>
</tr>
<tr>
<td>80</td>
<td>(50) 4</td>
<td>ADSRREA</td>
<td>Reason code.</td>
</tr>
<tr>
<td>84</td>
<td>(54) 8</td>
<td>ADSRPRID</td>
<td>Problem identifier.</td>
</tr>
<tr>
<td>92</td>
<td>(5C) 8</td>
<td>ADSRSSID</td>
<td>Subsystem identifier.</td>
</tr>
</tbody>
</table>
Error Recording

**Table 42. Format of the Symptom Record (at offset ADSRDBO in ADSR) (section 3)**

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec Hex</td>
<td>variable</td>
<td>ADSRDBST</td>
<td>Primary symptom string.</td>
</tr>
</tbody>
</table>

**Table 43. Format of the symptom record (at offset ADSRROSA in ADSR) (section 4)**

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec Hex</td>
<td>variable</td>
<td>ADSRROSD</td>
<td>Secondary symptom string.</td>
</tr>
</tbody>
</table>

**Table 44. Format of the symptom Record (at offset ADSRRONA in ADSR) (section 5)**

<table>
<thead>
<tr>
<th>Offset</th>
<th>Size (bytes) alignment (bits)</th>
<th>Field name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec Hex</td>
<td>variable</td>
<td>ADSRSST</td>
<td>Free format data.</td>
</tr>
</tbody>
</table>
Chapter 10. SVC dump title directory

This directory lists the titles of SVC dumps. The directory has the following topics:

- **“System-defined SVC dumps with titles”**
  This topic lists, in alphanumeric order, the titles of SVC dumps produced by system components and provides diagnostic information about the dumps.

- **“SVC dumps without titles” on page 425**
  This topic provides diagnostic information for SVC dumps without titles.

### System-defined SVC dumps with titles

This topic lists, in alphanumeric order, the titles of SVC dumps and provides diagnostic information for the modules that initiate an SVC dump.

**ABDUMP ERROR, COMPON=ABDUMP, COMPID=SCDMP, ISSUER=IEAVTABD2.**

Component

Dumping Services - ABDUMP (5752-SCDMP)

Issuing module

IEAVTABD

Explanation

An error occurred during RTM processing of a SYSABEND, SYSMDUMP, or SYSUDUMP ABEND dump. The error occurred when:

- ABDUMP attempted to set up dump processing
- SNAP or SVC dump processing encountered an error while taking the dump

The areas dumped are LSQA, TRT, LPA, GRSQ, and subpools 230 and 250.

Problem determination

Determine the failing CSECT name and the error condition from RTM2WA and the SDWA, if available.

**ABEND IN IEAVTGLB**

Component

SLIP - PER Activation/Deactivation (5752-SCSLP)

Issuing module

IEAVTGLB

Explanation

An error occurred when the SLIP processor attempted to activate or deactivate PER in the system. The areas dumped are PSA, SQA, and SUM. The summary dump contains information relevant to the error.

Associated problem data

Message IEA415I.
ABEND IN IEAVTJBN

Component
SLIP - PER Activation/Deactivation (5752-SCSLP)

Issuing module
IEAVTJBN

Explanation
An error occurred when the SLIP processor attempted to determine if PER should be active for a new address space, started task, logon, mount, or job. The areas dumped are: PSA, SQA, and SUM. The summary dump contains information relevant to the error.

Associated problem data
Message IEA422I.

ABEND IN IEAVTLCL

Component
SLIP - PER Activation/Deactivation (5752-SCSLP)

Issuing module
IEAVTLCL

Explanation
An error occurred when the SLIP processor was attempting to activate or deactivate PER in an address space. The areas dumped are: PSA, SQA, LSQA, and SUM. The summary dump contains information relevant to the error.

Associated problem data
Message IEA415I.

ABEND IN SMF INTERVAL PROCESSING - ROUTINE IEEMB836 JOBNAME=xxxxxxxx

Component
System management facility (SMF) (5752-SC100)

Issuing module
IEEMB836 - FRR

Explanation
An abend occurred during SMF interval processing. In the dump title, xxxxxxxx indicates the name of the affected job. The areas dumped are: SQA, ALLPSA, NUC, LSQA, RGN, LPA, TRT, SWA, and SUM.

Associated problem data
The SDWACSCT field in the SDWA contains the name of the module in control at the time of the error.

ABEND IN SMF INTERVAL PROCESSING - ROUTINE IFAEASI JOBNAME=xxxxxxxx

Component
System management facility (SMF) (5752-SC100)

Issuing module
IFAEASI - FRR
**SVC Dump Titles**

**Explanation**
An abend occurred during SMF interval processing for the early address spaces that do not go through full function start. In the dump title, xxxxxxxx indicates the name of the affected job.

The areas dumped are: SQA, ALLPSA, NUC, LSQA, RGN, LPA, TRT, SWA, and SUM

**ABEND chhh AT hhhhhhhh (nnnnnn) + X'nnnn' cc- -cc**

- **Component**
  JES2 (5752-SC1BH)

- **Issuing module**
  HASPTERM or HASPRAS

- **Explanation**
  An abend occurred during JES2 processing. In the dump title, the variables are:
  - **chhh**
    ABEND code
  - **hhhhhhhh**
    Failing module name
  - **nnnnnn**
    Entry point address
  - **X'nnnn'**
    Offset of the failing instruction
  - **cc- -cc**
    Brief description of the ABEND code and the JES2 release level

ABEND codes that start with S are system completion codes, and those that start with $ are JES2 codes. The areas dumped are PSA, NUC, RGN, TRT, SQA, CSA, LPA, and SWA.

**Associated problem data**
System completion codes (see z/OS MVS System Codes) and JES2 codes (see message $HASP095 in z/OS JES2 Messages).

**ABEND=hhh, COMPON=CONVERTER, COMPID=SC1B9, ISSUER=IEFNB9CR**

- **Component**
  Converter (5752-SC1B9)

- **Issuing module**
  IEFNB9CR - Converter recovery routine

- **Explanation**
  IEFNB9CR was entered due to an expected error (0B0 abend or program check) during converter processing. The areas dumped are LSQA, RGN, LPA, and SWA.
SVC Dump Titles

**ABEND=hhh, COMPON=INTERPRETER, COMPID=SC1B9, ISSUER=IEFNB9IR**

**Component**
Interpreter (5752-SC1B9)

**Issuing module**
IEFNB9IR - Interpreter recovery routine

**Explanation**
IEFNB9IR was entered due to an expected error (0B0 abend or program check) during interpreter processing. The areas dumped are LSQA, RGN, LPA, and SWA.

**ABEND=hhh, REASON=nnnn, MODULE=IEAVSPDM, COMPON=RECONFIGURATION - SPDM, COMPID=SC1CZ, ISSUER=IEAVSPDM**

**Component**
Reconfiguration (5752-SC1CZ)

**Issuing module**
IEAVSPDM

**Explanation**
An abend occurred in module IEAVSPDM during either:
- System initialization processing (at IPL time).
- Processing by IEAVSPDM of the post by the machine check handler of the service processor damage ECB. In this case, an MSSF machine check interruption occurred and the MSSF (or processor controller) is no longer functioning.

**ABEND=40D, RC=xx, COMPON=RTM2, COMPID=SCRTM, ISSUER=IEAVTRT2, MEMTERM - UNRECOVERABLE ABEND FAILURE**

**Component**
Recovery termination manager (RTM) - RTM2 Processing (5752-SCRTM)

**Issuing module**
IEAVTRT2

**Explanation**
An unrecoverable error occurred during RTM2 processing. IEAVTRT2 completes processing, sets the current task tree nondispatchable, and ends the failing address space.

The areas dumped are ALLPSA, LSQA, NUC, SQA, and TRT.

**Associated problem data**
The most recent RTM2WA addressed by the TCB contains the most pertinent information. However, if an RTM2WA does not exist, not enough storage was available in the LSQA or SQA.

**Problem determination**

[2/OS MVS System Codes]
**ABP:IDA121A2 - ABEND FROM ABP FRR**

**Component**
Block processor (5665-28419)

**Issuing module**
IDA121A2 - FRR

**Explanation**
An abnormal end occurred during VSAM block processing. A VSAM request was being processed in the actual block processor (ABP), initiating I/O, when the error occurred.

The FRR routine in IDA121A2 requests an SVC dump. The areas dumped are PSA, NUC, RGN, TRT, CSA, and SQA.

**Associated problem data**
Register 3 points to the IOMB for the VSAM request being processed.

**ABP:IDA121A3 - ABEND FROM NORMAL END FRR**

**Component**
Block processor (5665-28419)

**Issuing module**
IDA121A3 - FRR

**Explanation**
An abnormal end occurred while IDA121A3 was processing a VSAM request. I/O for the VSAM request had completed normally when the error occurred.

RTM passes control to the FRR in IDA121A3 (at entry point IDA121F3), which requests an SVC dump. The areas dumped are PSA, NUC, RGN, TRT, CSA, and SQA.

**Associated problem data**
Register 3 points to the IOMB for the VSAM request.

**ABP:IDA121A4 - ABEND FROM ABNORMAL END FRR**

**Component**
Block processor (5665-28419)

**Issuing module**
IDA121A4 - FRR

**Explanation**
An abnormal end occurred while IDA121A4 was processing a VSAM request. I/O for a VSAM request had completed abnormally when the error occurred.

RTM passes control to the FRR in IDA121A4 (at entry point IDA121F4), which requests an SVC dump. The areas dumped are PSA, NUC, RGN, TRT, CSA, and SQA.

**Associated problem data**
Register 3 points to the IOMB for the VSAM request.

**ABP:IGC121 - ABEND FROM SIOD FRR**

**Component**
Block processor (5665-28419)
SVC Dump Titles

Issuing module
IGC121 - FRR

Explanation
An abnormal end occurred while IGC121 was processing a VSAM request. The I/O manager was processing a VSAM request when the error occurred.

RTM passes control to the FRR in IDA121 (at entry point IDA121F1), which requests an SVC dump. The areas dumped are PSA, NUC, RGN, TRT, CSA, and SQA.

Associated problem data
Register 3 points to the IOMB for the VSAM request.

AHL007I GTF TERMINATING ON ERROR CONDITION

Component
Generalized trace facility (GTF) (5752-SC111)

Issuing module
IGC121 - FRR

Explanation
An error occurred during GTF initialization. An ESTAE routine requests a retry action which requests an SVC dump, writes message AHL016I, and frees storage and other resources that were allocated to GTF. GTF ends its processing. The areas dumped are RGN, SQA, and MCHEAD control block.

Associated problem data
All control blocks allocated to GTF are dumped.

CHECKPOINT RESTART FAILURE, ABEND=hhh, COMPON=SCHR-RESTART, COMPID=SC1B3, ISSUER=IEFXB609

Component
Scheduler restart (5752-SC1B3)

Issuing module
IEFXB609

Explanation
An abend occurred during scheduler checkpoint restart processing. Restart processing ends. The areas dumped are LPA, LSQA, NUC, RGN, SQA, SUM, SWA, and TRT.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains footprints to indicate the processing path.

COMMAND EXIT xxxxxxxxxx ABENDED, COMPON=MASTER, COMPID=SC1B8, ISSUER=IEECV6CX, ABEND=yyy, RSN=UNKNOWN

Component
Console Services (5752-SC1CK)
SVC Dump Titles

Issuing module
IEECV6CX

Explanation
An error occurred while processing the command installation exit routine. The areas dumped are CSA, SQA, TRT, SUM, NUC, RGN, and GRSQ. In the dump title, the variables are:

xxxxxxx
Name of the exit routine.

yyy
ABEND code.

COMMON AUTHORIZATION CHECK ROUTINE ERROR,
ABEND=hhh, COMPON=SCHR-CMF, COMPID=BB131,
ISSUER=IEFCMAUT

Component
Scheduler (5752-SC1B6)

Issuing module
IEFCMAUT

Explanation
An abend occurred during authorization checking. ESTAE routine SETESTAE in IEFCMAUT sets up the recovery environment. If no previous abend occurred, recovery routine RECOVERY in IEFCMAUT requests a retry. If there was a previous abend, the recovery routine issues a SETRP to indicate that RTM should percolate the error to the next level of recovery.

COMPON=APPC, COMPID=5752SCACB, ISSUER=x,
MODULE=x , ABEND=(,REASON=)

Component
APPC/MVS (5752SCACB)

Issuing module
ATBMIRE, ATBCTCLN

Explanation
An error occurred during APPC/MVS processing.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=COMMTASK, COMPID=5752xxxxx, ISSUER=iiiiiii,
MODULE=cccccccc, ABEND=aaa, REASON=rrrrrrrr

Component
Comm Task (5752-SC1CK) or Master Scheduler Commands (5752-SC1B8)

Issuing module
IEAM1REC

Explanation
An error occurred during communications task processing. In the dump title, the variables are:

xxxxx
Either SC1CK or SC1B8
SVC Dump Titles

*IEAM1EST* (if an ESTAE was in effect) or *IEAM1FRR* (if an FRR was in effect)

*CSECT* in control at the time of the error

*ABEND code*

*ABEND reason code*

The areas dumped are COUPLE, CSA, LSQA, NOALLPSA, NUC, RGN, SQA, SUMDUMP, SWA, TRT, and XESDATA.

Associated problem data

The SDWA variable recording area (SDWAVRA) contains diagnostic data. The dump also includes Comm Task component trace data.

**COMPON=CNZ, COMPID=SC1CK, ISSUER=CNZX1MPU, LOST SECURITY DATA FOR CONSOLE consname FROM SYSTEM sysname**

**Component**

Console Services (5752-SC1CK)

**Issuing module**

CNZX1MPU

**Explanation**

An error occurred within a Console Services module. The dump includes Console Services control blocks and traces. In the dump title, the variables are:

*consname*  
the name of the console whose security data was lost.

*sysname*  
the name of the system that sent the security data.

**COMPON=CNZ, COMPID=SC1CK, ISSUER=CNZM1QPR, CNZQUERY PROCESSING**

**Component**

Console Services (5752-SC1CK)

**Issuing module**

CNZM1QPR

**Explanation**

An error occurred during CNZQUERY processing. The areas dumped are CSA, GRSQ, LSQA, NUC, RGN, SERVERS, SQA, SUM, and TRT.

**COMPON=IEF, COMPID=BB131, ISSUER=IEFSCHR1, MODULE=m mm m mm + xxxx ABEND=aaaaa, REASON=rrrrrrrr**

**Component**

Job Scheduler Services (5752-BB131)
SVC Dump Titles

Issuing module
IEFSCHR1

Explanation
The dump title indicates an ABEND occurred during Scheduler processing.
The fields in the dump title are:

aaaaa
ABEND code

rrrrrrrrr
ABEND reason code

**COMPON=MMS, COMPID=5752xxxxx, ABEND=aaa, MODULE=cccccccc, RPLP=rrrrrrrrr, text**

Component
MMS (5752-SCMMS)

Issuing module
CNLXRECV

Explanation
An error occurred during MVS Message Service (MMS). In the dump title, the variables are:

xxxxx
SCMMS

aaa
ABEND code

cccccc
CSECT in control at the time of the error

rrrrrrrr
RPL address

text
location or function that failed

The areas dumped are specific MMS control blocks.

**COMP=DATA IN VIRTUAL, COMPID=SCDIV, ISSUER=ITVRD, DATA IN VIRTUAL GENERAL ESTAE RECOVERY FAILURE**

Component
Data-in-virtual (5752-SCDIV)

Issuing module
ITVDEST - ESTAE

Explanation
An error occurred during data-in-virtual general ESTAE recovery processing. The areas dumped are SUM, LSQA, and SQA.

Associated problem data
The SDWA variable recording area (SDWAVRA) includes the DRA.

Problem determination
Use the IPCS DIVDATA and STATUS FAILDATA subcommands to format information related to data-in-virtual.
SVC Dump Titles

**COMP=DATA IN VIRTUAL, COMPID=SCDIV, ISSUER=ITVRG, DATA IN VIRTUAL GENERAL FRR RECOVERY FAILURE**

Component  
Data-in-virtual (5752-SCDIV)

Issuing module  
ITVRGFRR - FRR

Explanation  
An error occurred during data-in-virtual general FRR recovery processing.  
The areas dumped are SUM, LSQA, SQA, and NUC.

Associated problem data  
The SDWA variable recording area (SDWA) includes the DRA.

Problem determination  
Use the IPCS DIVDATA and STATUS FAILDATA subcommands to format  
information related to data-in-virtual.

**COMP=DATA IN VIRTUAL, COMPID=SCDIV, ISSUER=ITVRK, TRACE TABLE, SEQUENCE NUMBER = xxxxxxxxxx**

Component  
Data-in-virtual (5752-SCDIV)

Issuing module  
ITVRKTR - Trace

Explanation  
The data-in-virtual trace table was filled during data-in-virtual processing.  
In the dump title, sequence number xxxxxxxxxx indicates the number of  
times that the first entry in the trace table was used. The sequence number  
starts at zero and is increased by one each time the trace table fills and  
wraps around. When a new table replaces the trace table, the sequence  
number starts again at zero. The dumped area is SUM.

Associated problem data  
The dump includes the following information in the summary dump:  
• DIB  
• DIBX  
• Data-in-virtual component trace table control area (CTC)  
• Data-in-virtual trace table

Problem determination  
Use the IPCS DIVDATA and STATUS FAILDATA subcommands to format  
information related to data-in-virtual.

**COMP=DATA IN VIRTUAL, COMPID=SCDIV, ISSUER=ITVRM, WITH INVALID DRA**

Component  
Data-in-virtual (5752-SCDIV)

Issuing module  
ITVRMDMP - FRR
Explanation
An error occurred during data-in-virtual disabled processing. The DRA is damaged.

The areas dumped are SUM, LSQA, SQA, and NUC.

Associated problem data
The dump includes the following information in the summary dump:
- DIB
- DIBX at the time of the error
- Data-in-virtual component trace table control area (CTC), if applicable
- Data-in-virtual trace table, if applicable
- Data-in-virtual CPU-related work/save area
- LSQA used by data-in-virtual, if applicable

Also, the dump includes the 4K SQA buffer in description-length-data format, if applicable. The CVTSDBF field in the CVT contains the address of the buffer.

The SDWA variable recording area (SDWA) includes time-of-error information.

Problem determination
Use the IPCS DIVDATA and STATUS FAILDATA subcommands to format information related to data-in-virtual.

COMP=DATA IN VIRTUAL, COMPID=SCDIV, ISSUER=ITVRM, WITH VALID DRA

Component
Data-in-virtual (5752-SCDIV)

Issuing module
ITVRMDMP - FRR

Explanation
An error occurred during data-in-virtual disabled processing. The areas that are dumped are SUM, LSQA, SQA, and NUC.

Associated problem data
The dump includes the following information in the summary dump:
- DIB
- Refreshed DIBX
- Data-in-virtual component trace table control area (CTC), if applicable
- Data-in-virtual trace table, if applicable
- Data-in-virtual CPU-related work/save area
- LSQA used by data-in-virtual, if applicable

Also, the dump includes the 4K SQA buffer in description-length-data format. If applicable, the buffer will contain the DIBX at the time of the error and any queue error information. The CVTSDBF field in the CVT contains the address of the buffer.

The SDWA variable recording area (SDWA) includes the symptom strings and time-of-error information.
**Problem determination**
Use the IPCS DIVDATA and STATUS FAILDATA subcommands to format information related to data-in-virtual.

**COMP=DATA IN VIRTUAL, COMPID=SCDIV, ISSUER=ITVRR, WITH INVALID DRA**

**Component**
Data-in-virtual (5752-SCDIV)

**Issuing module**
ITVRRDMP - ESTAE

**Explanation**
An error occurred during data-in-virtual enabled processing. The DRA is damaged. The areas dumped are SUM, LSQA, and SQA.

**Associated problem data**
The dump includes the following information in the summary dump:
- DIB
- DIBX at the time of the error
- DRA

Also, the dump includes the 4K SQA buffer in description-length-data format, if applicable. The CVTSDBF field in the CVT contains the address of the buffer.

The SDWA variable recording area (SDWA) includes the time-of-error information.

**Problem determination**
Use the IPCS DIVDATA and STATUS FAILDATA subcommands to format information related to data-in-virtual.

**COMP=DATA IN VIRTUAL, COMPID=SCDIV, ISSUER=ITVRR, WITH VALID DRA**

**Component**
Data-in-virtual (5752-SCDIV)

**Issuing module**
ITVRRDMP - ESTAE

**Explanation**
An error occurred during data-in-virtual enabled processing. The areas dumped are SUM, LSQA, and SQA.

**Associated problem data**
The dump includes the following information in the summary dump:
- DIB
- Refreshed DIBX
- DRA

Also, the dump includes the 4K SQA buffer in description-length-data format. If applicable, the buffer will contain the DIBX at the time of the error and any queue error information. The CVTSDBF field in the CVT contains the address of the buffer.

The SDWA variable recording area (SDWA) includes the symptom strings and time-of-error information.
Problem determination
Use the IPCS DIVDATA and STATUS FAILDATA subcommands to format information related to data-in-virtual.

**COMP=GTF-BUFFERING ROUTINE, COMPID=SC111, ISSUER=AHLSBUF**

**Component**
GTF (5752-SC111)

**Issuing module**
AHLSBUF

**Explanation**
An error has occurred while moving the GTF global trace buffer to a page in the GTF address space. The failing address space is dumped. The error is percolated to the FRR for the active data gathering routine. The FRR in the router routine (AHLMCER) disables and terminates GTF.

**Associated problem data**
A software record is written to the logrec data set.

**COMP=IOS READ COUPLE DATASET, COMPID=SCIC3, ISSUER=IOSVCDSR**

**Component**
Input/output supervisor (IOS) (5752-SC1C3)

**Issuing module**
IOSVCDSR

**Explanation**
An error occurred while IOS was attempting to read the IOS record from the couple data set. ESTAE routine CDSRESTA issues the SDUMP macro.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMP=IOS UPDATE COUPLE DATASET, COMPID=SCIC3, ISSUER=IOSVCDSU**

**Component**
Input/output supervisor (IOS) (5752-SC1C3)

**Issuing module**
IOSVCDSU

**Explanation**
An error occurred while IOS was attempting to update the IOS record in the couple data set. ESTAE routine CDSUESTA issues the SDUMP macro.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMP=IOS IDENTIFY SYSTEM WITH RESERVE, COMPID=SCIC3, ISSUER=IOSVISWR**

**Component**
Input/output supervisor (IOS) (5752-SC1C3)
**SVC Dump Titles**

**Issuing module**
IOSVISWR

**Explanation**
An error occurred while IOS was attempting to identify the system holding a device reserve in order to issue message IOS4311. ESTAE routine ISWRESTA issues the SDUMP macro.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMPON=IOS, COMPID=SC1C3, ISSUER=IOSCFCHP, ESTACHPR, ABEND=xxx, RSN=yyyyyyyy**

**Component**
Input/output supervisor (IOS) (5752-SC1C3)

**Issuing module**
IOSCFCHP

**Explanation**
The IOS channel path reconfiguration routine's ESTAE received control because of an expected or unexpected error. The contents are ALLNUC, SUM, LSQA, SQA, ALLPSA, LPA, TRT.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains diagnostic information.

**COMPID=SC1CJ, COMPON=CONTENTS SUPERVISOR, ISSUER=CSVFRR, DUMP PRIOR TO QUEUE VERIFICATION**

**Component**
Contents supervisor (5752-SC1CJ)

**Issuing module**
CSVFRR

**Explanation**
An error occurred during processing by the contents supervisor. The error is probably a user error because errors that occur during the validation of user-specified parameter lists result in abend codes 206.

The FRR routine CSVFRR issues the SDUMP prior to performing queue validation for the load list (LLE queue) and the job pack area (CDE and CDX) queues for the failing task, all of which reside in the LSQA. The areas dumped are SUM, TRT, LSQA, and SQA.

Note that if this dump title is received, there is most likely an LSQA shortage in the address space in which the error occurred.

**Associated problem data**
The queue verify routine records errors in the SDWA variable recording area (SDWAVRA). The errors were detected in the LLE queue or the CDE queue. The error recording fields contain the EBCDIC labels “LLS ERROR”, “JPQ ERROR”, and “JPQ CDX ERROR”. The labels are followed by “NONE” if no errors were detected.

While the contents supervisor is active, register 5 points to the contents supervisor SVRB, except when the recovery module CSVFRR is in control, or when the contents supervisor calls other services.
The extended save area RBEXSAVE in the SVRB contains data that is specific to the contents supervisor and includes the name of the requested module, pointers to the CDEs and other resources, and various flags.

**COMPID=SC1CJ, COMPON=CONTENTS SUPERVISOR, ISSUER=CSVFRR2, FAILURE DURING FIRST LEVEL FRR**

**Component**
Contents supervisor (5752-SC1CJ)

**Issuing module**
CSVFRR (CSVFRR2 routine)

**Explanation**
During recovery processing, an error occurred while the contents supervisor was attempting to perform queue validation as a result of a previous error.

This error caused the second level FRR, CSVFRR2, to gain control. The areas dumped are SUM, TRT, LSQA, SQA, and NUC.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains the FRR parameter list that was initialized by CSVFRR before the queue validation began. The parameter list is preceded by the EBCDIC header “CSVFRR ABEND, CSVFRR DATA IS: QVPL, SDWA, QVCSAREA, TCB, ASCB, NSI” and contains the following:

- Address of the queue verification parameter list (QVPL) that is used by the queue verify routine
- Address of the SDWA
- Address of the 304-byte FRR work area for CSVFRR
- Address of the TCB (PSATOLD)
- Address of the ASCB (PSAAOLD)
- Return address for the FRR

**COMPID=SC1CJ, COMPON=CONTENTS SUPERVISOR, ISSUER=CSVFRR2, FAILURE DURING QUEUE VERIFICATION**

**Component**
Contents supervisor (5752-SC1CJ)

**Issuing module**
CSVFRR (CSVFRR2 routine)

**Explanation**
During recovery processing, an error occurred while the contents supervisor was attempting to perform queue validation as a result of a previous error.

This error caused the second level FRR, CSVFRR2, to gain control. The areas dumped are SUM, TRT, LSQA, SQA, and NUC.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains the FRR parameter list that was initialized by CSVFRR before the queue validation began. The parameter list is preceded by the EBCDIC header “CSVFRR ABEND, CSVFRR DATA IS: QVPL, SDWA, QVCSAREA, TCB, ASCB, NSI” and contains the following:
SVC Dump Titles

- Address of the queue verification parameter list (QVPL) that is used by the queue verify routine
- Address of the SDWA
- Address of the 200-byte FRR work area for CSVFRR
- Address of the TCB (PSATOLD)
- Address of the ASCB (PSAAOLD)
- Return address for the FRR

COMPID=SC1CJ, COMPON=CONTENTS SUPERVISOR, ISSUER=CSVFRR, SCC-NNNNNNN IN FMODNAME+NNNN.

Component
Contents supervisor (5752-SC1CJ)

Issuing module
CSVFRR

Explanation
An error occurred during processing by the contents supervisor. The error is probably a system error because errors that occur during the validation of user-specified parameter lists result in abend codes 206.

There are 2 forms of the dump title. For both forms:

SCC System Completion Code (e.g. 0C4)

NNNNNNNN Reason code for the SCC

In the dump title for failures within the nucleus:

FMODNAME Failing Nucleus module name

NNNN Offset of failure

Since CSVFRR primarily covers nucleus resident SVC code, if the failure occurs in a non-nucleus routine, it probably indicates a wild branch was taken.

The FRR routine CSVFRR issues the SDUMP prior to performing queue validation for the load list (LLE queue) and the job pack area (CDE and CDX) queues for the failing task, all of which reside in the LSQA. The areas dumped are SUM, TRT, LSQA, and SQA.

Associated problem data
The queue verify routine records errors in the SDWA variable recording area (SDWAVRA). The errors were detected in the LLE queue or the CDE queue. The error recording fields contain the EBCDIC labels “LLS ERROR”, “JPQ ERROR”, and “JPQ CDX ERROR”. The labels are followed by “NONE” if no errors were detected.

While the contents supervisor is active, register 5 points to the contents supervisor SVRB, except when the recovery module CSVFRR is in control, or when the contents supervisor calls other services.

The extended save area RBEXSAVE in the SVRB contains data that is specific to the contents supervisor and includes the name of the requested module, pointers to the CDEs and other resources, and various flags.
SVC Dump Titles

COMPID=SC1CJ, COMPON=CONTENTS SUPERVISOR, ISSUER=CSVFRR, SCC-NNNNNNN IN NON-NUCLEUS ROUTINE

Component
Contents supervisor (5752-SC1CJ)

Issuing module
CSVFRR

Explanation
An error occurred during processing by the contents supervisor. The error is probably a system error because errors that occur during the validation of user-specified parameter lists result in abend codes 206.

There are 2 forms of the dump title. For both forms:

SCC = System Completion Code (e.g. 0C4)
NNNNNNNN = Reason code for the SCC

In the dump title for failures within the nucleus:

FMODNAME
Failing Nucleus module name

NNNN
Offset of failure

Since CSVFRR primarily covers nucleus resident SVC code, if the failure occurs in a non-nucleus routine, it probably indicates a wild branch was taken.

The FRR routine CSVFRR issues the SDUMP prior to performing queue validation for the load list (LLE queue) and the job pack area (CDE and CDX) queues for the failing task, all of which reside in the LSQA. The areas dumped are SUM, TRT, LSQA, and SQA.

Associated problem data
The queue verify routine records errors in the SDWA variable recording area (SDWAVRA). The errors were detected in the LLE queue or the CDE queue. The error recording fields contain the EBCDIC labels “LLS ERROR”, “JPQ ERROR”, and “JPQ CDX ERROR”. The labels are followed by “NONE” if no errors were detected.

While the contents supervisor is active, register 5 points to the contents supervisor SVRB, except when the recovery module CSVFRR is in control, or when the contents supervisor calls other services.

The extended save area REXSAVE in the SVRB contains data that is specific to the contents supervisor and includes the name of the requested module, pointers to the CDEs and other resources, and various flags.

COMPID=SC1CK, ISSUER=IEAVBNLK ERROR DURING B/E NOLOCK WTO(R) PROCESSING

Component
Communications task (5752-SC1CK)

Issuing module
IEAVBNLK
SVC Dump Titles

Explanation
An error occurred during branch entry WTO/WTOR no locks processing.
The areas dumped are LSQA, NUC, SQA, SUM, and TRT.

COMPID=SC1CK,ISSUER=IEAVBWTO ERROR DURING B/E WTO(R)/DOM PROCESSING

Component
Communications task (5752-SC1CK)

Issuing module
IEAVBWTO

Explanation
An error occurred during branch entry and NIP WTO/WTOR and DOM
processing. The areas dumped are LSQA, NUC, SQA, SUM, and TRT.

COMPID=SC1CK,ISSUER=IEAVC600 ERROR DURING SYSTEM CONSOLE OPERATOR INPUT PROCESSING

Component
Communications task (5752-SC1CK)

Issuing module
IEAVC600

Explanation
An error occurred during the input processing of System Console operator.
The areas dumped are LSQA, NUC, SQA, SUM, and TRT.

COMPID=SC1CK,ISSUER=IEAVC602 ERROR DURING SYSTEM CONSOLE PRIORITY INPUT PROCESSING

Component
Communications task (5752-SC1CK)

Issuing module
IEAVC602

Explanation
An error occurred during the input processing of System Console operator.
The areas dumped are LSQA, NUC, SQA, SUM, and TRT.

COMPID=SC1CK,ISSUER=IEAVG603 INVALID GEPL ERROR

Component
Communications task (5752-SC1CK)

Issuing module
IEAVG603

Explanation
An error occurred while IEAVG603 was processing a Group Exit Parameter List (GEPL). The areas dumped are CSA, LSQA, SQA, TRT, SUM, NUC, RGN, LPA, IO, ALLPSA, COUPLE, and XESDATA. The dump contains the Console's and XCF's address spaces.
COMPID=SC1CK, ISSUER=IEAVG613 ERROR FREEING ACEE

Component
Communications task (5752-SC1CK)

Issuing module
IEAVG613

Explanation
An error occurred while IEAVG613 was attempting to free storage. The areas dumped are CSA, LSQA, SQA, TRT, SUM, NUC, RGN, LPA, IO, and ALLPSA.

COMPID=SC1CK, ISSUER=IEAVG719 ERROR DURING WTSC PROCESSING

Component
Communications task (5752-SC1CK)

Issuing module
IEAVG719

Explanation
An error occurred during Write To System Console (WTSC) processing. The area dumped is NUC.

COMPID=SC1CZ, MODULE IEECB927 FAILED, ABEND(hhh)

Component
Reconfiguration (5752-SC1CZ)

Issuing module
IEECB927

Explanation
An abend occurred in the command processor for a CONFIG (CF) operator command.

Associated problem data
The SDWA contains the command and the main parameter area (RDPMPARM) for the module.

COMPID=SC1CZ, MODULE IEEVCONF FAILED, ABEND(xxx)

Component
Reconfiguration (5752-SC1CZ)

Issuing module
IEEVCONF

Explanation
An abend occurred during CONFIG (CF) operator command processing. A retry attempt is made to continue the next request. Processing for the current request ends.

Associated problem data
The SDWA contains the retry point index and main parameter area (RDPMPARM) for the module.
**COMPID=SC1CZ, MODULE IEEVRDPM FAILED, ABEND(XXX)**

**Component**
Reconfiguration (5752-SC1CZ)

**Issuing module**
IEEVRDPM

**Explanation**
An abend occurred while IEEVRDPM was trying to read a CONFIGxx parmlib member as a result of the DISPLAY M=CONFIG(xx) or CONFIG MEMBER(xx) operator command.

**Associated problem data**
The SDWA contains the main parameter area (RDPMPARM) for the module.

**COMPID=SC1CZ, MODULE IEEVRSCN FAILED, ABEND(XXX)**

**Component**
Reconfiguration (5752-SC1CZ)

**Issuing module**
IEEVRSCN

**Explanation**
An abend occurred while IEEVRSCN was trying to run a configuration display during a CONFIG (CF) ON/OFF operator command.

**Associated problem data**
The SDWA contains the command and the main parameter area (RDPMPARM) for the module.

**COMPID=5752-SCDMP, COMPON=ABDUMP, ISSUER=IEAVADMN, ERROR DURING ABDUMP MONITOR PROCESSING**

**Component**
Dumping Services - ABDUMP (5752-SCDMP)

**Issuing module**
IEAVADMN

**Explanation**
An error occurred during RTM processing of a SYSABEND, SYSMDUMP, SYSUDUMP, or SNAP dump request. The error occurred while ABDUMP processing was trying to mark tasks dispatchable or non-dispatchable and establish monitoring of ABDUMP I/O activity.

The areas dumped are LSQA, LPA, TRT, IO and SUBPOOL (239).

**Problem determination**
Obtain the module information (AMBLIST) for IEAVADMN (IEANUC0x) CSECT and check the LOGREC data set for other software error records related to IEAVADMN. Depending on the error, subpool 239 and LSQA are where ABDUMP internal data structures exist.
COMPID=5752-SCDMP, COMPON=ABDUMP, ISSUER=IEAVTABD, ABDUMP SERIALIZATION DEADLOCK AVOIDED FOR jobname

Component
Recovery termination manager (RTM) - ABDUMP (5752-SCDMP)

Issuing module
IEAVTABD

Explanation
During processing which would have resulted in a SYSABEND, SYSMDUMP or SYSUDUMP dump request, ABDUMP determined that it should not take the dump because a critical resource (QName: SYSZTIOT or SYSIEA01) is held by another task. The environment is such that the other task may never release the resource. ABDUMP generates this SVC dump instead for the stated jobname.

The SVC dump options used are RGN, LPA, TRT, GRSQ and SUBPOOLS 230 and 253.

Problem determination
To begin the analysis of the potential hang condition use the IPCS VERBEXIT GRSTRACE command against the dump. Search for the MAJOR names SYSZTIOT and SYSIEA01. The resource which ABDUMP detected the possible deadlock situation for will have multiple tasks (TCBs) listed for the same MINOR name.

The information needed to debug the user ABEND will also be available within the dump. However, note that the dump will contain sensitive installation data since fetch protected storage is included in an SVC dump.

COMPID=5752-SCDMP, ISSUER=IEAVTDSV (IN LINKLIB), FAILURE IN DUMPSRV ADDRESS SPACE

Component
Dumping services - SDUMP (5752-SCDMP)

Issuing module
IEAVTDSV

Explanation
An error occurred during processing in the job step task of the DUMPSRV address space. The problem may have occurred during initialization of the DUMPSRV address space or during post exit processing for an SVC dump or a SYSMDUMP ABEND dump.

The areas dumped are SUM, TRT, LSQA, subpools 231 and 0, and the GRSQ data, if an enqueue error occurred.

Associated problem data
The SDWA variable recording area (SDAVRA) contains:

- The ESTAE parameter area
- The DSVCB control block

Problem determination
Obtain the summary dump. Check the DSVCB to determine the state of the address space.
**COMPID=5752-SCDMP, ISSUER=IEECB910 - DISPLAY DUMP COMMAND PROCESSOR**

**Component**
Dumping services - SDUMP (5752-SCDMP)

**Issuing module**
IEECB910

**Explanation**
An error occurred during processing of the DISPLAY DUMP operator command. The areas dumped are SUM, TRT, LSQA, subpools 245 and 0, and a storage list containing the command input buffer. Module IEECB910 allows duplicate dumps to be suppressed by dump analysis and elimination (DAE) by specifying the VRADAE key.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains:
- The ESTAE parameter area
- The DISPLAY DUMP command from the CSCB

**Problem determination**
Obtain the summary dump. Check the DISPLAY DUMP command to determine the type of processing requested.

---

**COMPID=5752-SCDMP, ISSUER=IEECB926 - DUMPDS PROCESSOR**

**Component**
Dumping services - SDUMP (5752-SCDMP)

**Issuing module**
IEECB926

**Explanation**
An error occurred while processing the dump data sets for a DUMPDS operator command in the DUMPSRV address space. The error also may have occurred while initializing the dump data set queue (IHASDDSQ).

The areas dumped are SUM, TRT, LSQA, subpools 245 and 15, and a storage list containing the DSVCB, the DSPA (DUMPDS parameter area), and the DSPAOUT area pointed to by the DSPA.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains:
- The ESTAE parameter area
- The DSPA (IHADSPA)

**Problem determination**
Obtain the summary dump. Check the DSPA to determine which DUMPDS command was requested. Check the logrec entry for this dump. If the SDWARRL field contains ESTATASK, then the problem probably occurred during initialization of the DUMPSRV address space. If the field contains ESTADDS, then the error occurred during DUMPDS command processing.
COMPID=5752-SCDMP, ISSUER=IEECB923 - DUMPDS COMMAND FAILED

Component
Dumping services - SDUMP (5752-SCDMP)

Issuing module
IEECB923

Explanation
An error occurred during processing of a DUMPDS operator command. The areas dumped are SUM, TRT, LSQA, subpool 245, and a storage list containing the DSPA (DUMPDS parameter area). Module IEECB923 allows duplicate dumps to be suppressed by dump analysis and elimination (DAE) by specifying the VRADAE key.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains:
- The ESTAE parameter area
- The DSPA (IHADSPA)
- The command input buffer for the DUMPDS command.

Problem determination
Obtain the summary dump. Check the DSPA to determine which DUMPDS command was issued.

COMPID=SCRTM, COMPON=RTM2, ISSUER=IEAVTRTE, RECURSIVE ERROR REQUIRING JOBSTEP TERMINATION

Component
Recovery termination manager (RTM) (5752-SCRTM)

Issuing module
IEAVTRTE

Explanation
Recovery termination manager processing received an unexpected error condition that it could not recover from in a subtask of a jobstep task. The associated jobstep task will be terminated.

System programmer response
Examine the dump to determine what caused RTM to be recursively entered and correct that problem.

COMPID=5752-SC143, ISSUER=ADYPSTD, FAILURE IN THE DUMP ANALYSIS AND ELIMINATION POST DUMP EXIT

Component
Dump analysis and elimination (DAE) (5752-SC143)

Issuing module
ADYPSTD

Explanation
An abend occurred during ADYPSTD processing. A retry is performed when possible. All resources are cleaned up if the ESTAE routine percolates the error.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains the ESTAE
SVC Dump Titles

parameter list, the SDUMP exit parameter list (SDEPL), and the DAE predump/postdump parameter list (DSPD).

**COMPID=5752-SC143, ISSUER=ADYSETP, FAILURE IN DAE SET PROCESSING**

**Component**
Dump analysis and elimination (DAE) (5752-SC143)

**Issuing module**
ADYSETP

**Explanation**
An abend occurred during ADYSETP, ADYPARS, or ADYMSG processing. A retry is performed when possible. The GETMAIN area for the temporary transaction queue is freed if the ESTAE routine percolates the error.

ADYSETP allows duplicate dumps to be suppressed by DAE by specifying the VRADAE key.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains the ESTAE parameter list, the name of the parmlib member at the time of the error, and the DAE key to specify dump suppression.

**COMPID=5752-SC143, ISSUER=ADYTRNS, FAILURE IN THE TRANSACTION PROCESSOR FOR DAE**

**Component**
Dump analysis and elimination (DAE) (5752-SC143)

**Issuing module**
ADYTRNS

**Explanation**
An abend occurred during ADYTRNS, ADYIO, or ADYMSG processing. A retry is performed when possible. All resources are cleaned up if the ESTAE routine percolates the error.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains the ESTAE parameter list, and the first 200 bytes of the current DAE transaction.

**COMPON=ASE-ASECRE, COMPID=SCASE, ISSUER=ASCREE DOSDUMP**

**Component**
Address space services (5752-SCASE)

**Issuing module**
ASECRE

**Explanation**
An abend occurred during ASECRE processing. The module percolates the error.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains diagnostic data.
COMPON=ASM, COMPID=SC1CW, ISSUER=ILRCMP01

Component
Auxiliary storage management (ASM) (5752-SC1CW)

Issuing module
ILRCMP01

Explanation
An error occurred while ASM was processing I/O completion. This error is not a record-only abnormal end.

COMPON=ASM, COMPID=SC1CW, ISSUER=ILRDRV01

Component
Auxiliary storage management (ASM) (5752-SC1CW)

Issuing module
ILRDRV01

Explanation
An error occurred while ASM was performing I/O front-end processing.
The following are dumped as part of SUMLIST:
- ASMVT
- Any checkpointed IORB/IOSB/SRB/SRB strings
- Any checkpointed PCCWs

COMPON=ASM, COMPID=SC1CW, ISSUER=ILRFRS01

Component
Auxiliary storage management (ASM) (5752-SC1CW)

Issuing module
ILRFRS01

Explanation
An error occurred while ASM was freeing slots or swap sets.

COMPON=ASM, COMPID=SC1CW, ISSUER=ILRGOS01

Component
Auxiliary storage management (ASM) (5752-SC1CW)

Issuing module
ILRGOS01

Explanation
An error occurred in the ASM group operations starter for VIO. This error is not a record-only abnormal end.

COMPON=ASM, COMPID=SC1CW, ISSUER=ILRIOFRR

Component
Auxiliary storage management (ASM) (5752-SC1CW)

Issuing module
ILRIOFRR

Explanation
An error occurred in an ASM routine that uses ILRIOFRR as its recovery routine. This error is not a record-only abnormal end.
**SVC Dump Titles**

**COMPON=ASM, COMPID=SC1CW, ISSUER=ILRSRB01**

Component

Auxiliary storage management (ASM) (5752-SC1CW)

Issuing module

ILRSRB01

Explanation

An error occurred in the ASM SRB controller. This error is not a record-only abnormal end.

**COMPON=ASM, COMPID=SC1CW, ISSUER=ILRTMI01**

Component

Auxiliary storage management (ASM) (5752-SC1CW)

Issuing module

ILRTMI01

Explanation

An error occurred in one of the following ASM routines:

- Task mode initialization routine (ILRTMI00)
- Task mode processor routine (ILRTMRLG)

This error is not a record-only abnormal end.

**COMPON=AVM, COMPID=SCAVM, ISSUER=modname(s), descriptive name**

Component

Availability manager (AVM) (5752-SCAVM)

Explanation

Availability manager recovery routines intercepted an abend in the availability manager. Retry may or may not be attempted.

The areas dumped are all protect key 3 storage in CSA subpools 227, 231, and 241. If the private area of the failing routine's address space is accessible, the dump will contain key 3 storage from private area subpools 230 and 251.

**COMPON=BHI, COMPID=SC1C3, ISSUER=BHIMIREC, MODULE=mkkmmmmmmm+ooooooo, ABEND=S0xxx, REASON=yyyyyyyy**

Component

IOS Basic HyperSwap® (5752-SC1C3)

Issuing module

BHIMIREC

Explanation

An error occurred within a Basic HyperSwap module. The dump includes Basic HyperSwap control blocks and traces. In the dump title, the variables are:

```
mkkmmmmmmm
```

8 character module name which encountered the error.
COMPON=CMND-ESTAE, COMPID=SC1B8, ISSUER=IEECB860
FAILURE IN COMMAND xxxx

Component
Master scheduler commands (5752-SC1B8)

Issuing module
IEECB860

Explanation
An error occurred in the command processor while processing command xxxx; the command name can be up to 16 characters long.
The areas dumped are PSA, ALLNUC, LSQA, RGN, LPA, TRT, CSA, and SQA.

COMPON=CNZ, COMPID=SC1CK, ISSUER=CNZMIREC,
MODULE=mmmmmmmm+oooooooo, ABEND=S0xxx,
REASON=yyyyyyyy

Component
Console Services (5752-SC1CK)

Issuing module
CNZMIREC

Explanation
An error occurred within a Console Services module. The dump includes Console Services control blocks and traces. In the dump title, the variables are:

mmmmmmmm
8 character module name which encountered the error.

00000000
offset within the module where the error occurred. ???????? if it could not be determined.

xxx
system abend code

yyyyyyyy
reason code

COMPON=COMMTASK, COMPID=SC1CK, ISSUER=IEAVG621
ERROR DURING DOM SCANNER PROCESSING,
PLIST=xxxxxxxx

Component
Communications task (5752-SC1CK)
SVC Dump Titles

Issuing module
IEAVG621

Explanation
An error occurred during the scanner processing of DOM Delayed Issue queue. The areas dumped are SUM, PSA, and SQA. In the dump title, the variables are:

xxxxxxx
Address of the SUMLIST parameter list

COMPON=COMMTASK, COMPID=SC1CK, ISSUER=IEAVG710
ERROR DURING CPF PROCESSING, PLIST=xxxxxxxxx

Component
Communications task (5752-SC1CK)

Issuing module
IEAVG710

Explanation
An error occurred during MCS Command Prefix Facility (CPF) processing. The areas dumped are SUM and PSA. In the dump title, the variables are:

xxxxxxx
Address of the CPF parameter list

COMPON=COMMTASK, COMPID=SC1CK, ISSUER=IEAVM605,
SYSTEM CONSOLE OUTPUT TASK RECOVERY DUMP

Component
Communications task (5752-SC1CK)

Issuing module
IEAVM605

Explanation
An error occurred during System Console output processing. The areas dumped are CSA, NUC, RGN, SQA, SUM, and TRT.

COMPON=COMMTASK, COMPID=SC1CK, ISSUER=IEAVM613
CTAS DELAYED SVC PROCESSING ERROR, PLIST=xxxxxxxxx

Component
Communications task (5752-SC1CK)

Issuing module
IEAVM613

Explanation
An error occurred during Delayed SVC processing. The areas dumped are SUM and PSA. In the dump title, the variables are:

xxxxxxx
Address of the SUMLIST parameter list
COMPON=COMMTASK, COMPID=SC1CK, ISSUER=IEAVMFRR-xxxxx, COMM TASK DUMP

Component
Communications task (5752-SC1CK)

Issuing module
IEAVMFRD

Explanation
An error occurred in Communications task while the task was running in a non-cross memory mode environment. The areas dumped are CSA, RGN, SQA, TRT, SUM, GRSQ, NUC, COUPLE, and ALLPSA. The dump contains the Console's address spaces and data spaces when appropriate. In the dump title, the variables are:

xxxxx
Type of recovery (ESTAE, ESTAEX, or FRR)

COMPON=COMMTASK, COMPID=SC1CK, ISSUER=IEAVN700, FAILURE IN COMM TASK ADDRESS SPACE CREATE ROUTINE

Component
Communications task (5752-SC1CK)

Issuing module
IEAVN700

Explanation
An error occurred while IEAVN700 was creating the communications task address space. The areas dumped are ALLPSA, RGN, LSQA, SQA, and SUM. SUM contains the trace table, registers, and storage near the register values at the time of the error.

COMPON=COMMTASK, COMPID=SC1CK, ISSUER=IEAVN701, FAILURE IN COMM TASK ADDRESS SPACE INITIALIZATION

Component
Communications task (5752-SC1CK)

Issuing module
IEAVN701

Explanation
An error occurred while IEAVN701 was initializing the communications task address space. The areas dumped are ALLPSA, NUC, RGN, LSQA, SQA, CSA, TRT, and SUM. SUM contains the trace table, registers, and storage near the register values at the time of the error.

COMPON=COMMTASK, COMPID=SC1CK, ISSUER=IEAVR601, OPSSI RECOVERY DUMP

Component
Communications task (5752-SC1CK)

Issuing module
IEAVR601

Explanation
An error occurred during sysplex recovery processing. The areas dumped
are COUPLE, NUC, CSA, RGN, SUM, SQA, TRT, GRSQ, and ALLPSA. The dump contains the address space of where IEAVR601 was running.

**COMPON=COMMTASK, COMPID=SC1CK, ISSUER=IEAVSTAA, FAILURE IN COMMUNICATIONS TASK**

**Component**
Communications task (5752-SC1CK)

**Issuing module**
IEAVSTAA

**Explanation**
IEAVSTAA is entered when both:

- An error occurred during communications task processing
- Recovery processing by ESTAE or FRR routines in the communications task was unsuccessful

The areas dumped are ALLNUC, SUM, LSQA, RGN, LPA, SWA, ALLPSA, and TRT.

**COMPON=COMMTASK, COMPID=SC1CK, ISSUER=IEEBCB920, ERROR DURING CMDAUTH PROCESSING, PLIST=xxxxxxxx**

**Component**
Communications task (5752-SC1CK)

**Issuing module**
IEEBCB920

**Explanation**
An error occurred during CMDAUTH processing. The areas dumped are SUM and PSA. In the dump title, the variables are:

- xxxxxxxx
  Address of the SUMLIST parameter list

**COMPON=COMMTASK=SC1CK, ABEND=xxx, ISSUER=IEAVMFRR-yyyyy, MODULE=zzzzzzzz, hint**

**Component**
Communications task (5752-SC1CK)

**Issuing module**
IEAVMFRR

**Explanation**
An error occurred in Communications task while IEAVMFRR was running in a cross memory mode environment. The areas dumped are CSA, RGN, SQA, TRT, SUM, GRSQ, NUC, COUPLE, and ALLPSA. The dump contains the Console’s address spaces and data spaces when appropriate.

In the dump title, the variables are:

- xxx
  ABEND code

- yyyyy
  Type of recovery (ESTAE, ESTAEX, or FRR)
zzzzzzzz

Name of the module that was in control when the error occurred

hint

Additional information about the error

**COMPON=COMPONENT TRACE, COMPID=SCTRC, ISSUER=ITTRREC**

Component
Component trace (5752-SCTRC)

Issuing module
ITTRREC

Explanation
An abend occurred during component trace processing. The areas dumped are LSQA, SQA, and TRT.

**COMPON=CONSOLE SERVICES COMPID=SC1CK, ISSUER=IEEVDCCR**

Component
Communications task (5752-SC1CK)

Issuing module
IEEVDCCR

Explanation
An error occurred during Disabled Console communications processing. The areas dumped are ALLPSA, SQA, SUM, and IO. The dump contains the address space of where IEEVDCCR was running.

**COMPON=CONSOLE=SC1CK, ABEND=xxx, ISSUER=IEAVMFRR, FAILURE IN RECOVERY EXIT**

Component
Communications task (5752-SC1CK)

Issuing module
IEAVMFRR

Explanation
An error occurred during Console's common recovery processing. The areas dumped are NUC, CSA, RGN, SQA, SWA, TRT, SUM, and GRSQ. The dump contains the address space of where IEAVMFRR was running.

In the dump title, the variables are:

***

ABEND code

**COMPON=DDR, COMPID=BB1CS, ISSUER=IGFDE1**

Component
Dynamic device reconfiguration (DDR) (5752-BB1CS)

Issuing module
IGFDE1
**Explanation**
An error occurred during DDR processing. The areas dumped are SQA, PSA, and TRT. Generally, register 10 points to the DDRCOM control block (mapped by IHADDR).

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains the DERPLIST and exit data, if any.

**COMPON=DEVSERV PATHS COMMAND, ISSUER=IGUDSP02 or IGUDSP03 COMPID=28463**

**Component**
DEVSERV (5665-28463)

**Issuing module**
IGUDSP02 or IGUDSP03

**Explanation**
During DEVSERV command processing, either an abend occurred or a dump was requested. The areas dumped are PSA, NUC, RGN, LPA, TRT, SQA, and SUM.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains diagnostic information.

**COMPON=DIDOCS-D U,,ALLOC PROC, COMPID=SC1C4, ISSUER=IEE24110-DUESTAE**

**Component**
DIDOCS (5752-SC1C4)

**Issuing module**
IEE24110 - ESTAE

**Explanation**
An error occurred during processing of the DISPLAY U,ALLOC operator command. Any storage areas obtained are freed. The ESTAE routine percolates to IEECB860. For both the master and the allocation address space, the areas dumped are LPA, TRT, and SUM.

**COMPON=EXCP-STORAGE MANAGER, COMPID=SC1C6, ISSUER=IECVEXSM, IECVSMFR, error**

**Component**
EXCP (5752-SC1C6)

**Issuing module**
IECVEXSM

**Explanation**
An error occurred while the EXCP storage manager was processing a caller's request. In the dump title, error identifies the type of error as:
- GETMAIN FAILURE
- PROGRAM ERROR
- ABEND=C0D

The areas dumped are NUC, SQA, SUM, and TRT.
Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMPON=GRS-COMMAND-PROC, COMPID=SCSDS, ISSUER=ISGBCEST**

Component
Global resource serialization (5752-SCSDS)

Issuing module
ISGBCEST

Explanation
An error occurred while a ring processing module was processing. The dump includes global resource serialization control blocks and trace table.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMPON=GRS-COMMAND-PROC, COMPID=SCSDS, ISSUER=ISGCCESTA**

Component
Global resource serialization (5752-SCSDS)

Issuing module
ISGCCESTA

Explanation
An error occurred in a command processing module in the global resource serialization address space. The dump includes global resource serialization control blocks and trace table.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMPON=GRS-COMMAND-PROC, COMPID=SCSDS, ISSUER=ISGCPEST**

Component
Global resource serialization (5752-SCSDS)

Issuing module
ISGCPEST

Explanation
An error occurred in a resource name list (RNL) change module in the Master address space.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMPON=GRS-COMMAND-PROC, COMPID=SCSDS, ISSUER=ISGCREST**

Component
Global resource serialization (5752-SCSDS)

Issuing module
ISGCREST
SVC Dump Titles

Explaination
An error occurred in a RNL change module in the global resource serialization address space. The dump includes global resource serialization control blocks and trace table.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=GRS-COMMANDS, COMPID=SCSDS, ISSUER=ISGCRET0, POST OF GVTCECB FAILED

Component
Global resource serialization (5752-SCSDS)

Issuing module
ISGCRET0

Explanation
An error occurred while a global resource serialization module was attempting to cross memory post the command ECB being used by ISGCMDR. ISGCMDR was waiting for a command request or a message request.

The areas dumped are PSA, SQA, and LSQA of the global resource serialization address space, and the GVT.

COMPON=GRS-COMMANDS, COMPID=SCSDS, ISSUER=ISGCRET1, POST OF ECB OF COMMAND REQUESTOR FAILED

Component
Global resource serialization (5752-SCSDS)

Issuing module
ISGCRET1

Explanation
An error occurred while ISGCMDR (command router) was attempting to cross memory post the ECB. The ECB was being used by a command requester to wait for a command request to be processed by ISGCMDR.

The areas dumped are PSA, SQA, and LSQA of the command requester's address space, and the command requester's ECB.

Problem determination
Either the ECB address provided on the cross memory post is in error, or the RB address in the ECB is in error.

COMPON=GRS-CTC-DRIVER, COMPID=SCSDS, ISSUER=ISGJRCV

Component
Global resource serialization (5752-SCSDS)

Issuing module
ISGJRCV

Explanation
An error occurred while ISGJDI (CTC driver DIE) was processing. The FRR ISGJRCV (for ISGJDI) uses a branch entry to request the dump.
Associated problem data
The SDWA variable recording area (SDWAVRA) contains additional diagnostic information.

COMPON=GRS-CTC DRIVER ENF EXITS, COMPID=SCSDS, ISSUER=ISGJENF0

Component
Global resource serialization (5752-SCSDS)

Issuing module
ISGJENF0 - ESTAE

Explanation
An error occurred while the event notification facility exits routine (ISGJENF0) was processing. The ESTAE routine ISGJENFR (in ISGJENF0) requests an SVC dump.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains additional diagnostic information.

COMPON=GRS - CTRACE START/STOP, ISSUER=ISGTSSMF, COMPID=SCSDS

Component
Global resource serialization (5752-SCSDS)

Issuing module
ISGTSSMF

Explanation
An error occurred while stopping global resource serialization tracing. The dump includes global resource serialization control blocks and trace table.

COMPON=GRS - CTRACE START/STOP, ISSUER=ISGTSSMT, COMPID=SCSDS

Component
Global resource serialization (5752-SCSDS)

Issuing module
ISGTSSMT

Explanation
An error occurred while processing in the global resource serialization CTRACE start/stop exit. The dump includes global resource serialization control blocks and trace table.

COMPON=GRS-QUEUE SCANNING SERVICES, COMPID=SCSDS, ISSUER=ISGQSCNR

Component
Global resource serialization (5752-SCSDS)

Issuing module
ISGQSCNR - FRR
An error occurred while the queue scanning service (ISGQSCAN) was processing. The FRR routine ISGQSCNR requests an SVC dump.

**COMPON=GRS RING/COMMAND, COMPID=SCSDS, ISSUER=ISGBERCV**

**Component**
Global resource serialization (5752-SCSDS)

**Issuing module**
ISGBERCV - ESTAE

**Explanation**
An error occurred while the ring processing command interface routine (ISGBCI) was processing. ESTAE routine ISGBERCV requests an SVC dump. If the basic control blocks are valid, a summary dump is requested that includes the GVT, SQA, and the private area for ring processing. An asynchronous dump of the current address space is always included in the dump request.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains the following:
- Address of ISGREPL (input parameter list to ISGBERCV)
- The ISGREPL
- Address of ISGRSC (input parameter list to ISGBCI)

**COMPON=GRS-RING-PROCESSING, COMPID=SCSDS, ISSUER=ISGBERCV**

**Component**
Global resource serialization (5752-SCSDS)

**Issuing module**
ISGBERCV - ESTAE

**Explanation**
An error occurred while a ring processing routine was processing. ESTAE routine ISGBERCV requests an SVC dump. If the basic control blocks are valid, a summary dump is requested that includes the GVT, SQA, and the private area for ring processing. An asynchronous dump of the current address space is always included in the dump request.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains additional diagnostic information.

**COMPON=GRS-RING-PROC, COMPID=SCSDS, ISSUER=ISGBFRCV**

**Component**
Global resource serialization (5752-SCSDS)

**Issuing module**
ISGBFRCV - FRR

**Explanation**
An error occurred while the RSA send/receive routines (ISGBSR or ISGBSM) were processing. The FRR ISGBFRCV uses a branch entry to
request the SVC dump. If the basic control blocks are valid, a summary
dump is requested that includes the GVT, SQA, and the private area for
ring processing. An asynchronous dump of the current address space is
always included in the dump request.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains additional
diagnostic information.

COMPON=GRS-RNLC-PROC, COMPID=SCSDS,
ISSUER=ISGGDSYR

Component
Global resource serialization (5752-SCSDS)

Issuing module
ISGGDSYR

Explanation
An error occurred in a RNL change module in the global resource
serialization address space. The dump includes global resource serialization
control blocks.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=GRS-RNLC-PROC, COMPID=SCSDS,
ISSUER=ISGRNRLUF

Component
Global resource serialization (5752-SCSDS)

Issuing module
ISGRNRLUF

Explanation
An error occurred in RNL change processing. The dump includes global
resource serialization control blocks.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=GRS-SIG-MONITOR, COMPID=SCSDS,
ISSUER=ISGXFRRX

Component
Global resource serialization (5752-SCSDS)

Issuing module
ISGXFRRX

Explanation
An error occurred in a global resource serialization XCF exit. The dump
includes global resource serialization control blocks.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.
SVC Dump Titles

**COMPON=GRS, COMPID=SCSDS, ISSUER=ISGDSNRV**

**Component**
- Global resource serialization (5752-SCSDS)

**Issuing module**
- ISGDSNAP

**Explanation**
- An error occurred while the snap dump exit (ISGDSNAP) was processing. ESTAE routine ISGDSNRV (in ISGDSNAP) requests an SVC dump.

**COMPON=GRS, COMPID=SCSDS, ISSUER=ISGGFRR0**

**Component**
- Global resource serialization (5752-SCSDS)

**Issuing module**
- ISGGFRR0 - FRR

**Explanation**
- An error occurred while processing requests. The FRR ISGGFRR0 uses the branch entry to SVC dump. A summary dump is requested that includes the GVT and GVTX control blocks. An asynchronous dump of the current address space is also included in the dump request.

**COMPON=GRS, COMPID=SCSDS, ISSUER=ISGGQSRV**

**Component**
- Global resource serialization (5752-SCSDS)

**Issuing module**
- ISGGQSRV

**Explanation**
- An error occurred in Queue Merge processing. The dump includes global resource serialization control blocks and trace table.

**Associated problem data**
- The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMPON=GRS, COMPID=SCSDS, ISSUER=ISGGQWBR**

**Component**
- Global resource serialization (5752-SCSDS)

**Issuing module**
- ISGGQWBR

**Explanation**
- An error occurred in global request processing. The dump includes global resource serialization control blocks and trace table.

**Associated problem data**
- The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMPON=GRS, COMPID=SCSDS, ISSUER=ISGNGRSP**

**Component**
- Global resource serialization (5752-SCSDS)
SVC Dump Titles

Issuing module
ISGCRCV

Explanation
An error occurred in global resource serialization initialization processing.
The dump includes global resource serialization control blocks and trace table.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=GRS, COMPID=SCSDS, ISSUER=ISGNWMSI

Component
Global resource serialization (5752-SCSDS)

Issuing module
ISGCRCV

Explanation
An error occurred in global resource serialization initialization processing.
The dump includes global resource serialization control blocks and trace table.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=GRS, COMPID=SCSDS, ISSUER=ISGSMIFR

Component
Global resource serialization (5752-SCSDS)

Issuing module
ISGSMI

Explanation
One of the following occurred:
• A program check while ISGSMI, ISGSAI, or ISGSDAL was processing
• An abend while ISGSAI was processing.

The FRR routine ISGSMIFR (in ISGSMI) uses a branch entry to queue the dump again. The areas dumped are PSA, SQA, and GRSQ. The dump also contains a summary dump.

COMPON=GRS, COMPID=SCSDS, ISSUER=ISGREC, MODULE=mmmmmmmmm, EP=eeeee, ABEND=S0xxx, REASON=YYYYYYYYY

Component
Global resource serialization (5752-SCSDS)

Issuing module
ISGREC

Explanation
An error occurred a global resource serialization module. The dump includes global resource serialization control blocks and trace tables. In the dump title, the variables are:

8 character module name which encountered the error
SVC Dump Titles

entry point name with the module

system abend code

reason code, if applicable

Associated problem data
The SDWA variable recording area (SDAVRA) contains additional diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IECVPST, PSTFRRTN

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IECVPST

Explanation
The IOS post status FRR received control because of a program check. The error might have occurred in IECVPST or in an exit (such as an ABEND or PCI). The areas dumped are ALLPSA, SQA, LSQA, SUMDUMP, TRT, and NUC.

Associated problem data
The SDWA variable recording area (SDAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSCONSL-MISSING INTERRUPT HANDLER ROUTINE

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSCONSL

Explanation
An error occurred while IOS was processing one of the following:
- The SETIOS MIH operator command
- The SET IOS=xx operator command
- The DISPLAY IOS,MIH operator command

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSCPARZ-MISSING INTERRUPT HANDLER ROUTINE

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSCPARZ

Explanation
An error occurred while IOS was processing one of the following:
- An IECIOSxx parmlib member at NIP time
SVC Dump Titles

- The SETIOS MIH operator command
- The SET IOS=xx operator command
- The DISPLAY IOS,MIH operator command

**COMPON=IOS, COMPID=SC1C3, ISSUER=IOSPURGA, IOSPGRVR**

**Component**

Input/output supervisor (IOS) (5752-SC1C3)

**Issuing module**

IOSPURGA

**Explanation**

An error occurred in purge or prevention mainline processing. Recovery routine IOSPGRVR requests an SVC dump. The areas dumped are dynamic work area for purge, PSA, SQA, TRT, and SUMDUMP.

**Associated problem data**

The SDWA variable recording area (SDWAVRA) contains UCB information, if the UCB lock was held at the time of error.

**COMPON=IOS, COMPID=SC1C3, ISSUER=IOSRDBOX, BOXFRR**

**Component**

Input/output supervisor (IOS) (5752-SC1C3)

**Issuing module**

IOSRDBOX

**Explanation**

An error occurred while a device was being boxed. The areas dumped are SQA, PSA, TRT, and SUM.

**Associated problem data**

The SDWA variable recording area (SDWAVRA) contains diagnostic information.

**COMPON=IOS, COMPID=SC1C3, ISSUER=IOSRHDET**

**Component**

Input/output supervisor (IOS) (5752-SC1C3)

**Issuing module**

IOSRHDET

**Explanation**

An error occurred while IOS was checking for a hot I/O condition. Routine HDETFRR issues requests an SVC dump.

**Associated problem data**

The SDWA variable recording area (SDWAVRA) contains diagnostic information.

**COMPON=IOS, COMPID=SC1C3, ISSUER=IOSRMIHP, MIHPFRR**

**Component**

Input/output supervisor (IOS) (5752-SC1C3)
SVC Dump Titles

**Issuing module**
IOSRMIIHP

**Explanation**
An error occurred during processing in the missing interruption handler. Routine MIHPFRR issues requests an SVC dump.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains diagnostic information.

**COMPON=IOS, COMPID=SC1C3, ISSUER=IOSRMIIHR, MIHRFRR**

**Component**
Input/output supervisor (IOS) (5752-SC1C3)

**Issuing module**
IOSRMIIHR

**Explanation**
An error occurred during processing in the missing interruption handler. Routine MIHRFRR issues requests an SVC dump.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains diagnostic information.

**COMPON=IOS, COMPID=SC1C3, ISSUER=IOSRMIIHI-MISSING INTERRUPT HANDLER ROUTINE**

**Component**
Input/output supervisor (IOS) (5752-SC1C3)

**Issuing module**
IOSRMIIHI

**Explanation**
An error occurred during initialization or processing in one of the following missing interruption handler modules. The ESTAE MIHISTAE routine requests an SVC dump.

**Associated problem data**
The SDWA field SDWAMODN contains:
- IOSRMIIHT if the dump was written during nucleus initialization (NIP)
- IOSCPARZ if the dump was written during processing of a SETIOS or SET IOS=xx operator command

**COMPON=IOS, COMPID=SC1C3, ISSUER=IOSRMIIHT-MISSING INTERRUPT HANDLER ROUTINE**

**Component**
Input/output supervisor (IOS) (5752-SC1C3)

**Issuing module**
IOSRMIIHT
SVC Dump Titles

Explanation
An error occurred during initialization or processing in one of the following missing interruption handler modules. The identified ESTAE routine requests an SVC dump.

MIH Module
ESTAE Routine

IOSRMIHL
MIHLESTA

IOSRMIHM
MIHMESTA

IOSRMIHT
MIHTESTA

Associated problem data
The SDWA names the MIH module in the SDWAMODN field and the ESTAE routine in the SDWARRL field.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVHSCH, HSCHFRR

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSVHSCH

Explanation
An error occurred during HSCH (halt) or CSCH (clear) subchannel processing. The areas dumped are SQA, PSA, TRT, and SUM.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVIPID, VIPIDFRR

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSVIPID

Explanation
An error occurred while IOS was processing a caller’s request to obtain or release an I/O prevention identifier. The areas dumped are NUC, SQA, ALLPSA, TRT, and SUMDUMP.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVIRBA, IRBAFRR

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSVIRBA
SVC Dump Titles

**Explanation**
An error occurred while subchannel status, probably signaled by an I/O interruption, was being processed. Routine IRBAFRR requests an SVC dump.

The address space dumped is the address space associated with the I/O request being processed. This address space might not match the current ASID in the associated logrec entry.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains diagnostic information.

**COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVIRBD, IRBDFRR**

**Component**
Input/output supervisor (IOS) (5752-SC1C3)

**Issuing module**
IOSVIRBD

**Explanation**
An error occurred during IRB device status processing. The areas dumped are NUC, SQA, ALLPSA, TRT, and SUMDUMP.

The address space dumped is the address space associated with the I/O request being processed. This address space might not match the current ASID in the associated logrec entry.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains diagnostic information.

**COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVIRBH, IRBHFR**

**Component**
Input/output supervisor (IOS) (5752-SC1C3)

**Issuing module**
IOSVIRBH

**Explanation**
An error occurred during IRB halt (HSCH) or clear (CSCH) status processing. The areas dumped are NUC, SQA, ALLPSA, TRT, and SUMDUMP.

The address space dumped is the address space associated with the I/O request being processed. This address space might not match the current ASID in the associated logrec entry.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains diagnostic information.

**COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVIRBN, IRBNFRR**

**Component**
Input/output supervisor (IOS) (5752-SC1C3)

**Issuing module**
IOSVIRBN
Explanation
An error occurred during IRB N-bit or deferred CC3 processing. The areas dumped are NUC, SQA, ALLPSA, TRT, and SUMDUMP.

The address space dumped is the address space associated with the I/O request being processed. This address space might not match the current ASID in the associated logrec entry.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVIRBU, UNSOLFRR

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSVIRBU

Explanation
An error occurred while unsolicited subchannel status, probably signaled by an I/O interruption, was being processed. Routine UNSOLFRR requests an SVC dump.

The address space dumped is the address space associated with the I/O request being processed. This address space might not match the current ASID in the associated logrec entry.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVLEVL

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSVLEVL

Explanation
An error occurred while IOS was managing the serialization (LEVEL) for a UCB. Routine LVLFRR requests an SVC dump.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVMSCH, IOSMSCHF, ERROR DURING MODIFY SUBCHANNEL INIT

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSVMSCH
**Explanation**
An error occurred during modify subchannel (MSCH) initialization. The areas dumped are SQA, PSA, TRT, and SUM.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains diagnostic information.

**COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVMSCQ, IOSMSCQF**

**Component**
Input/output supervisor (IOS) (5752-SC1C3)

**Issuing module**
IOSVMSCQ

**Explanation**
An error occurred during modify subchannel (MSCH) queue processing. The areas dumped are SQA, PSA, TRT, and SUM.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains diagnostic information.

**COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVPRVT, VPRVTFRFR**

**Component**
Input/output supervisor (IOS) (5752-SC1C3)

**Issuing module**
IOSVPRVT

**Explanation**
An error occurred while IOS was processing a caller's request to perform I/O prevention. The areas dumped are NUC, SQA, ALLPSA, TRT, and SUMDUMP.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains diagnostic information.

**COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVRSUM-RESUME SERVICE ROUTINE**

**Component**
Input/output supervisor (IOS) (5752-SC1C3)

**Issuing module**
IOSVRSUM

**Explanation**
An error occurred while the resume service routine (IOSVRSUM) was processing. Routine RSUMFRR requests an SVC dump.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains diagnostic information, including the UCB and IOSB.
COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVSLIH, SLIHFRR

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSVSLIH

Explanation
An error occurred while the IOS second level interruption handler (SLIH) was processing. The areas dumped are SQA, PSA, TRT, and SUM.
The address space dumped is the address space associated with the I/O request being processed. This address space might not match the current ASID in the associated logrec entry.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVSSCH, IOSSSCHF

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSVSSCH

Explanation
An error occurred during start subchannel (SSCH) processing. The areas dumped are SQA, PSA, TRT, and SUM.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVSSCQ, SSCQFRR

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSVSSCQ

Explanation
An error occurred while routine IOSVSSCQ was processing. Routine SSCQFRR requests an SVC dump.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVSTSC, STSCFRR

Component
Input/output supervisor (IOS) (5752-SC1C3)
SVC Dump Titles

Issuing module
IOSVSTSC

Explanation
An error occurred during IOSVSTSC (IOS store subchannel routine) processing. FRR routine STSCFRR requests an SVC dump. The areas dumped are SQA, ALLPSA, SUMDUMP, and TRT.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic information, including the 24-byte FRR work area, and IOSB and UCB fields.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVSTSQ, STSQFRR

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSVSTSQ

Explanation
An error occurred during IOSVSTSQ (STSCH queue routine) processing. FRR routine STSQFRR requests an SVC dump. The areas dumped are SQA, ALLPSA, SUMDUMP, and TRT.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic information, including the 24-byte FRR work area, and the IOSB and UCB.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVSWAP, SWAPFRR

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSVSWAP

Explanation
An error occurred while IOS was doing a swap between UCBs. Routine SWAPFRR requests an SVC dump.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic information, including the from-UCB and to-UCB data.

COMPON=IOS, COMPID=SC1C3, ISSUER=IOSVVARY

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSVVARY

Explanation
An error occurred while a path to a device was being varied online or offline. Routine VARYFRR requests an SVC dump.
Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic information.

COMPON=IOS-DASD VOLUME VERIFICATION, COMPID=SC1C3, ISSUER=IOSVDAVV

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSVDAVV

Explanation
An error occurred while IOS was attempting to verify the volume label for a DASD device. Routine DAVVFRR requests an SVC dump.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-DYNAMIC PATHING, COMPID=SC1C3, ISSUER=IECVDPTH

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IECVDPTH

Explanation
An error occurred during IECVDPTH (dynamic path) processing. ESTAE routine DPTHEST requests an SVC dump. The areas dumped are SQA, TRT, and SUM.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-DYNAMIC PATHING, COMPID=SC1C3, ISSUER=IECVDPTH

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IECVDPTH

Explanation
An error occurred during IECVDPTH (dynamic path) processing. FRR routine DPTHFRR requests an SVC dump. The areas dumped are SQA, TRT, and SUM.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-DYNAMIC PATHING DRIVER, COMPID=SC1C3, ISSUER=IOSVDPDR

Component
Input/output supervisor (IOS) (5752-SC1C3)
SVC Dump Titles

Issuing module
IOSVDPR

Explanation
An error occurred during IOSVDPR (dynamic path driver routine) processing. FRR routine DPDRFRR requests an SVC dump. The areas dumped are SQA, TRT, and SUM.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-DYNAMIC PATHING INIT, COMPID=SC1C3, ISSUER=IECVIOSI

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IECVIOSI

Explanation
An error occurred during IECVIOSI (IOS initialization) processing. ESTAE routine IOSIRECV requests an SVC dump. The module work area is dumped.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-IOQ STORAGE MANAGER, COMPID=SC1C3, ISSUER=IOSVIOQM, IOSVQFRR, error

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSVIOQM

Explanation
An error occurred while the IOQ storage manager was processing a caller's request. In the dump title, error identifies the type of error as:

- GETMAIN FAILURE
- PROGRAM ERROR
- ABEND=C0D

The areas dumped are NUC, SQA, SUM, and TRT.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-IOS CLEAR DEVICE SUBCHANNEL ROUTINE, COMPID=SC1C3, ISSUER=IOSRCDEV, CDEVFRR

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSRCDEV
Explanation
An error occurred while IOS was attempting to clear a subchannel. FRR routine CDEVFRR requests an SVC dump.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMPON=IOS-IOS FORCE DEVICE ROUTINE,**
**COMPID=SC1C3, ISSUER=IOSRFDEV, FDEVFRR**

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSRFDEV

Explanation
An error occurred while IOS was attempting to force a device offline. FRR routine FDEVFRR requests an SVC dump.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMPON=IOS-IOS STORAGE MANAGER, COMPID=SC1C3,**
**ISSUER=IOSVSMGR, IOSVSMFR, error**

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSVSMGR

Explanation
An error (GETMAIN FAILURE, PROGRAM ERROR, or ABEND=C0D) occurred while the IOS storage manager was processing a caller's request. The areas dumped are NUC, SQA, TRT, and SUMDUMP.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMPON=IOS-PATH VALIDATION, COMPID=SC1C3,**
**ISSUER=IECVIOPM, PMSKESTE**

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IECVIOPM

Explanation
An error occurred during IECVIOPM (I/O path mask update routine) processing. The areas dumped are NUC, SQA, LSQA, TRT, and PSA.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.
**SVC Dump Titles**

**COMPON=IOS-RESTART SUPPORT, COMPID=SC1C3, ISSUER=IOSVRSTS, RSTSFRR**

- **Component**
  - Input/output supervisor (IOS) (5752-SC1C3)

- **Issuing module**
  - IOSVRSTS

- **Explanation**
  - An error occurred while IOS was processing a restart request. FRR routine RSTSFRR requests an SVC dump.

- **Associated problem data**
  - The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMPON=IOS (SC1C3), STAND-ALONE I/O RTN, ISSUER=IOSRSAIO(SAIOFRR)**

- **Component**
  - Input/output supervisor (IOS) (5752-SC1C3)

- **Issuing module**
  - IOSRSAIO

- **Explanation**
  - An error occurred while IOS was attempting to initiate a stand-alone I/O operation. FRR routine SAIOFRR requests an SVC dump.

- **Associated problem data**
  - The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMPON=IOS-SHARED UP SERVICE, COMPID=SC1C3, ISSUER=IOSVSHUP**

- **Component**
  - Input/output supervisor (IOS) (5752-SC1C3)

- **Issuing module**
  - IOSVSHUP

- **Explanation**
  - An error occurred while IOSVSHUP was processing. The FRR routine SHUPFRR requests an SVC dump. The areas dumped are SQA, TRT, and SUM.

- **Associated problem data**
  - The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**COMPON=IOS (SC1C3), STAND-ALONE I/O RTN, ISSUER=IOSRSAIO(SAIOFRR)**

- **Component**
  - Input/output supervisor (IOS) (5752-SC1C3)

- **Issuing module**
  - IOSRSAIO
Explanation
An error occurred while IOS was attempting to set or reset the stand-alone I/O interruption subclass for a subchannel. FRR routine SAIOFRR requests an SVC dump.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-SIMULATED INTERRUPT, COMPID=SC1C3, ISSUER=IECVGENA

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IECVGENA

Explanation
An error occurred while the IECVGENA module was simulating an interruption. FRR routine GENAFRR requests an SVC dump.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-STORE/MODIFY SUBCHANNEL CANCEL ROUTINE, COMPID=SCIC3, ISSUER=IOSVCNXL

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSVCNXL

Explanation
An error occurred while IOS was attempting to cancel a store subchannel or modify subchannel request.

COMPON=IOS-SUBCHANNEL LOGOUT, COMPID=SC1C3, ISSUER=IOSRSLH, SLHFRR

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSRSLH

Explanation
An error occurred while IOS was processing a subchannel log out. FRR routine SLHFRR requests an SVC dump.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-SUBCHANNEL REDRIVE, COMPID=SC1C3, ISSUER=IOSVSCHR

Component
Input/output supervisor (IOS) (5752-SC1C3)
SVC Dump Titles

Issuing module
IOSVSCHR

Explanation
An error occurred during subchannel redrive processing. The areas dumped are SQA, PSA, TRT, and SUM.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-UCBFLG FUNCTION, COMPID=SC1C3, ISSUER=IECVGENA

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IECVGENA

Explanation
An error occurred while IECVGENA was modifying a flag in the UCB. FRR routine GENAFRR requests an SVC dump.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-UNCONDITIONAL RESERVE, COMPID=SC1C3, ISSUER=IOSVURDT

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSVURDT

Explanation
An error occurred while IOSVURDT, IECVDURP, or IOSVURSV (unconditional reserve back-end routines) was processing. The areas dumped are SQA, TRT, and SUM.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=IOS-UNCONDITIONAL RESERVE, COMPID=SC1C3, ISSUER=IOSVURVL

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSVURVL

Explanation
An error occurred during IOSVURVL (unconditional reserve front-end routine) processing. The areas dumped are SQA, TRT, and SUM.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.
COMPON=JES2-SSI, COMPID=SC1BH, ISSUER=HASCLINK
RECOVERY

Component
JES2 - Subsystem interface (5752-SC1BH)

Issuing module
HASCLINK - ESTAE

Explanation
An abend occurred during a subsystem interface (SSI) request to the JES2 subsystem.

The task attempts recovery. If the task cannot percolate the error, the task returns to the SSI caller with a return code of 16 in register 15. The SSI caller assumes that the JES2 subsystem did not satisfy the SSI request.

The dump is written for the address space that issued the SSI request. The areas dumped are ALLPSA, CSA, LPA, LSQA, and RGN. The component section of the dump contains:
- The name of the SSI routine that abended
- The associated JES2 module name
- The offset of the failing instruction into the JES2 module

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic information. See [z/OS MVS System Codes] for an explanation of the abend code.

COMPON=JES3 I/O TERMINATION ROUTINE COMPID=SC1BA,
ISSUER=IATDMFR(FRXDSRTN)

Component
JES3 (5752-SC1BA)

Issuing module
IATDMFR

Explanation
An abend occurred in module IATDMIT when entered at entry point IATDMITT. The module was attempting to access the JCT data space in order to put data in the data space or to retrieve data from the data space.

Associated problem data
The abend and dump are accompanied by message IAT1804. The SDWA variable recording area (SDWAVRA) contains the IAT1804 message.

Diagnostic information
[/z/OS JES3 Diagnosis]

COMPON=JES3 JCT READ SRB ROUTINE COMPID=SC1BA,
ISSUER=IATGRJX(JXSRBFRR)

Component
JES3 (5752-SC1BA)

Issuing module
IATGRJX
Explanation
An abend occurred in module IATGRJX when entered at entry point JXRFDSRB. The module was attempting to copy a JCT that is not in real storage from the JCT data space to a JSAM buffer.

Diagnostic information

COMPON=JES3 SUBSYS COMMUNIC, COMPID=SC1BA, ISSUER=IATSSRE(SSREFRR)

Component
JES3 (5752-SC1BA)

Issuing module
IATSSRE

Explanation
An error occurred during read end processing of subsystem communication. Recovery routine SSREFRR requests an SVC dump.

COMPON=JES3 SUBSYS COMMUNIC, COMPID=SC1BA, ISSUER=IATSSXM(SXMFMRR)

Component
JES3 (5752-SC1BA)

Issuing module
IATSSXM

Explanation
An error occurred during cross memory processing of subsystem communication. Recovery routine SXMFRR requests an SVC dump.

COMPON=JSS-REC, COMPID=SC1B8, ISSUER=IEESB670, JOB SCHEDULING SUBROUTINE RECOVERY EXIT ROUTINE

Component
Master scheduler commands (5752-SC1B8)

Issuing module
IEESB670

Explanation
The recovery exit routine IEESB670 schedules a retry of the job scheduling subroutine (IEESB605). If an SDWA is provided, IEESB670 requests an SVC dump. The areas dumped are SQA, PSA, LSQA, RGN, LPA, TRT, CSA, and NUC.

COMPON=MSTR-BASE, COMPID=SC1B8, ISSUER=IEEVIPL ERROR IN MASTER SCHEDULER INITIALIZATION

Component
Master scheduler commands (5752-SC1B8)

Issuing module
IEEVIPL - Master scheduler base initialization
Explanation
During error recovery processing, an SVC dump is requested for one of the following:
- STAE processing was unsuccessful
- A program check occurred
- The system restart key was pressed
- Control was returned because system initialization ended.

The areas dumped are PSA, LSQA, RGN, LPA, TRT, CSA, ALLNUC, and SQA.

**COMPON=MSTR-REGION, COMPID=SC1B8, ISSUER=IEEMB860, MASTER SCHEDULER REGION INITIALIZATION DUMP**

Component
Master scheduler commands (5752-SC1B8)

Issuing module
IEEMB860 - Master scheduler region initialization

Explanation
Either ESTAE or recovery setup failed. The error occurs if the LOAD macro (SVC 8) was unsuccessful, or master scheduler initialization failed. The areas dumped are PSA, ALLNUC, LSQA, RGN, LPA, TRT, CSA, and SQA.

**COMPON=MSTR-WAIT, COMPID=SC1B8, ISSUER=IEEVWAIT, reason**

Component
Master scheduler commands (5752-SC1B8)

Issuing module
IEEVWAIT

Explanation
An error occurred during command processing. The reason field is one of the following:
- BAD ESTAE RETURN CODE
- ERROR IN MASTER ADDR SPACE
- ERROR IN CONSOLE ADDR SPACE
- IEEVWAIT RESTART FAILED IN CONSOLE ADDR SPACE

IEEVWAIT requests an SVC dump for all but percolation and machine check entries. The areas dumped are PSA, NUC, LSQA, RGN, LPA, TRT, CSA, GRSQ, and SQA.

**COMPON=MS CMNDS, COMPID=SC1B8, ISSUER=IEECB890, REQUESTED BY CMDS.**

Component
Master Scheduler (SC1B8)

Issuing module
IEECB890 - CMDS command processor
A CMDS DUMP command was issued and IEECB890 took a dump of Master's and Console's address space.

Since commands are started in Master's or Console's address space, the dump will contain both of these address spaces. Note that some commands may spawn from Master's to other address spaces and the dump will not include those address spaces.

COMPON=M S CMDS, COMPID=SC1B8, ISSUER=IEE5203D,
FAILURE IN CSCB CHAIN REBUILD/RECOVERY PROCESSING

Component
Master scheduler commands (5752-SC1B8)

Issuing module
IEE5203D

Explanation
An error occurred during CSCB Chain Rebuild recovery processing. The areas dumped are SUM, SQA, CSA, ALLPSA, LSQA, LPA, TRT, and GRSQ.

COMPON=M S CMNDS, COMPID=SC1B8, ISSUER=IEEMB881,
FAILURE IN SYSTEM ADDR SPACE CREATE ROUTINE

Component
Master scheduler commands (5752-SC1B8)

Issuing module
IEEMB881 - System address space create routine

Explanation
An error occurred, after master scheduler initialization, while IEEMB881 was attempting to start a system address space. Routine EAESTAE requests an SVC dump. The areas dumped are SQA, ALLPSA, SUMDUMP, LSQA, LPA, TRT, GRSQ, and the master scheduler ASCB.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains:
• Return and reason codes
• Footprints
• Input attribute list
• Name of the initialization routine specified by the caller
• Start parameters specified by the caller
• Code and data registers
• Pointers to the CSCB, ASCB, JSCB, TCB, and BASEA

COMPON=M S CMDS, COMPID=SC1B8, ISSUER=IEEMB883,
FAILURE IN SYSTEM ADDR SPACE INIT WAIT/POST ROUTINE

Component
Master scheduler commands (5752-SC1B8)

Issuing module
IEEMB883 - System address space initialization WAIT/POST routine
Explanation
An error occurred, after master scheduler initialization, during WAIT/POST processing. Routine WPESTAE requests an SVC dump. The areas dumped are SQA, ALLPSA, LSQA, LPA, and TRT.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains:
- Return and reason codes
- Input event code
- Footprints
- Code and data registers
- Pointer to TCB in error
- Pointers to the CSCB, ASCB, JSCB, and BASEA

COMPON=MS CMNDS,COMPID=SC1B8,
ISSUER=IEEMB887,GENERALIZED PARSER-EXIT
ABENDED,ABEND=xxx,RSN=UNKNOWN

Component
Master Scheduler (SC1B8)

Issuing module
IEEMB887 - Generalized parser

Explanation
An error occurred in one of the following situations:
- Module IEEMB887
- An exit routine that was called by IEEMB887.

Recovery routine PRSESTAE issued a summary SVC dump with the following areas included:
- IEEMB887
- Data area for IEEMB887
- SCL (parameter list for IEEMB887)
- First parse description
- Current parse description
- Input being processed

Associated problem data
The SDWA variable recording area (SDWAVRA) contains:
- ENABLING DAE
- If the ROUT exit routine abended, exit routine address with the address of the keyword used to call the routine
- If I/O exit abended, exit routine address
- Footprints
- Base registers
- Data register
- Address of SCL
- Address of current parse description
- Current value of input record pointer
COMPON=MS CMNDS, COMPID=SC1B8, ISSUER=IEEMB887, GENERALIZED PARSER, ABEND=xxx, RSN=xxxxxxxxx|UNKNOWN

Component
Master Scheduler (SC1B8)

Issuing module
IEEMB887 - Generalized parser

Explanation
An error occurred in one of the following:
- Module IEEMB887
- An exit routine that was called by IEEMB887.

Recovery routine PRSESTAE issued a summary SVC dump with the following areas included:
- IEEMB887
- Data area for IEEMB887
- SCL (parameter list for IEEMB887)
- First parse description
- Current parse description
- Input being processed

Associated problem data
The SDWA variable recording area (SDWAVRA) contains:
- ENABLING DAE
- If the ROUT exit routine abended, exit routine address with the address of the keyword used to call the routine
- If I/O exit abended, exit routine address
- Footprints
- Base registers
- Data register
- Address of SCL
- Address of current parse description
- Current value of input record pointer

COMPON=NIP, COMPID=SC1C9, ISSUER=IEAVTEDS, TIMED EVENT DATA SERVICE

Component
NIP (5752-SC1C9)

Issuing module
IEAVTEDS

Explanation
An error has occurred while processing an IEATEDS REGISTER or RECORD request. The FRR routine in IEAVTEDS issued the SDUMP macro. The areas dumped are SQA, CSA, RGN, LSQA, TRT, and SUMDUMP.

Associated problem data
A software record is written to the logrec data set and includes:
COMPON=OLTEP-INITIALIZATION

Component
On-line test executive program (OLTEP) (5752-SC106)

Issuing module
IFDOLT00 - STAERT ESTAE routine

Explanation
OLTEP requests this dump when an error is encountered during OLTEP initialization and OLTEP processing. The areas dumped are ALLPSA, NUC, RGN, SQA, and TRT.

Associated problem data
OLTEP places in the SDWA the OLTEP DIE data area and codes associated with the dump.

COMPON=PROGRAM-MANAGER-LNKLST-LOOKASIDE,
COMPID=SC1CJ, ISSUER=CSVLLCES-CSVLLCRE

Component
Contents Supervisor (5752-SC1CJ)

Issuing module
CSVLLCRE - issued by ESTAE CSVLLCES

Explanation
An abend (other than code 222, 322, or 522) occurred while (1) LNKLST lookaside (LLA) was building or refreshing the LLA directory, or (2) the LLA directory was being searched and the caller of LLA determined that LLA caused the error. The caller terminates LLA with a 312 abend code. Up to six dump ranges are dumped and include:

- The LLA control block in the nucleus pointed to by CVTLLCB.
- The oldest hash table and its overflow area.
- The replacement hash table and its overflow area.
- The temporary table of PDS directory entries (INFOTAB).
- The LNKLST table (LLT) pointed to by CVTLLTA.
- The LPALST table (LPAT) pointed to by CVTEPLPS.

Associated problem data
Except for operator cancel abends (codes 222 and 122), a software record is written to the logrec data set.

Variable SDWAPTR in module CSVLLCRE contains the address of the SDWA. The fields in the SDWA filled in are: SDWAMODN, SDWACSCT, SDWAREXN, SDWASC, SDWAMLVL, SDWARRL, and SDWACID.

The variable area in the SDWA (SDWAVRA) contains CSVLLCRE’s processing status footprints (field FPCRE in CSVLLCRE), and data from the LLCB (field FPCES in CSVLLCRE).
Field CVTLLCB points to the LLA control block (LLCB) in nucleus module CSVLLCB1. LLCBASCB contains the address of the ASCB of the current LLA address space. The LLCB contains processing status flags and LLA-related data.

Field FOOTPRTS in CSVLLCRE contains footprints indicating the processing status and the resources that were owned by CSVLLCRE at the time of the error.

**COMPON=REAL STORAGE MANAGEMENT, COMPID=SC1CR, ISSUER=IARQFDMP, REQUESTOR=IARRRCV**

**Component**
Real storage manager (5752-SC1CR)

**Issuing module**
IARQFDMP

**Explanation**
An abend occurred during RSM processing. The areas dumped are LSQA, SQA, and TRT.

**COMPON=REAL STORAGE MANAGEMENT, COMPID=SC1CR, ISSUER=IARQKT2D, PURPOSE=COMPONENT TRACE, COMP=RSM**

**Component**
Real storage manager (5752-SC1CR)

**Issuing module**
IARQKT2D

**Explanation**
RSM requested an SVC dump to dump the component trace tables. Component trace initiated this dump because an operator had earlier requested component tracing with the command: TRACE CT,ON,COMP=RSM. The areas dumped are the component trace tables, SQA, and TRT.

**COMPON=REAL STORAGE MANAGEMENT, COMPID=SC1CR, ISSUER=IARQNFRR**

**Component**
Real storage manager (5752-SC1CR)

**Issuing module**
IARQNFRR

**Explanation**
An abend occurred during RSM processing of a TRACE CT operator command. The areas dumped are LSQA, SQA, and TRT.

**COMPON=RECONFIGURATION- DISPLAY M, COMPID=SC1CZ**

**Component**
Reconfiguration (5752-SC1CZ)

**Issuing module**
IEEMPDM
**SVC Dump Titles**

**Explanation**
An abend occurred during DISPLAY M processing. The main work area of the command processor is dumped.

**COMPON=RECONFIG-CF CPU, COMPID=SC1CZ, ISSUER=IEERDUMP**

**Component**
Reconfiguration (5752-SC1CZ)

**Issuing module**
IEEVCPR

**Explanation**
An error (ABEND=xxx) occurred during CONFIG CPU processing. The areas dumped are PSA, SQA, TRT, LPA, LSQA, and the dynamic area for module IEEVCPR.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains:
- Label of the last retry point passed in IEEVCPR (See note)
- Reason code for the ABEND (REG15CDE)
- Caller's input to IEEVCPR (INPARMS)
- IEEVCPR work area (WORKAREA)
- IEEVCPR save area (SAVEAR)
- IEEVCPR ESTAE area (ESTAEPRM)

IEEVCPR has 21 labels that are used for returns after an ABEND. As each retry point is passed, the label name is saved so you can determine the section of code that was in control when the error occurred.

**COMPON=RECONFIG, COMPID=SC1CZ, ISSUER=IEEVCHPF**

**Component**
Reconfiguration (5752-SC1CZ)

**Issuing module**
IEEVCHPF

**Explanation**
An abend occurred during reconfiguration processing of a force channel path offline request. The areas dumped are the FRR tracking area, the main work area for module IEEVCHPF, and, if there is a work area, the parameters passed to the MSSF.

**COMPON=RECONFIG, COMPID=SC1CZ, ISSUER=IEEVIOSD**

**Component**
Reconfiguration (5752-SC1CZ)

**Issuing module**
IEEVIOSD

**Explanation**
An abend occurred during I/O processing. The areas dumped are the FRR tracking area, the pointer to the main work area for module IEEVCHPF, and, if there is a work area, the parameters passed to or received from the MSSF.
SVC Dump Titles

COMPON=RECONFIG, COMPID=SC1CZ, ISSUER=IEEVSTEE

Component
Reconfiguration (5752-SC1CZ)

Issuing module
IEEVSTEE - ESTAE

Explanation
An abend occurred during CONFIG STOR reconfiguration processing for a storage element request. The error occurred in module IEEVSTEL (storage element reconfiguration) or module IEEVSTFA (storage element alternate reconfiguration). The areas dumped are the MSSF data (for an offline request, both offline command INFO and OFFLINE command data are included; for an online request, only the ONLINE command data is included), the storage address increment (SAI) array, NUC, LSQA, SQA, TRT, and PSA.

COMPON=RECONFIG, COMPID=SC1CZ, ISSUER=IEEVSTPE, IEEVSTGP FAILED

Component
Reconfiguration (5752-SC1CZ)

Issuing module
IEEVSTPE - ESTAE

Explanation
An abend occurred during reconfiguration processing of a CONFIG STOR physical request in module IEEVSTGP. The areas dumped are the MSSF data, the storage address increment (SAI) array, NUC, LSQA, SQA, TRT, and PSA.

COMPON=RECONFIG(SC1CZ), MODULE=IEEVPTH (VARY PATH) FAILED, ABEND(xxx)

Component
Reconfiguration (5752-SC1CZ)

Issuing module
IEEVPTH

Explanation
An abend occurred during VARY PATH command processing. The areas dumped are the command image buffer (CHBUF), the current VARY request block (if any), and the main work area of module IEEVPTH.

COMPON=RECONFIG(SC1CZ), MODULE=IEEVPTH FAILED, ABEND(xxx)

Component
Reconfiguration (5752-SC1CZ)

Issuing module
IEEVPTH

Explanation
An abend occurred during VARY PATH reconfiguration processing. The areas dumped are the main work area for module IEEVPTH, the first request block in the chain passed to IEEVPTH, the current request block...
### SVC Dump Titles

Table of SVC dump titles for Resource Measurement Facility (RMF) (5665-27404) modules.

#### COMPON=RMF, COMPID=27404, ISSUER=ERBCNFGC, I/O CONFIG.TAB. CREATE

- **Component**: Resource measurement facility (RMF) (5665-27404)
- **Issuing module**: ERBCNFGC
- **Explanation**: An abend occurred while the RMF Monitor I I/O configuration table create module (ERBCNFGC) was processing. ERBCNFGC is called by ERBMFMFC during RMF initialization. The ESTAE recovery routine CNFGABND requests an SVC dump. The areas dumped are LSQA, SWA, TRT, PSA, and SUMDUMP. The LIST option specifies the STGST, IOCHT, and IODNT.
- **Associated problem data**: The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

#### COMPON=RMF, COMPID=27404, ISSUER=ERBCNFGF, I/O CONFIG.TAB. BUILD

- **Component**: Resource measurement facility (RMF) (5665-27404)
- **Issuing module**: ERBCNFGF
- **Explanation**: An abend occurred while the RMF Monitor I I/O configuration table build module (ERBCNFGF) was processing. ERBCNFGF is called by ERBMFMFC during RMF initialization. The ESTAE recovery routine CNFGABND requests an SVC dump. The areas dumped are LSQA, SWA, TRT, PSA, and SUMDUMP. The LIST option specifies the STGST, IOCHT, IODNT, and LCUT.
- **Associated problem data**: The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWAVRA contains module trace information and pointers to the STGST, IOCHT, IODNT, and LCUT. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

#### COMPON=RMF, COMPID=27404, ISSUER=ERBCNFGG, I/O CONFIG.TAB. CREATE

- **Component**: Resource measurement facility (RMF) (5665-27404)
- **Issuing module**: ERBCNFGG
SVC Dump Titles

Explanation
An abend occurred while the RMF Monitor I I/O configuration table build for 4381 processors (module ERBCNFGG) was processing. ERBCNFGG is called by ERBMFMFC during RMF initialization. The internal ESTAE recovery routine CNFGGESA requests an SVC dump. The areas dumped are LSQA, SWA, TRT, PSA, and SUMDUMP. The LIST option specifies the STGST, IOCHT, and IODNT.

Associated problem data
The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWA contains module trace information and pointers to the STGST, IOCHT, IODNT, LCUT, HSARB, SCHIB, and IOSB. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERBMFDEA, RMF MON.I CONTROL

Component
Resource measurement facility (RMF) (5665-27404)

Issuing module
ERBMFDEA - ESTAE

Explanation
An error occurred during RMF processing. The data control ESTAE routine ERBMFDEA requests an SVC dump. The areas dumped are LSQA, SWA, TRT, PSA, and SUMDUMP. The LIST option specifies the STGST, IOCHT, STMMV, RMCT, CMCT, CPMT, ICHPT, RCE, RMPT, CMB, and ICSC. The entries in the RMF storage resource table (STSGT) are also specified depending on whether there is sufficient space in the LIST pool.

Associated problem data
The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWA contains module trace information and the problem control table (ERBMFPCT). The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERBMFEAR, RMF LISTEN EXITS

Component
Resource measurement facility (RMF) (5665-27404)

Issuing module
ERBMFEAR

Explanation
An abend occurred while the RMF Monitor I event arrival routine (ERBMFEAR) was processing. ERBMFEAR receives control when a change occurs for device state, reconfiguration (DDR) activity, CMB data state, channel facility recovery, and channel path state. The internal ESTAE recovery routine ERBLXERV requests an SVC dump. The areas dumped are SQA, LSQA, TRT, PSA, and SUMDUMP.

Associated problem data
The RMF control block STGST (pointed to by field CVTMFCTL in the
CVT) and the trace table are helpful in determining the cause of the error. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

**COMPON=RMF, COMPID=27404, ISSUER=ERBMFEVT, RMF MON.I SAMPLER**

**Component**
Resource measurement facility (RMF) (5665-27404)

**Issuing module**
ERBMFEVT

**Explanation**
An abend occurred while the RMF Monitor I MFROUTER service module (ERBMFEVT) was processing. ERBMFEVT receives control as a timer DIE from the timer second level interruption handler. Control is passed consecutively to the list of event measurement gathering routines associated with the MFROUTER. The internal FRR recovery routine EVFRR recovers from errors occurring in the MFROUTER service module or in any of the RMF samplers. Routine EVSFRR requests an SVC dump. The areas dumped are SQA, CSA, TRT, PSA, RGN, and SUMDUMP.

**Associated problem data**
The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWAVRA contains module trace information, the FRR parameter area, STMMV entry, and lock names. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

**COMPON=RMF, COMPID=27404, ISSUER=ERBMFFUR, RMF MON.I CONTROL**

**Component**
Resource measurement facility (RMF) (5665-27404)

**Issuing module**
ERBMFFUR

**Explanation**
An error occurred during RMF processing. The FRR lock release failure recovery routine ERBMFFUR requests an SVC dump. The areas dumped are SQA, TRT, PSA, RGN, and SUMDUMP.

**Associated problem data**
The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWAVRA contains module trace information, the address of the failing routine, timer queue element, and RMF TQE from the timer supervisor work area. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

**COMPON=RMF, COMPID=27404, ISSUER=ERBMFIDX, RMF MSCH COMPLETION**

**Component**
Resource measurement facility (RMF) (5665-27404)
SVC Dump Titles

Issuing module
  ERBMFIDX

Explanation
  An abend occurred while the asynchronous MSCH (modify subchannel) completion module (ERBMFIDX) was processing. ERBMFIDX is scheduled as an SRB routine upon completion of an asynchronous MSCH request. The internal FRR recovery routine ERBMFIDF requests an SVC dump. The areas dumped are SQA, LSQA, TRT, PSA, and SUMDUMP.

Associated problem data
  The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error.
  The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERBMFIQA, RMF I/O QUEUING

Component
  Resource measurement facility (RMF) (5665-27404)

Issuing module
  ERBMFIQA

Explanation
  An abend occurred while the start/stop hardware measurements for I/O queuing for 4381 processors (ERBMFIQA) was processing. The internal ESTAE recovery routine ERBIQERV requests an SVC dump. The areas dumped are SQA, LSQA, TRT, PSA, and SUMDUMP.

Associated problem data
  The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error.
  The SDWAVRA contains module trace information and pointers to the STGST, IOCHT, IODNT, LCUT, and HSARB. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERBMFMFC, RMF SESSION CONTROL

Component
  Resource measurement facility (RMF) (5665-27404)

Issuing module
  ERBMFMFC

Explanation
  An abend occurred while the measurement facility control module (ERBMFMFC) was processing. The internal ESTAE recovery routine ABNDEXT requests an SVC dump. The areas dumped are LSQA, SWA, TRT, PSA, and SUMDUMP. The LIST option specifies the STGST, GSTC3, IOCHT, and IODNT.

Associated problem data
  The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error.
  The SDWAVRA contains module trace information, the ACT control block, and ESTAE parameter area. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.
COMPON=RMF, COMPID=27404, ISSUER=ERBMFMLN, ERROR
RMF MON I INIT

Component
Resource measurement facility (RMF) (5665-27404)

Issuing module
ERBMFMLN

Explanation
An error occurred during RMF processing. ERBMFMLN, the ESTAE for ERBMFIZZ, receives control after any error that occurs after issuing the MFSTART SVC. ERBMFMLN is the highest level ESTAE error recovery routine for the RMF Monitor I session. The areas dumped are LSQA, SWA, TRT, PSA, and SUMDUMP. The LIST option specifies the STGST and IOCHT.

Associated problem data
The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWAVRA contains module trace information, the PCT control block, session name, and ESTAE parameter area. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERBMFPVVS, RMF
VSTOR PVT SAMPLER

Component
Resource measurement facility (RMF) (5665-27404)

Issuing module
ERBMFPVVS

Explanation
An abend occurred while the virtual storage private area sampling module (ERBMFPVVS) was processing. ERBMFPVVS receives control from ERBMFEVS via an SRB schedule at the end of each cycle. The internal FRR recovery routine PVSFRR requests an SVC dump. The areas dumped are TRT, PSA, RGN, and SUMDUMP. The SUMLIST option specifies the EDTVS, virtual storage private data tables, and the SRB.

Associated problem data
The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWAVRA contains module trace information, the FRR parameter area, pointers to the EDTVS, and current job sampler block. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERBMFRES,
MEMTERM RESOURCE MANAGER

Component
Resource measurement facility (RMF) (5665-27404)

Issuing module
ERBMFRES
**SVC Dump Titles**

**Explanation**
An abend occurred while the RMF memory termination resource manager (ERBMFRES) was processing. The internal ESTAE recovery routine RESESTAE requests an SVC dump. The areas dumped are RGN, SQA, TRT, PSA, and SUMDUMP.

**Associated problem data**
The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

**COMPON=RMF, COMPID=27404, ISSUER=ERBMFSDE, RMF MON.I CONTROL**

**Component**
Resource measurement facility (RMF) (5665-27404)

**Issuing module**
ERBMFSDE - ESTAE

**Explanation**
An error occurred during RMF processing. The MFSTART ESTAE routine ERBMFSDE requests an SVC dump. The areas dumped are LSQA, SWA, TRT, PSA, and SUMDUMP. The LIST option specifies the STGST, IOCHT, STMMV, RMCT, CMCT, CPMT, ICHPT, RCE, RMPT, CMB, and ICSC. The entries in the RMF storage resource table (STSGT) are also specified depending on whether there is sufficient space in the LIST pool.

**Associated problem data**
The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

**COMPON=RMF, COMPID=27404, ISSUER=ERBMFTMA, RMF MON.I TERMINATION**

**Component**
Resource measurement facility (RMF) (5665-27404)

**Issuing module**
ERBMFTMA

**Explanation**
An abend occurred while the RMF termination mainline module (ERBMFTMA) was processing. ERBMFTMA receives control from either ERBMFSDE (abnormal end) or IGX00007 (normal end). The internal ESTAE recovery routine ERBMFTXR requests an SVC dump. The areas dumped are LSQA, SWA, TRT, PSA, and SUMDUMP. The LIST option specifies the STGST, IOCHT, STMMV, RMCT, CMCT, CPMT, ICHPT, RCE, RMPT, CMB, and ICSC. The entries in the RMF storage resource table (STSGT) are also specified depending on whether there is sufficient space in the LIST pool.

**Associated problem data**
The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.
COMPON=RMF, COMPID=27404, ISSUER=ERBMFTRM, RMF MON.I TERMINATION

Component
Resource measurement facility (RMF) (5665-27404)

Issuing module
ERBMFTRM

Explanation
An abend occurred while the RMF general resource release module (ERBMFTRM) was processing. ERBMFTRM receives control from ERBMFTMA. The internal ESTAE recovery routine ERBMFTGR requests an SVC dump. The areas dumped are SQA, LSQA, SWA, TRT, PSA, and SUMDUMP.

Associated problem data
The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERB3GEEH, RMF ENQ EVENT HANDLER

Component
Resource measurement facility (RMF) (5665-27404)

Issuing module
ERB3GEEH

Explanation
An abend occurred while the Monitor III data gatherer enqueue event handler module (ERB3GEEH) was processing. ERB3GEEH receives control from ERB3GLUE. ERB3GLUE is invoked when enqueue contention in the system changes. The internal FRR recovery routine GEEHFRR requests an SVC dump. The areas dumped are TRT and SUMDUMP. The SUMLIST option specifies the ERB3GEEH module work area and the enqueue event table entries.

Associated problem data
The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWAVRA contains module trace information and pointers to the STGST and GSTC3. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27404, ISSUER=ERB3GESA, MONIII GATHERER CANCEL FAILING CSECT NAME cccccccc

Component
Resource measurement facility (RMF) (5665-27404)

Issuing module
ERB3GESA - ESTAE

Explanation
An error occurred during RMF Monitor III data gathering. cccccccc is an 8-character CSECT name. The MONITOR III gatherer ESTAE routine
ERB3GES requests an SVC dump. The areas dumped are LSQA, SWA, TRT, PSA, SQA, and SUMDUMP. The LIST option specifies the STGST, GSTC3, and WSHG3.

Associated problem data
The SDWA contains the module slot of the failing module, the current stack entry of the RETG3, and pointers to the STGST, GSTC3, GGDG3, WSHG3, and RETG3. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

**COMPON=RMF, COMPID=27404, ISSUER=ERB3GES, MONIII GATH RECURSION FAILING CSECT NAME cccccccc**

Component
Resource measurement facility (RMF) (5665-27404)

Issuing module
ERB3GES - ESTAE

Explanation
An error occurred during RMF Monitor III data gathering. cccccccc is an 8-character CSECT name. The MONITOR III gatherer ESTAE routine ERB3GES requests an SVC dump. The areas dumped are LSQA, SWA, TRT, PSA, SQA, and SUMDUMP. The LIST option specifies the STGST, GSTC3, and WSHG3.

Associated problem data
The SDWA contains the module slot of the failing module, the current stack entry of the RETG3, and pointers to the STGST, GSTC3, GGDG3, WSHG3, and RETG3. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

**COMPON=RMF, COMPID=27404, ISSUER=ERB3GES, FAILURE MONIII GATHERER FAILING CSECT NAME cccccccc**

Component
Resource measurement facility (RMF) (5665-27404)

Issuing module
ERB3GES - ESTAE

Explanation
An error occurred during RMF Monitor III data gathering. cccccccc is an 8-character CSECT name. The MONITOR III gatherer ESTAE routine ERB3GES requests an SVC dump. The areas dumped are LSQA, SWA, TRT, PSA, SQA, and SUMDUMP. The LIST option specifies the STGST, GSTC3, and WSHG3.

Associated problem data
The SDWA contains the module slot of the failing module, the current stack entry of the RETG3, and pointers to the STGST, GSTC3, GGDG3, WSHG3, and RETG3. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.
### SVC Dump Titles

**COMPON=RMF, COMPID=27404, ISSUER=ERB3GXMV, TSO RMFWDM**

**COMPON=RMF, COMPID=27404, ISSUER=ERB3GXMV, sid SESSION**

**Component**
Resource measurement facility (RMF) (5665-27404)

**Issuing module**
ERB3GXMV - ESTAE

**Explanation**
An abend occurred while the RMF Monitor III gatherer cross memory move module (ERB3GXMV) was processing. A TSO/E session or local session (where sid is the session-id) was active.

ERB3GXFR requested an SVC dump for one of the following:
- When requested by a Monitor III reporter module
- When requested by the internal FRR recovery routine itself

If the dump is requested by a reporter module, a SUMDUMP, all local areas, and the wrap-around buffers are dumped. If the dump is issued from the recovery routine, a SUMDUMP and all local areas except the wrap-around buffers are dumped.

**Associated problem data**
If the dump is requested by a reporter module, SDWA and VRA information is not available; the wrap-around buffer area contains the set of samples that caused the problem in the reporter module.

The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

**COMPON=RMF, COMPID=27404, ISSUER=ERB3RMFC, M3 LOCAL SESSION INIT**

**Component**
Resource measurement facility (RMF) (5665-27404)

**Issuing module**
ERB3RMFC

**Explanation**
An abend occurred while the Monitor III reporter local session initialization module (ERB3RMFC) was processing. ERB3RMFC receives control from ERB3CREP. The internal ESTAE recovery routine RMFCABND requests an SVC dump. The areas dumped are RGN, TRT, PSA, and SUMDUMP.

**Associated problem data**
The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWAVRA contains module trace information and pointers to the STGST and GSTC3. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.
**COMPON=RMF-ENQ EVENT HANDLER, COMPID=27404, ISSUER=ERBMFEEQ**

**Component**  
Resource measurement facility (RMF) (5665-27404)

**Issuing module**  
ERBMFEEQ

**Explanation**  
An abend occurred while the RMF Monitor I ENQ event handler (ERBMFEEQ) was processing. ERBMFEEQ receives control when an increase or decrease in enqueue contention occurs. Recovery routine ERBMFFRQ requests an SVC dump. The areas dumped are TRT and SUMDUMP. The SUMLIST option specifies the ERBMFEEQ module work area and the ENQ data collection area (ERBEQEDT and ERBEQRES).

**Associated problem data**  
The RMF control block STGST (pointed to by field CVTMFCTL in the CVT) and the trace table are helpful in determining the cause of the error. The SDWAVRA contains module trace information and pointers to the module work area and ERBEQEDT. The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

**COMPON=SAM, COMPID=27405, ISSUER=AMSACT, ERROR IN SAM TERMINATION EXIT**

**Component**  
Resource measurement facility (RMF) SAM (5665-27405)

**Issuing module**  
AMSACT

**Explanation**  
The AMSCOL collector module was tracking an application program that ended. While doing the end processing, the AMSACT module abnormally ended.

**Associated problem data**  
The failing CSECT name and the error condition can be determined from the RTM2WA and SDWA. If you cannot determine the cause of the problem from the dump provided, perform the diagnostic procedures in **z/OS V2R2 Problem Management**.

**COMPON=SAM, COMPID=27405, ISSUER=AMSACT, ERROR IN SAM USER AMSACU EXIT**

**Component**  
Resource measurement facility (RMF) SAM (5665-27405)

**Issuing module**  
AMSACT

**Explanation**  
The AMSCOL collector module was tracking an application program that ended. While doing the end processing, the AMSACT module called an AMSACU installation exit. During running of AMSACU, an abnormal end occurred that was not covered by a user ESTAE routine.
Associated problem data
The failing CSECT name and the error condition can be determined from the RTM2WA and SDWA. If you cannot determine the cause of the problem from the dump provided, try coding an ESTAE exit for AMSACU to capture the error.

**COMPON=SAM, COMPID=27405, ISSUER=AMSCOL, ABEND**

**Component**
Resource measurement facility (RMF) SAM (5665-27405)

**Issuing module**
AMSCOL

**Explanation**
The AMSCOL collector module (or one of its subtasks) abnormally ended. AMSACT automatically restarts the collector for the first occurrence of the ABEND.

**Associated problem data**
The abend code may explain the cause of the problem. If not, perform the diagnostic procedures in [z/OS V2R2 Problem Management](#).

**COMPON=SAM, COMPID=27405, ISSUER=AMSCOL, AMSCFREE OVERLAID - RECOVERED**

**Component**
Resource measurement facility (RMF) SAM (5665-27405)

**Issuing module**
AMSCOL

**Explanation**
The AMSCOL collector module detected that the AMSCFREE pointer in the AMSCNTL control block (in the ECSA) was overlaid with some other data. AMSCOL corrects the value of the pointer and continues processing.

**Associated problem data**
Because the SVC dump was taken before AMSCOL corrected the data, the overlaying data appears in the dump. Therefore, examine the dump data to determine the program that caused the overlay.

**COMPON=SAM, COMPID=27405, ISSUER=AMSCOL, AMSCNTL HEADER OVERLAID - RECOVERED**

**Component**
Resource measurement facility (RMF) SAM (5665-27405)

**Issuing module**
AMSCOL

**Explanation**
The AMSCOL collector module detected that the header information for its AMSCNTL control block (in the ECSA) was overlaid with some other data. AMSCOL corrects the header information and continues processing.

**Associated problem data**
Because the SVC dump was taken before AMSCOL corrected the data, the overlaying data appears in the dump. Therefore, examine the dump data to determine the program that caused the overlay.
COMPON=SAM, COMPID=27405, ISSUER=AMSCOL, AMSCPREV OVERLAID - RECOVERED

Component
Resource measurement facility (RMF) SAM (5665-27405)

Issuing module
AMSCOL

Explanation
The AMSCOL collector module detected that the AMSCPREV pointer in the AMSCNTL control block (in the ECSA) was overlaid with some other data. AMSCOL corrects the value of the pointer value and continues processing.

Associated problem data
Because the SVC dump was taken before AMSCOL corrected the data, the overlaying data appears in the dump. Therefore, examine the dump data to determine the program that caused the overlay.

COMPON=SAM, COMPID=27405, ISSUER=AMSCOL, BAD ADDRESS IN AMSCNTL - RECOVERED

Component
Resource measurement facility (RMF) SAM (5665-27405)

Issuing module
AMSCOL

Explanation
The AMSCOL collector module was posted by either AMSUJI or AMSACT, indicating that there was data to be passed. However, the pointer in the AMSCNTL control block (in the ECSA) did not point to a valid AMSP data block. AMSCOL ignores the data and continues processing.

Associated problem data
The problem could be due to one or more of the following conditions:
- An overlay of the pointer to the AMSP data block
- An overlay of the AMSP data block
- An internal error in AMSUJI, AMSACT, or AMSCOL

If an overlay occurred, examine the data to determine the program that caused the overlay.

COMPON=SAM, COMPID=27405, ISSUER=AMSCOL, POINTER OVERLAID IN AMSCNTL RECOVERED

Component
Resource measurement facility (RMF) SAM (5665-27405)

Issuing module
AMSCOL

Explanation
The AMSCOL collector module was posted by either AMSUJI or AMSACT, indicating that there was data to be passed. However, the AMSCPREV pointer in the AMSCNTL control block did not point to a valid field. AMSCOL corrects the value of the pointer and continues processing, but no data is passed.
Associated problem data
Because the SVC dump was taken before AMSCOL corrected the data, the overlaying data appears in the dump. The overlay of data could have been caused by an internal error within AMSUJI, AMSACT, or AMSCOL, or by another program overlaying the correct data. Examine the dump data to determine the program that caused the overlay.

**COMPON=SAM, COMPID=27405, ISSUER=AMSCOL, WDS RECORD MISMATCH - RECOVERED**

Component
Resource measurement facility (RMF) SAM (5665-27405)

Issuing module
AMSCOL

Explanation
The AMSCOL collector module was tracking an application program that ended. When the AMSDISK subtask attempted to update the work data set (WDS), it found that the WDS record did not match the record in storage.

Associated problem data
The WDS cannot be shared between systems. If it was not being shared, it is most probable that an internal error occurred in AMSCOL. Perform the diagnostic procedures in [z/OS V2R2 Problem Management](#).

**COMPON=SAM, COMPID=27405, ISSUER=AMSUJI, ERROR IN SAM INITIATION EXIT**

Component
Resource measurement facility (RMF) SAM (5665-27405)

Issuing module
AMSUJI

Explanation
An error occurred in the SAM job initiation module.

Associated problem data
The failing CSECT name and the error condition can be determined from the RTM2WA and SDWA. If you cannot determine the cause of the problem from the dump provided, perform the diagnostic procedures in [z/OS V2R2 Problem Management](#).

**COMPON=SAM, COMPID=27405, ISSUER=AMSUJI, ERROR IN SAM USER AMSUJU EXIT**

Component
Resource measurement facility (RMF) SAM (5665-27405)

Issuing module
AMSUJI

Explanation
An application program was initiated and control passed from AMSUJI to the AMSUJU installation exit. During processing of AMSACU, an abnormal end occurred that was not covered by a user ESTAE routine.

Associated problem data
The failing CSECT name and the error condition can be determined from
the RTM2WA and SDWA. If you cannot determine the cause of the problem from the dump provided, try coding an ESTAE exit for AMSUJU to capture the error.

**COMPON=SDUMP, COMPID=SCDMP, ISSUER=IEAVTSEP, FAILURE IN POST DUMP EXIT PROCESSOR**

**Component**
Dumping services - SNAP (5752-SCDMP)

**Issuing module**
IEAVTSEP

**Explanation**
An error occurred while processing post dump exits in the DUMPSRV address space. The areas dumped are SUM, TRT, LSQA, CSA, NOSQA, and subpools 231 and 0.

**Associated problem data**
Obtain the summary dump. The SDWAVRA contains the following:
- The ESTAE parameter area
- The list of post dump exits
- Field DSVEXPRC of the DSVCB

**COMPON=SMF INITIALIZATION, ISSUER=IEEMB827, COMPID=SC100**

**Component**
System management facilities (SMF) (5752-SC100)

**Issuing module**
IEEMB827

**Explanation**
An error occurred during SMF address space initialization. The areas dumped are PSA, NUC, RGN, SQA, and SUMDUMP.

**COMPON=SMF, ISSUER=IEEMB829, COMPID=SC100, CLOSE FAILURE 'data set name'**

**Component**
System management facilities (SMF) (5752-SC100)

**Issuing module**
IEEMB829

**Explanation**
An error occurred while IEEMB829 was closing an SMF data set. IEEMB829 issues message IEE950I to describe the error, removes the data set from the queue of active SMF data sets, and requests the dump with this title. The title gives the name of the data set being closed. The areas dumped are ALLPSA, CSA, LPA, LSQA, NUC, RGN, SQA, SUMDUMP, and TRT.

To diagnose the problem, obtain the pointer in the SMCAFRDS field of the SMF control area (SMCA). Use this pointer to look at the SMF RDS chain to determine the state of the SMF data sets when the close failed. Also, look in the trace table.
COMPON=SMF, COMPID=SC100, ISSUER=IEFSMFIE, IEFTB721

Component
System Management Facilities (SC100)

Issuing module
IEFSMFIE, IEFTB721

Explanation
An error occurred while SMF was processing a call installation exit. The dump header information contains the module in control at the time of the error. If the module in control identified in the header information is one of the following, then the routine associated with the exit caused the failure:
- AMSUJI
- AMSACTRT
- IEFACTRT
- IEFUJI
- IEFUSI

The areas dumped are NUC, PSA, RGN, CSA, SQA, LPA, and TRT.

COMPON=SMF, COMPID=SC100, ISSUER=IFAJAC01

Component
System Management Facilities (5752-SC100)

Issuing module
IFAJAC01

Explanation
An error occurred while SMF was processing a job accounting request in a cross memory environment. The areas dumped are PSA, NUC, RGN, LPA, TRT, SQA, and SUMDUMP.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains footprints to indicate the processing path.

COMPON=STC-REC, COMPID=SC1B8, ISSUER=IEESB665, STARTED TASK CONTROL RECOVERY EXIT ROUTINE

Component
Master scheduler commands (5752-SC1B8)

Issuing module
IEESB665

Explanation
The recovery exit routine IEESB665 scheduled a retry for STC in the event of an error (if information was available for a retry). If an SDWA is provided, IEESB665 requests an SVC dump. The areas dumped are SQA, PSA, LSQA, RGN, LPA, TRT, CSA, and NUC.

COMPON=SSI, COMPID=5752SC1B6, ISSUER=IEFJSaaa, MODULE=IEFJbbbb, ABEND=xxxxx, REASON=yyyyyyyy

Component
Subsystem Interface (5752-SC1B6)
**SVC Dump Titles**

**Issuing module**
IEFJSARR, IEFJSFRRB, IEFJSPCE, IEFJRASP, IEFJSRE1, or other modules may appear for errors in SSI services other than routing function requests.

**Explanation**
The dump title indicates an SSI routine is the failing CSECT, even when the error occurred in a subsystem function.

**Associated problem data**
The VRA data will contain the SSCVT, SSOB, and SSIB of the failing subsystem. For further diagnostic information, refer to [z/OS MVS Using the Subsystem Interface](#) section titled "Troubleshooting Errors in Your Subsystem".

**COMPON=SUPCNTL-WEB RECOVERY, COMPID=SC1C5, ISSUER=mmm**

**Component**
Supervisor Control (5752-SC1C5)

**Issuing module**
IEAVEGR - Global Recovery

**Explanation**
An unusual situation was detected during supervisor processing, the global recovery routine was invoked, and the global recovery routine detected a faulty structure. The areas dumped are TRT, SUM, WSACEGR, and the pseudo SDWA. The mmm value is the module that invoked IEAVEGR:

- IEOASTFRR
- IEAVCWTM
- IEAVEAC0
- IEAVECH0
- IEAVEDSR
- IEAVEDS0
- IEAVEEE0
- IEAVEGR
- IEAVENTE
- IEAVEPDR
- IEAVESAR
- IEAVESLR
- IEAVESPN
- IEAVESRT
- IEAVETCL
- IEAVMPWQ
- IEAVPMC2
- IEAVSCHA
- IEAVSCHD
- IEAVSRBF
- IEAVSRBQ
- IEAVSRBR
- IEAVSRBS
- IEAVWPM
- IEAVWUQA
- IEAVWUQD
Associated problem data
Diagnostic data is recorded in the following fields of WSACEGR as is appropriate:

- Queue verifier data is recorded in QV_OutputDataArea.
- Other data is recorded in RecordArea. Refer to IEAVEGR for a description of the keys which identify the data.

**COMPON=SUPCNTL - MEMORY REQUEST, COMPID=SC1C5, ISSUER=IEAVEMRQ, UNEXPECTED ABEND**

Component
Supervisor Control (5752-SC1C5)

Issuing module
IEAVEMRQ - Memory Request

Explanation
An error has occurred during memory request processing in IEAVEMRQ while the dispatcher lock was not held. The ESTAE routine in IEAVEMRQ issues the SDUMP macro. The areas dumped are NUC, LPA, TRT, ALLPSA, and SQA.

Associated problem data
A software record is written to the logrec data set and includes:

- SDWAMODN
  IEAVEMRQ (module in error)

- SDWACSCT
  IEAVEMRQ (CSECT in error)

- SDWAREXN
  MRQESTAE (recovery routine)

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**COMPON=SUPCNTL - MEMORY REQUEST, COMPID=SC1C5, ISSUER=IEAVEMRQ, UNEXPECTED ERROR WITH DISP LOCK**

Component
Supervisor Control (5752-SC1C5)

Issuing module
IEAVEMRQ - Memory Request

Explanation
An error has occurred during memory request processing in IEAVEMRQ while the dispatcher lock was held. The ESTAE routine in IEAVEMRQ issues the SDUMP macro. The areas dumped are NUC, LPA, TRT, ALLPSA, and SQA.

Associated problem data
A software record is written to the logrec data set and includes:

- SDWAMODN
  IEAVEMRQ (module in error)

- SDWACSCT
  IEAVEMRQ (CSECT in error)

- SDWAREXN
  MRQESTAE (recovery routine)
SVC Dump Titles

COMPON=SUPERVISOR CONTROL, COMPID=SC1C5, ISSUER=IEAVESAR, UNEXPECTED ERROR OR RECURSION

Component
Supervisor control (5752-SC1C5)

Issuing module
IEAVESAR - supervisor analysis router

Explanation
An error occurred during processing by the supervisor analysis router IEAVESAR or one of the analysis routines called by the router.
The areas dumped are NUC, PSA, SQA, and SUM.

Associated problem data
The SDWA variable recording area contains a copy of the FRR parameter area, which includes:
• The caller of the supervisor analysis router
• The routine in control at the time of the error
See label FRRPRM in module IEAVESAR for a detailed description of the FRR parameter area.

COMPON=SUPERVISOR CONTROL - MEMORY CREATE, COMPID=SC1C5, ISSUER=IEAVEMCR

Component
Supervisor Control (5752-SC1C5)

Issuing module
IEAVEMCR - Memory Create

Explanation
An error has occurred during memory create processing in IEAVEMCR.
The ESTAE routine in IEAVEMCR issues the SDUMP macro. The areas dumped are NUC, LPA, TRT, ALLPSA, and SQA.

Associated problem data
A software record is written to the logrec data set and includes:

SDWAMODN
IEAVEMCR (module in error)

SDWACSCT
IEAVEMCR (CSECT in error)

SDWAREXN
MCRESTAE (recovery routine)

COMPON=SUPERVISOR CONTROL - MEMORY DELETE, COMPID=SC1C5, ISSUER=IEAVEMDL

Component
Supervisor Control (5752-SC1C5)

Issuing module
IEAVEMDL - Memory Delete

Explanation
An error has occurred during memory delete processing in IEAVEMDL.
The ESTAE routine in IEAVEMDL issues the SDUMP macro. The areas dumped are NUC, LPA, TRT, ALLPSA, and SQA.

**Associated problem data**
A software record is written to the logrec data set and includes:

- **SDWAMODN**
  IEAVEMDL (module in error)
- **SDWACSCT**
  IEAVEMDL (CSECT in error)
- **SDWAREXN**
  MDLESTAE (recovery routine)

**COMPON=SVC34, COMPID=SC1B8, ISSUER=IEE5103D, FAILURE IN SVC34/COMMAND xxxx**

**Component**
Master scheduler commands (5752-SC1B8)

**Issuing module**
IEE5103D - STAE

**Explanation**
The SVC 34 STAE routine IEE5103D requested an SVC dump for one of the following reasons:
- A system error
- A program check occurred
- The system restart key was pressed.

The areas dumped are PSA, NUC, LSQA, RGN, LPA, TRT, CSA, and SQA.

**COMPON=SYMREC, COMPID=SCASR, ISSUER=ASRSERVR, LOGIC ERROR IN SYMREC SERVICE**

**Component**
Symptom record (5752-SCASR)

**Issuing module**
ASRSERVR - FRR entry point in ASRSERVP

**Explanation**
An abend occurred during the processing of a symptom record request. The FRR routine ASRSERVR requests an SVC dump. The areas dumped are SUMDUMP and SUMLIST.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains a required dump analysis and elimination (DAE) symptom identified by key X'E1'. The data associated with this key is the one-byte hexadecimal footprint, which indicates where the error occurred in ASRSERVP. The footprint is an index into a table that defines the symbolic name of the footprint. The cross-reference listing in module ASRSERVP indicates where the symbolic name is used.

The SUMLIST data is the input symptom record and the dynamic area or work area allocated for symptom record processing. A text description precedes the dumped SUMLIST data.
COMPON=SYSLOG, COMPID=SC1B8, ISSUER=IEEMB804, SYSTEM LOG SVC DUMP

Component
Command Processing (5752-SC1B8)

Issuing module
IEEMB804

Explanation
An error occurred during Write To Log (WTL) processing. The area dumped is LSQA.

COMPON=SYSLOG-INIT, COMPID=SC1B8, ISSUER=IEEMB803, SYSTEM LOG INITIALIZATION

Component
Master scheduler commands (5752-SC1B8)

Issuing module
IEEMB803

Explanation
An error occurred during IEEMB803 (system log initialization/writer) processing. The areas dumped are PSA, NUC, LSQA, and subpool 231.

COMPON=SYSTEM TRACE - A.S. CREATE, COMPID=SC142, ISSUER=IEAVETAC

Component
System trace (5752-SC142)

Issuing module
IEAVETAC

Explanation
An error occurred during IEAVETAC processing while creating the trace address space. Routine ETACRECV requests an SVC dump. The areas dumped are SUM, ALLPSA, SQA, LSQA, NUC, TRT, and GRSQ.

COMPON=SYSTEM TRACE - A.S. INIT, COMPID=SC142, ISSUER=IEAVETAI

Component
System trace (5752-SC142)

Issuing module
IEAVETAI

Explanation
An error occurred during IEAVETAI processing while initializing the trace address space. Routine ETAICRECV requests an SVC dump. The areas dumped are SUM, ALLPSA, SQA, LSQA, NUC, TRT, and GRSQ.

COMPON=SYSTEM TRACE-FORMATTER, COMPID=SC142, ISSUER=IEAVETFC

Component
System trace (5752-SC142)
SVC Dump Titles

Issuing module
IEAVETFC

Explanation
An error occurred during IEAVETAC processing while formatting the
system trace table for a SNAP request. Module IEAVETFC requests an SVC
dump. The areas dumped are:
- The trace table snapshot copy header (TTCH) that is being formatted
- The dynamic work area of module IEAVETFC that contains the TFWA
  and the BY-TIME and DEVICES tables
- SUMDUMP, TRT, and LSQA

Associated problem data
The SDWA contains the following:
- The address of the caller of the IEAVETFC.
- The address and length of the TFWA.
- The TFWAFP footprint field, which contains flags and trace footprints
designed to help screen duplicate problems.
- The significant part of the BY-TIME table. The entries in this table
  indicate where the formatter is in the data for each processor.

COMPON=SYSTEM TRACE - xxxxxxxxxx, COMPID=SC142,
ISSUER=IEAVETRR

Component
System trace (5752-SC142)

Issuing module
IEAVETRR

Explanation
An error occurred during IEAVETRR processing while performing a
system trace service. Field xxxxxxxxxx in the title indicates one of the
following services that was in control:
- ALTRTRC
- SUSPEND/R/P
- SNAPTRC
- COPYTRC
- ASIDTRC
- VERFYTRC

Module IEAVETRR requests an SVC dump. If the SNAPTRC service was in
control, the areas dumped are ALLPSA, SQA, NOSUMDUMP, and LSQA
for the home, primary and secondary address spaces at the time of the
error. If any other service was in control, the areas dumped are ALLPSA,
SQA, SUMDUMP, TRT, and LSQA for the home, primary and secondary
address spaces at the time of the error.

Associated problem data
The SDWA variable recording area (SDWAVRA) includes the following, if
available:
- FRR parameter area; see TRFP for the mapping
- Module footprint word; see the mapping of TRRVMFPA in the particular
  module
- Return address of the invoker
**SVC Dump Titles**

- Variable module data; see the mapping of TRRVRCDM in the particular module

**COMPON=TASK MANAGEMENT - ATTACH, COMPID=SC1CL, ISSUER=IEAVEED0**

**Component**
Task Management (SC1CL)

**Issuing module**
IEAVECH0

**Explanation**
An error occurred during ATTACH processing. Additional areas dumped are SQA, LSQA, and TRT.

**COMPON=TASK MANAGEMENT - DETACH, COMPID=SC1CL, ISSUER=IEAVEED0**

**Component**
Task Management (SC1CL)

**Issuing module**
IEAVECH0

**Explanation**
An error occurred during DETACH processing. Additional areas dumped are SQA, LSQA, and TRT.

**COMPON=TASK MANAGEMENT - STATUS, COMPID=SC1CL, ISSUER=IEAVEED0**

**Component**
Task Management (SC1CL)

**Issuing module**
IEAVECH0

**Explanation**
An error occurred during STATUS processing.
Additional areas dumped are SQA, LSQA, and TRT.

**COMPON=VSM, COMPID=SC1CH, ISSUER=IGVGCAS, ABEND=xxx**

**Component**
Virtual storage management (VSM) (5752-SC1CH)

**Issuing module**
IGVGCAS - FRR

**Explanation**
Abend xxx occurred during memory create processing in IGVGCAS. The areas dumped are ALLPSA, LSQA, NUC, SQA, SUMDUMP, and TRT.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains information in keys 16 and 200.
COMPON=VSM, COMPID=SC1CH, ISSUER=IGVGRRGN, ABEND=xxx

Component
Virtual storage management (VSM) (5752-SC1CH)

Issuing module
IGVGRRGN - ESTAE

Explanation
Abend xxx occurred during get real region processing. The areas dumped are ALLPSA, LSQA, NUC, SQA, SUMDUMP, and TRT.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains information in key 16.

COMPON=VSM, COMPID=SC1CH, ISSUER=IGVGVRGN, ABEND=xxx

Component
Virtual storage management (VSM) (5752-SC1CH)

Issuing module
IGVGVRGN - ESTAE

Explanation
Abend xxx occurred during get virtual region processing. The areas dumped are ALLPSA, LSQA, NUC, SQA, SUMDUMP, and TRT.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains information in key 16.

COMPON=VSM, COMPID=SC1CH, ISSUER=IGVRVSM

Component
Virtual storage management (VSM) (5752-SC1CH)

Issuing module
IGVRVSM - FRR

Explanation
An error occurred during GETMAIN or FREEMAIN processing. The abend code can be found in field SDWACMPC. While attempting to recover from this error, module IGVRVSM encountered an uncorrectable error in a major VSM control block (such as VSWK or GDA). Module IGVRVSM forces percolation of the abend.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains information in keys 16, 206, 211, 215, 216, 218, 219, 222, and 223.

COMPON=VSM, COMPID=SC1CH, ISSUER=IGVQSPET, ABEND=xxx

Component
Virtual storage management (VSM) (5752-SC1CH)

Issuing module
IGVSTSKT - FRR
**Explanation**

Abend xxx occurred during task end processing in IGVSTSKT. The areas dumped are ALLPSA, LSQA, NUC, SQA, SUMDUMP, and TRT.

**Associated problem data**

The SDWA variable recording area (SDWAVRA) contains information in keys 16, 200, 201, and 202.

**COMPON=VSM, COMPID=SC1CH, ISSUER=IGVSTSKI, ABEND=xxx**

**Component**

Virtual storage management (VSM) (5752-SC1CH)

**Issuing module**

IGVSTSKI - FRR

**Explanation**

Abend xxx occurred during attach processing in IGVSTSKI. The areas dumped are ALLPSA, LSQA, NUC, SQA, SUMDUMP, and TRT.

**Associated problem data**

The SDWA variable recording area (SDWAVRA) contains information in keys 16 and 33.

**COMPON=VSM-CELLPOOL BUILD, COMPID=SC1CH, ISSUER=IGVRCP, ABEND=xxx**

**COMPON=VSM-CELLPOOL DELETE, COMPID=SC1CH, ISSUER=IGVRCP, ABEND=xxx**

**COMPON=VSM-CELLPOOL EXTEND, COMPID=SC1CH, ISSUER=IGVRCP, ABEND=xxx**

**COMPON=VSM-CELLPOOL RECOVERY, COMPID=SC1CH, ISSUER=IGVRCP, ABEND=xxx**

**Component**

Virtual storage management (VSM) (5752-SC1CH)

**Issuing module**

IGVRCP - FRR

**Explanation**

Abend xxx occurred during CPOOL processing. The areas dumped are ALLPSA, NUC, SQA, SUMDUMP, and TRT. If the cell pool being processed when the error occurred resides in a local subpool, then the areas dumped include the LSQA.

**Associated problem data**

The SDWA variable recording area (SDWAVRA) contains information in keys 16, 17, 18, 32, and 33.
COMPON=VSM-GETMAIN, COMPID=SC1CH, ISSUER=IGVSRTN, ABEND=xxx

COMPON=VSM-FREEMAIN, COMPID=SC1CH, ISSUER=IGVSRTN, ABEND=xxx

Component
Virtual storage management (VSM) (5752-SC1CH)

Issuing module
IGVRSRTN - FRR

Explanation
An abend xxx occurred during GETMAIN or FREEMAIN processing. The areas dumped are ALLPSA, NUC, SUMDUMP, and TRT. The areas dumped using the LIST option are the VSM work area (VSWK), the global cell pools, the global data area (GDA), the VSM table module (IGVSTBL), and the address space control block (ASCB).

If a local subpool was being processed when the error occurred, the areas dumped include the LSQA and, using the LIST option, the local data area (LDA) and the task control block (TCB).

Associated problem data
The SDWA variable recording area (SDWAVRA) contains information in keys 16 and 200 through 235.

COMPON=VSM-IGVFVIRT, COMPID=SC1CH, ISSUER=IGVFVIRT, ABEND=xxx

Component
Virtual storage management (VSM) (5752-SC1CH)

Issuing module
IGVFVIRT - FRR

Explanation
Abend xxx occurred during CSA deferred release processing in IGVFVIRT. The areas dumped ALLPSA, NUC, SQA, SUMDUMP, and TRT.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains information in keys 16, 215, and 218.

COMPON=VSM-STORAGE, COMPID=SC1CH, ISSUER=IGVRSTOR

Component
Virtual storage management (VSM) (5752-SC1CH)

Issuing module
IGVRSTOR - FRR

Explanation
An error occurred while VSM was attempting to satisfy a request made by a STORAGE macro. The areas dumped are LSQA, NUC, SQA, SUMDUMP, and TRT.
Associated problem data
The SDWA variable recording area (SDWAVRA) contains information in key 218.

COMPON=VSM-VSMLIST, COMPID=SC1CH, ISSUER=IGVSLIST, ABEND=xxx

Component
Virtual storage management (VSM) (5752-SC1CH)

Issuing module
IGVSLIST - FRR

Explanation
An abend xxx occurred during VSMLIST processing. The areas dumped are ALLPSA, LSQA, NUC, SQA, SUMDUMP, TRT, and the caller's work area.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains information in keys 16 and 40.

COMPON=VSM-VSMLOC, COMPID=SC1CH, ISSUER=IGVLOCP, ABEND=xxx

Component
Virtual storage management (VSM) (5752-SC1CH)

Issuing module
IGVLOCP - FRR

Explanation
Abend xxx occurred during VSMLOC processing. The areas dumped are ALLPSA, LSQA, NUC, SQA, SUMDUMP, and TRT.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains information in key 16.

COMPON=XCF, COMPID=5752SCXCF, ISSUER=x, ABEND=(,REASON=)

Component
Cross system coupling facility (XCF) (5742SCXCF)

Issuing module
IXCM2REC

Explanation
An error occurred during XCF processing.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

COMPON=WLM, COMPID=5752SCWLM, ISSUER=x, ABEND=(,REASON=)

Component
Workload manager (WLM)
**SVC Dump Titles**

**Issuing module**
IWMM2REC

**Explanation**
An error occurred during WLM processing.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains diagnostic data.

**DUMP BY/(OF) MODULE xxxxxxxx**

**Component**
Generalized trace facility (GTF) (5752-SC111)

**Issuing module**
AHLWTO

**Explanation**
Enter point AHLDMPMD in AHLWTO provides a dumping service for the GTF FGBRs (filter, gather, and build routines). xxxxxxxx indicates the FGBR affected: AHLTSLIP, AHLTSYSM, AHLTSVR, AHLTSIO, AHLTSVC, AHLTLPID, AHLTSYFL, AHLTEXT, AHLTFOR, or AHLTXSYS. The GTF control blocks dumped are MCHEAD, MCRWSA, MCAWSA, MCCE, MCQE, and GTFPCT. The SQA, SDWA, and the failing FGBR module are also dumped.

**Associated problem data**
Message AHL118I is issued. For additional information, see message AHL118I in [z/OS MVS System Messages, Vol 1 (ABA-AOM)].

**Problem determination**
The error is probably a page fault that occurred when the FGBR referenced a data area that should be fixed but was not.

**DUMP OF AHLREADR**

**Component**
Generalized trace facility (GTF) (5752-SC111)

**Issuing module**
AHLREADR

**Explanation**
An error occurred while AHLREADR was attempting to pass GTF buffers to SDUMP or SNAP for inclusion in an outstanding dump request. The dump taken by AHLREADR includes a dump of itself plus a dump of the failing address space. The AHLREAD macro request is cleaned up, which includes posting the original requester, releasing locks, dequeuing on the MC (monitor call) control blocks, and releasing allocated storage.

**DUMP OF GTF MODULE AHLWTASK**

**Component**
GTF (5752-SC111)

**Issuing module**
AHLWTASK
SVC Dump Titles

Explanation
An error has occurred when the system was trying to issue either message AHL118I or AHL119I. The areas dumped are the SDUMP buffer, failing module, and failing address space.

Associated problem data
Message AHL119I is issued. The SDUMP buffer contains message AHL118I (which would have been issued if the error had not occurred), the SRB that did not complete, and the SDWA.

DUMP OF JES2 CHECKPOINT DATA. SYSTEM=id, $ERROR CODE=code

Component
JES2 (5752-SC1BH)

Issuing module
HASPCKPT

Explanation
JES2 detected a major error during I/O processing to the checkpoint data set. Fields in the dump title are:

id  System ID on which the error was detected

code  JES2 abend code

The JES2 actual checkpoint master record, job queue, and JOT storage are dumped.

Associated problem data
For additional information on JES2 error codes, see message $HASP095 in [z/OS JES2 Messages].

ENF ABEND ERRORMOD=IEFENFFX

Component
Scheduler services (5752-BB131)

Issuing module
IEFENFFX

Explanation
An abend occurred while IEFENFFX (ENF request router routine) was processing an event notification request. The areas dumped are NUC and SQA.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains the ESTAE or FRR parameter list and footprint bits that indicate the processing path of IEFENFFX.

ENF ABEND ERRORMOD=IEFENFNM

Component
Scheduler services (5752-BB131)

Issuing module
IEFENFNM
Explanation
An abend occurred while IEFENFNM (ENF mainline routine) was
processing an event notification request. The areas dumped are NUC,
RGN, CSA, and SQA.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains the ESTAE or
FRR parameter list and footprint bits that indicate the processing path of
IEFENFNM.

**ENF LISTEN EXIT ERROR, ISSUER=IEFENFNM,
ESTABLISHER=jjjj, rrrr, eeee, EXIT=aaaa, nnnn**

Component
Event Notification Facility (ENF) (5752-BB131)

Issuing module
IEFENFNM

Explanation
An error occurred while a listen exit was in control. Fields in the dump
title are:

jjjj
Home jobname at the time of the ENFREQ ACTION=LISTEN

rrrr
Return address of the caller

eeee
Name of the establisher

aaaa
Address of the listen exit

nnnn
Name of the listen exit

Associated problem data
The SDWA variable recording area (SDWAVRA) contains the ESTAE or
FRR parameter list and footprint bits that indicate the processing path of
IEFENFNM.

**ERROR DURING SNAP, COMPON=SNAP, COMPID=SCDMP,
ISSUER=IEAVAD01**

Component
Dumping Services - SNAP (5752-SCDMP)

Issuing module
IEAVAD01 - ESTAE

Explanation
An error occurred during SNAP dump processing when SNAP was
attempting to take a dump for the user. An I/O error or erroneous control
block field can cause this error. The areas dumped are LPA, SQA, TRT,
GRSQ, and subpools 250 and 253.

Associated problem data
The LOGDATA in the dump includes the failing CSECT name that
identifies the formatter in control at the time of the error.
SVC Dump Titles

**ERROR IN AHLSETEV**

Component  
Generalized trace facility (GTF) (5752-SC111)

Issuing module  
AHLSETEV

Explanation  
A program check occurred when referencing the MC (monitor call) tables that are built during GTF initialization by the SETEVENT macro. GTF applications end and acquired resources are freed. Message AHL132I is issued. The area dumped is SQA, which contains the MC tables.

Associated problem data  
Validate the MC tables, which are located in the SQA. For additional information, see message AHL132I in [z/OS MVS System Messages, Vol 1 (ABA-AOM)](https://www.ibm.com/mountview/).

**ERROR IN IATSIDMO FOR SYSOUT DATA SET**

Component  
JES3 (5752-SC1BA)

Issuing module  
IATDMFR - FRR

Explanation  
An error occurred while module IATSIDM (USAM subsystem interface routine) was attempting to open a SYSOUT data set. The FRR routine IATDMFR requests an SVC dump. IATDMFR returns to IATSIDM via the retry address (RETADDR parameter) on the SETRP macro. IATSIDM ends the job with a 1FB system abend code. The areas dumped are SQA, CSA, and LPA.

Associated problem data  
For a description of the 1FB abend code, see [z/OS MVS System Codes](https://www.ibm.com/mountview/).

**ERROR IN INITIATOR, ABEND=, COMPON=INIT, COMPID=SC1B6, ISSUER=IEFIB620**

Component  
Initiator (5752-SC1B6)

Issuing module  
IEFIB620 - ESTAE

Explanation  
During initiator processing, the ESTAE exit routine IEFIB620 requests an SVC dump for one of the following:
- A system error
- A program check occurred
- The system restart key is pressed.

The areas dumped are RGN, LPA, TRT, ALLPSA, SWA, LSQA, and ALLNUC.
ERROR IN MASTER SUBSYSTEM BROADCAST FUNCTION, ABEND=aaa, SUBSYSTEM NAME=bbbb, FUNCTION CODE=ccc

Component
Initiator - Subsystem Interface (5752-SC1B6)

Issuing module
IEFJRASP

Explanation
An abend occurred while IEFJRASP was routing a subsystem interface request to all active subsystems, via the subsystem interface. The areas dumped are NUC, CSA, LPA, TRT, and LSQA. In the dump title, the variable areas are:

aaa
The hexadecimal number of the system completion code.

bbbb
The four character subsystem name.

ccc
The subsystem interface (SSI) function code.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains the following:
• Footprint bits that indicate the processing path of IEFJRASP
• The subsystem options block (SSOB) and subsystem identification block (SSIB), if these are available.
• The subsystem communication vector table (SSCVT) and subsystem vector table (SSVT) addresses.

ERROR IN MODULE AHLMCER

Component
Generalized trace facility (GTF) (5752-SC111)

Issuing module
AHLMCER

Explanation
An error occurred during GTF processing when AHLMCER attempted to route the MC (monitor call) interruption to its affiliated FGBR (filter, gather, and build routine). The FRR routine (AHLMCFRR) requests the dump prior to attempting retry. The MCRWSA and SDWA are moved into the SDUMP buffer. AHLMCER is included in the dump as part of the storage dumped. GTF ends. The areas dumped are SQA, SDUMP buffer, failing module, and failing address space.

Associated problem data
Message AHL007I is issued.

Problem determination
This error is usually an inability to pass control to an FGBR because of changes to the FGBR in SYS1.LPALIB. Field MCREID in the MCRWSA contains the event identifier of the HOOK that GTF was processing.
ERROR IN QMNGRIO PROCESSING, COMPON=SNAP, COMPID=SCDMP, ISSUER=IEAVAD01

Component
Dumping Services - SNAP (5752-SCDMP)

Issuing module
IEAVAD01 - ESTAE

Explanation
An error occurred during SNAP dump processing when the QMNGRIO macro attempted to read the JFCB in order to obtain an output line and the page capacity. The areas dumped are LPA, SWA, SQA, TRT, and subpools 250 and 253.

Problem determination
The JFCB might be in error.

ERROR IN SUBSYSTEM INITIALIZATION, COMPON=INIT-SSI, COMPID=SC1B6, ISSUER=IEFJSIN2, ABEND=hhh

Component
Initiator - Subsystem interface (5752-SC1B6)

Issuing module
IEFJSIN2

Explanation
An abend (hhh) occurred during initialization processing of the subsystems. The error occurred in IEFJSIN2 or in service routines IEEMB878 or IEEMB882. The areas dumped are ALLPSA, LSQA, RGN, and TRT.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains the footprint bits that indicate the processing path of IEFJSIN2.

ERROR IN SUBSYSTEM EVENT RTN, COMPON=SSI, COMPID=5752SC1B6, ISSUER=IEFJSCMD, ABEND=hhh

Component
Subsystem interface (5752-SC1B6)

Issuing module
IEFJSCMD

Explanation
An error occurred while invoking a subsystem event notification routine. The ABEND code is contained in the dump title. The areas dumped are: SWA, TRT, SUM, and CSA.

Associated problem data
The VRA contains the following information:
- Name of the subsystem event notification routine
- Address of the subsystem event notification routine
- Address of the SSCVT associated with the event
- IEFJSEPL subsystem event parameter list
ERROR IN SUBSYSTEM SERVICE RTN, COMPON=INIT-SSI, COMPID=SC1B6, ISSUER=IEFJSBLD, ABEND=hhh

Component
Initiator - Subsystem interface (5752-SC1B6)

Issuing module
IEFJSBLD

Explanation
An abend (hhh) occurred while IEFJSBLD was either building an SSCVT, SSVT, SHAS, or SAST, or was preparing to link to the initialization routine for the subsystem. The areas dumped are ALLPSA, LSQA, RGN, CSA, and TRT.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains the input parameter list and footprint bits that indicate the processing path of IEFJSBLD.

EVENT NOTIFICATION FACILITY ERROR, ABEND=xxx, COMPON=SCHR-ENF, COMPID=BB131, ISSUER=IEFENFWT

Component
Scheduler services (5752-BB131)

Issuing module
IEFENFWT

Explanation
An abend occurred while IEFENFWT (ENF wait routine) was processing. The areas dumped are NUC, CSA, SQA, and RGN.

FAILURE DURING SNAP RECOVERY, COMPON=SNAP, COMPID=SCDMP, ISSUER=IEAVAD01

Component
Dumping Services - SNAP (5752-SCDMP)

Issuing module
IEAVAD01 - ESTAE

Explanation
An error occurred while the SNAP dump ESTAE routine was attempting to cleanup after an error occurred during SNAP mainline processing. No further cleanup is attempted. The areas dumped are LPA, SQA, TRT, GRSQ, and subpools 250 and 253.

Problem determination
The SNAP storage buffers are probably incorrect. Use the previous RTM2WA to identify the error that occurred during SNAP mainline processing. The SNAP mainline error might have affected this error.

FIOD:IDA019S2 - ABEND FROM FIOD FRR

Component
VSAM - Record management (5665-28418)

Issuing module
IDA019S2 - FRR
**SVC Dump Titles**

**Explanation**
An abnormal end occurred during VSAM record management processing. The FRR routine IDA019S2 (at entry point IDAF19S2) requests an SVC dump macro. The areas dumped are PSA, NUC, RGN, TRT, CSA, and SQA.

**Problem determination**
A VSAM ICIP (improved control interval processing) request was running in supervisor state or SRB mode and encountered a program check while the I/O manager was processing the request. Register 3 points to the IOMB for the request.

**GTF TERMINATING ON ERROR CONDITION**

**Component**
Generalized trace facility (GTF) (5752-SC111)

**Explanation**
An error occurred during GTF initialization before the initialization was successfully completed. The retry routine AHLTERM2 requests an SVC dump. GTF ends. The areas dumped are RGN, LPA, SQA, and MCHEAD control block.

**HASPDUMP SUBSYS=ssss vvvvcccc MODULE=mmmmmmmm CODE=cccc**

**Component**
JES2 (5752-SC1BH)

**Issuing module**
HASPTERM or HASPRAS

**Explanation**
An error occurred during JES2 processing. In the dump title, the variable areas are:

- **ssss**
  The subsystem identification, normally JES2, obtained from the TIOT

- **vvvvvv**
  The JES2 version identification

- **mmmmmmmmm**
  The name of the primary JES2 load module, normally HASJES20

- **cccc**
  The system completion code, Shhh (such as S0C1) or JES2 catastrophic error code, $ccc (such as $K01)

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains diagnostic information. See the JES2 LGRR mapping macro in module HASPDOC for a description of SDWAVRA information.

See message $HASP095 in z/OS JES2 Messages for an explanation of JES2 error codes, and see z/OS MVS System Codes for an explanation of system codes.
**IATSIJS JSESEXIT**

**Component**
JES3 (5752-SC1BA)

**Issuing module**
IATSIJS

**Explanation**
An abend occurred during IATSIJS (job processing subsystem interface) processing. The ESTAE routine established by IATSIJS receives control to examine the function control table (FCT) active at failure to determine which function or DSP failed. The areas dumped are PSA, NUC, SQA, RGN, LPA, TRT, and CSA.

**IATSNLS - ESTAE EXIT**

**Component**
JES3 (5752-SC1BA)

**Issuing module**
IATSNLS

**Explanation**
A subtask was ended because an abend occurred in one of the following:
- OPNDST processing
- CLSDST exit
- CLSDST error exit
- SETLOGON exit
- SIMLOGON exit
- LOGON IRB
- TPEND processing
- LOSTERM exit
- RESPONSE IRB exit
- DFSAY exit
- OPEN or CLOSE processing (in which case, no retry is attempted).

IATSNLS requested an SVC dump. The areas dumped are SQA, ALLPSA, NUC, LSQA, RGN, LPA, TRT, and CSA.

**IATSSCM READ-END FAILURE**

**Component**
JES3 (5752-SC1BA)

**Issuing module**
IATSSCM

**Explanation**
An error occurred during IATSSCM (subsystem communication scheduler) read-end processing. The areas dumped are PSA, NUC, RGN, LPA, TRT, CSA, and SQA.

**IAT1081 ERROR IN IATDMDKT - IATYISR POSSIBLY LOST**

**Component**
JES3 (5752-SC1BA)
### Issuing module

**IATDMFR - FRR**

### Explanation

A software or hardware error occurred and caused the JES3 channel end routine (IATDMDKT) to abnormally end. The FRR routine IATDMFR was not able to recover from the error. Either the input/output service block (IOSB) or service request block (SRB) in IATYISR might be erroneous. The areas dumped are SQA, LPA, and CSA.

### Associated problem data

Message IAT1801 is issued. For a description of message IAT1801, see [z/OS JES3 Messages](#).

### IAT3702 dspname (ddd) ABENDED/FAILED ABEND
code/DMxxx - JES3 FAILURE NO.nnn

#### Component

JES3 (5752-SC1BA)

#### Issuing module

IATABN0

#### Explanation

A DSP abended or failed. In the dump title, the variable fields are:

- **dspname**: The failing DSP
- **ddd**: The device number, if available.
- **code**: The system abend code
- **xxx**: The DM type
- **nnn**: The unique JES3 fail soft identifier

Message IAT3702 is issued. IATABN0 (online format driver) requests an SVC dump. The areas dumped are PSA, NUC, SQA, LSQA, RGN, LPA, TRT, and CSA.

### Associated problem data

For additional information, see the abend codes in [z/OS MVS System Codes](#), DM codes in [z/OS JES3 Diagnosis](#), and message IAT3702 in [z/OS JES3 Messages](#).

### IAT4830 IATIISB MASTER TASK ABEND

#### Component

JES3 (5752-SC1BA)

#### Issuing module

IATIISB

#### Explanation

An abend occurred during IATIISB (interpreter master subtask) processing. The areas dumped are NUC, PSA, RGN, LPA, TRT, and CSA.
Problem determination
Check the SYMMSG data set for error indications.

IAT4831 IATIIST SUBTASK ABEND

Component
JES3 (5752-SC1BA)

Issuing module
IATIIST (IATYICT work area)

Explanation
An abend occurred while an interpreter subtask was processing. Message IAT4211 is issued. IATIIST requests an SVC dump. The areas dumped are SQA, PSA, NUC, RGN, LPA, TRT, and CSA.

ICHRST00 - RACF SVCS, ABEND CODE=sss-rrr, SVC=sname, USER=user, GROUP=gname, EXIT=rname

Component
Resource Access Control Facility (RACF) (5752-XXH00)

Issuing module
ICHRST00 - ESTAE

Explanation
An abend occurred during processing of:
• A RACF SVC
• The GENLIST or RACTION operand of the SETROPTS command

In the dump title, the variable fields are:

sss
System completion code for an abend

rrr
Reason code (see \textit{z/OS Security Server RACF Messages and Codes})

sname
The RACF routine handling the SVC and issuing the ABEND

user
If interactive, the RACF userid of the user encountering the problem; if batch, the job encountering the problem

gname
If interactive, the RACF group of the user encountering the problem; if batch, the step encountering the problem

rname
Name of the CSECT that probably caused the problem

The task ended. The areas dumped are CSA, LPA, PSA, RGN, SQA, and TRT.

Associated problem data
RACF may issue message ICH409I. See \textit{z/OS Security Server RACF Messages and Codes} for the explanation.

Problem determination
Do the following steps:
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1. Identify the CSECT named in the dump title (EXIT=rname) as one of the following:
   - An installation-supplied exit routine. This routine probably caused the problem. For a description of exit routines, see z/OS Security Server RACF System Programmer’s Guide.
   - An IBM-supplied routine.

2. See the message ICH409I, if issued, with the same ABEND code and reason code as the dump title for the following problem data:
   - The RACF macro or SETROPTS command option being processed: GENLIST or RACLST.
   - An indication whether RACF was performing parameter validation or other processing.

3. See z/OS Security Server RACF Messages and Codes for an explanation of the ABEND code and reason code in the dump title.

ICHRST00 - RACF SVCS, ABEND CODE=sss-rrr, SVC=sname, USER=user, GROUP=gname, EXIT=rname

Component
Resource Access Control Facility (RACF) (5752-XXH00)

Issuing module
ICHRST00 - ESTAE

Explanation
An abend occurred during processing of one of the RACF SVCs or during processing of the GENLIST or RACLST operand of the SETROPTS command. The task ended. The areas dumped are PSA, RGN, LPA, TRT, CSA, and SQA.

In the dump title, the variable fields are:

sss
System completion code for an abend

rrr
Reason code (see z/OS Security Server RACF Messages and Codes)

sname
The RACF routine handling the SVC and issuing the ABEND

user
If interactive, the RACF userid of the user encountering the problem; if batch, the job encountering the problem

gname
If interactive, the RACF group of the user encountering the problem; if batch, the step encountering the problem

rname
Name of the CSECT that probably caused the problem

Problem determination
Do the following steps:
1. Find the routine named in EXIT in the dump title:
   - If it is an installation-written exit routine, it probably caused the error. See z/OS Security Server RACF System Programmer’s Guide for a description of the RACF exits. Diagnose the exit routine, using standard diagnosis methods to analyze the problem.
SVC Dump Titles

- If it is an IBM-supplied routine, do the following steps.

2. See message ICH409I in [z/OS Security Server RACF Messages and Codes](#) with the same ABEND and reason codes as in the dump title, for the following:
   - RACF macro and SETROPTS command option (GENLIST or RACLST) that was being processed
   - Whether parameter validation or other processing was being done

3. See [z/OS Security Server RACF Messages and Codes](#) for an explanation of the abend code and reason code.

**ICTMCS01, CRYPTOGRAPHY INITIALIZATION**

**Component**
Programmed Cryptographic Facility (5752-XY500)

**Issuing module**
ICTMCS01 - ESTAE

**Explanation**
An abend occurred during initialization of the Programmed Cryptographic Facility. The areas dumped are PSA, NUC, LSQA, RGN, LPA, TRT, CSA, SWA, and SQA.

**ICTMKG00, KEY GENERATOR PROGRAM**

**Component**
Programmed Cryptographic Facility (5752-XY500)

**Issuing module**
ICTMKG00 - ESTAE

**Explanation**
An abend occurred during key generator program processing in ICTMKG00. The areas dumped are PSA, NUC, LSQA, RGN, TRT, CSA, and SQA.

**ICTMKG01 HANDLE SYSIN MODULE**

**Component**
Programmed Cryptographic Facility (5752-XY500)

**Issuing module**
ICTMKG01 - ESTAE

**Explanation**
An abend occurred during key generator control statement processing in ICTMKG01. The areas dumped are PSA, NUC, LSQA, RGN, TRT, CSA, and SQA.

**ICTMKM01, START CRYPTOGRAPHY COMMAND**

**Component**
Programmed Cryptographic Facility (5752-XY500)

**Issuing module**
ICTMKM01 - ESTAE
SVC Dump Titles

**Explanation**
An abend occurred during start cryptography command processing in ICTMKM01. The areas dumped are PSA, NUC, LSQA, RGN, LPA, TRT, CSA, SWA, and SQA.

**ICTMKM04 - KEY MANAGER**

**Component**
Programmed Cryptographic Facility (5752-XY500)

**Issuing module**
ICTMKM04 - FESTAE

**Explanation**
An abend occurred during GENKEY or RETKEY macro processing in ICTMKM04. The areas dumped are PSA, NUC, LSQA, RGN, LPA, TRT, CSA, SWA, and SQA.

**Associated problem data**
Message ICT022I is issued to console ID 0 and identifies the requested function and abend code.

**ICTMSM07 - ICTMSM07 - CIPHER DUMP**

**Component**
Programmed Cryptographic Facility (5752-XY500)

**Issuing module**
ICTMSM07 - FESTAE or FRR

**Explanation**
An abend occurred during processing of a request to encipher or decipher data (CIPHER macro) in ICTMSM07. If the CIPHER macro was branch-entered, an FRR was established and a branch entry to SVC dump processing was used. The areas dumped are NUC, LSQA, RGN, LPA, TRT, CSA, SWA, ALLPSA, and SQA.

**ICTMSM07 - ICTMSM08 TRNSKEY DUMP**

**Component**
Programmed Cryptographic Facility (5752-XY500)

**Issuing module**
ICTMSM07 - FESTAE

**Explanation**
An abend occurred during the processing of the translate key (TRNSKEY macro) function. The areas dumped are NUC, LSQA, RGN, LPA, TRT, CSA, SWA, ALLPSA, and SQA.

**ICTMSM07 - ICTMSM09 EMK DUMP**

**Component**
Programmed Cryptographic Facility (5752-XY500)

**Issuing module**
ICTMSM09 - FESTAE
Explanation
An abend occurred during the processing of the encipher under master key (EMK macro) function. The areas dumped are NUC, LSQA, RGN, LPA, TRT, CSA, SWA, ALLPSA, and SQA.

**IDA019SB:IDA121F7 - ABEND FROM BUILD IDACPA**

**Component**
VSAM - Record Management (DF105)

**Issuing module**
IDA019SB - FRR

**Explanation**
An abnormal end occurred during VSAM record management processing. The FRR in IDA019SB requests an SVC dump. This FRR allows end processing to continue. The areas dumped are PSA, NUC, RGN, TRT, CSA, and SQA.

**Problem determination**
A channel program was being constructed for a VSAM global shared resources (GSR) request. Register 3 points to the IOMB for the request.

**IEC251I, VSAM GSR FORCE DLVRP DUMP DATA**

**Component**
VSAM - CLOSE processing (DF106)

**Issuing module**
IDA0200T

**Explanation**
VSAM was closing the last data set opened against the resource pool, and the ASCB originating the pool had already ended. A force delete of the pool was done to release resources and storages. This is an informational dump. It indicates that a FORCE DLVRP was done to free storage used by a GSR (global shared resources) pool, with an attempt to dump control blocks to the SYS1.DUMP data set.

**Associated problem data**
VSAM issues message IEC251I. For additional information, see IEC251I in z/OS MVS System Messages, Vol 7 (IEB-IEE).

**IEC999I IFG0RR0A, IFG0RR0F, jobn, stepn, WORKAREA=addr**

**Component**
Open/Close/EOV (DF107)

**Issuing module**
IGF0RR0F - ESTAE

**Explanation**
An error occurred during open, close, or EOV processing. In the dump title, the variable fields are:

*jobn*  
The name of the affected job; from the TIOT, if available

*stepn*  
The name of the affected step; from the TIOT, if available
SVC Dump Titles

addr
The address of the task recovery routine (TRR) work area

The areas dumped are NUC and RGN.

Associated problem data
Message IEC999I is issued. For additional information, see IEC999I in z/OS MVS System Messages, Vol 7 (IEB-IEE).

IEC999I IFG0RR0A, errmod, jobn, stepn, WORKAREA=addr

Component
Open/Close/EOV (DF107)

Issuing module
IFG0RR0A - ESTAE

Explanation
An error occurred during open, close, EOVT, or DADSM processing. In the dump title, the variable fields are:

errmod
The name of the module in error

jobn
The name of the affected job; from the TIOT, if available

stepn
The name of the affected step; from the TIOT, if available

addr
The address of the task recovery routine (TRR) work area

The area dumped is RGN.

Associated problem data
Message IEC999I is issued. For additional information, see IEC999I in z/OS MVS System Messages, Vol 7 (IEB-IEE).

IEC999I IFG0RR0A, errmod, jobn, stepn, WORKAREA=addr

Component
Open/Close/EOV (DF107)

Issuing module
IFG0RR0E - ESTAE

Explanation
An error occurred during open, close, EOVT, or DADSM processing. In the dump title, the variable fields are:

errmod
The name of the module in error

jobn
The name of the affected job; from the TIOT, if available

stepn
The name of the affected step; from the TIOT, if available

addr
The address of the task recovery routine (TRR) work area
The areas dumped are NUC and RGN.

**Associated problem data**


IEC999I IFG0TC0A, subrout, jobn, stepn, DEB ADDR=addr

IEC999I IFG0TC4A, subrout, jobn, stepn, DEB ADDR=addr

IEC999I IFG0TC5A, subrout, jobn, stepn, DEB ADDR=addr

**Component**

Open/Close/EOV (DF107)

**Issuing module**

IFG0TC0A (Task Close) or IFG0TC4A (ESTAE)

**Explanation**

An error occurred during task close processing. If the abend occurs in one of the subroutines called by task close, the task close ESTAE routine IFG0TC4A requests an SVC dump. If the error occurs during mainline task close processing, IFG0TC0A requests an SVC dump. More than one SVC dump may be issued when errors are encountered in the called subroutines. In the dump title, the variable fields are:

- **subrout**
  The failing subroutine

- **jobn**
  The name of the affected job; from the TIOT, if available

- **stepn**
  The name of the affected step; from the TIOT, if available

- **addr**
  The address of the associated DEB

The areas dumped are NUC, RGN, CSA, and SQA.

**Associated problem data**


**IEECB906 SLIP ESTAE DUMP**

**Component**

SLIP Command (5752-SCSLP)

**Issuing module**

IEECB906 - ESTAE

**Explanation**

An error occurred during SLIP or DISPLAY SLIP command processing.

**Associated problem data**

The SDWA variable recording area (SDWAVRA) contains the ESTAE parameter list.
IEECB914 SLIP TSO COMM RTN ESTAE DUMP

Component
SLIP TSO communication (5752-SCSLP)

Issuing module
IEECB914

Explanation
An error occurred while a SLIP command was being entered from a TSO terminal. The area dumped is SQA

Associated problem data
The SDWA variable recording area (SDWAVRA) contains the ESTAE parameter list and a copy of the SLIP TSO element (STE) associated with the SLIP command.

IEEMPS03 - DUMP OF MAIN WORKAREA

Component
Reconfiguration (5752-SC1CZ)

Issuing module
IEEMPS03

Explanation
An abend occurred during QUIESCE command processing. The main work area for IEEMPS03 is dumped.

IEEVLDWT ERROR

Component
Reconfiguration (5752-SC1CZ)

Issuing module
IEEVLDWT

Explanation
An error occurred during IEEVLWT (load-wait) processing. The FRR routine in IEEVLWT requests an SVC dump.

Associated problem data
The SDWAVRA field in the SDWA contains the FRR parameter list.

IGCT0018, jobn, stepn

Component
Sequential access method (SAM) (5665-28414)

Issuing module
IGCT0018 - ESTAE

Explanation
During SVC 18 (BLDL or FIND) processing, the ESTAE routine IGCT0018 requests an SVC dump for one of the following:
- An abend occurred
- A previous error recovery routine failed
- A system error occurred

In the dump title, the variable fields are:
The name of the affected job

The name of the affected step

The areas dumped are PSA, NUC, SQA, and RGN.

Associated problem data

Message IEC909I is issued. See IEC909I in [Z/OS MVS System Messages, Vol 7](IEB-IEE).

**IGCT002D, jobn, stepn**

**Component**
Sequential access method (SAM) (5665-28414)

**Issuing module**
IGCT002D - ESTAE

**Explanation**
During SVC 24 (DEVTYPE) processing, the ESTAE routine IGCT002D requests an SVC dump for one of the following:
- An abend occurred
- A previous error recovery routine failed
- A system error occurred

In the dump title, the variable fields are:

**jobn**
The name of the affected job

**stepn**
The name of the affected step

The areas dumped are PSA, NUC, SQA, and RGN.

Associated problem data

Message IEC912I is issued. See IEC912I in [Z/OS MVS System Messages, Vol 7](IEB-IEE).

**IGCT002E, jobn, stepn**

**Component**
Sequential access method (SAM) (5665-28414)

**Issuing module**
IGCT002E - ESTAE

**Explanation**
During SVC 25 (track balance/overflow) processing, the ESTAE routine IGCT002E requests an SVC dump for one of the following:
- An abend occurred
- A previous error recovery routine failed
- A system error occurred

In the dump title, the variable fields are:

**jobn**
The name of the affected job
SVC Dump Titles

**stepn**
The name of the affected step
The areas dumped are PSA, NUC, SQA, and RGN.

**Associated problem data**
Message IEC915I is issued. See IEC915I in [z/OS MVS System Messages, Vol 7](IEB-IEE).

**IGCT0021, jobn, stepn**

**Component**
Sequential access method (SAM) (5665-28414)

**Issuing module**
IGCT0021 - ESTAE

**Explanation**
During SVC 21 (STOW) processing, the ESTAE routine IGCT002I requests an SVC dump for one of the following:
- An abend occurred
- A previous error recovery routine failed
- A system error occurred

In the dump title, the variable fields are:

**jobn**
The name of the affected job

**stepn**
The name of the affected step
The areas dumped are PSA, NUC, SQA, and RGN.

**Associated problem data**
Message IEC911I is issued. See IEC911I in [z/OS MVS System Messages, Vol 7](IEB-IEE).

**IGCT005C, jobn, stepn**

**Component**
DAM (5665-28416)

**Issuing module**
IGCT005C - ESTAE

**Explanation**
During SVC 53 (exclusive control) processing, the ESTAE routine IGCT005C requests an SVC dump for one of the following:
- A previous error recovery routine failed
- A system error occurred

In the dump title, the variable fields are:

**jobn**
The name of the affected job

**stepn**
The name of the affected step
The areas dumped are PSA, NUC, SQA, and RGN.
IGCT005G, jobn, stepn

Component
DAM (5665-28416)

Issuing module
IGCT005G - ESTAE

Explanation
During SVC 57 (FREEDBUF) processing, the ESTAE routine IGCT005G requests an SVC dump for one of the following:

• An error other than a program check occurred in the cleanup routine
• A previous error recovery routine failed
• A system error occurred

In the dump title, the variable fields are:

jobn
The name of the affected job

stepn
The name of the affected step

The areas dumped are PSA, NUC, SQA, and RGN.

IGCT006H, jobn, stepn, procstepn, 744

Component
Sequential access method (SAM) (5665-28414)

Issuing module
IGCT006H - ESTAE

Explanation
During SVC 68 (SYNADAF/SYNADRLS) processing, the ESTAE routine IGCT006H requests an SVC dump for one of the following:

• An abend occurred
• A previous error recovery routine failed
• A system error occurred

In the dump title, the variable fields are:

jobn
The name of the affected job

stepn
The name of the affected step

procstepn
The name of the affected procedure step

The areas dumped are PSA, NUC, SQA, and RGN.
SVC Dump Titles

Associated problem data
Message IEC906I is issued. See IEC906I in z/OS MVS System Messages, Vol 7 (IEB-IEE).

IGCT0069, jobn, stepn

Component
Sequential access method (SAM) (5665-28414)

Issuing module
IGCT0069 - ESTAE

Explanation
During SVC 69 (BSP) processing, the ESTAE routine IGCT0069 requests an SVC dump for one of the following:

• An abend occurred
• A previous error recovery routine failed
• A system error occurred

In the dump title, the variable fields are:

jobn
The name of the affected job

stepn
The name of the affected step

The areas dumped are PSA, NUC, SQA, and RGN.

Associated problem data
Message IEC917I is issued. See IEC917I in z/OS MVS System Messages, Vol 7 (IEB-IEE).

IGCT010E, jobn, stepn

Component
Sequential access method (SAM) (5665-28414)

Issuing module
IGCT010E - ESTAE

Explanation
During SVC 105 (IMGLIB) processing, the ESTAE routine IGCT010E requests an SVC dump for one of the following:

• An abend occurred
• A previous error recovery routine failed
• A system error occurred

In the dump title, the variable fields are:

jobn
The name of the affected job

stepn
The name of the affected step

The areas dumped are PSA, NUC, SQA, and RGN.

Associated problem data
Message IEC920I is issued. See IEC920I in z/OS MVS System Messages, Vol 7 (IEB-IEE).
IGCT105C jobn, stepn

Component
DAM (5665-28416)

Issuing module
IGCT105C - ESTAE

Explanation
During SVC 53 (exclusive control) processing, the ESTAE routine IGCT105C requests an SVC dump for one of the following:
- An abend occurred
- An error other than a program check occurred in the cleanup routine for the first-level ESTAE routine.

In the dump title, the variable fields are:
- jobn
  The name of the affected job
- stepn
  The name of the affected step

The areas dumped are PSA, NUC, SQA, and RGN.

Associated problem data
Message IEC903I is issued. See IEC903I in z/OS MVS System Messages, Vol 7 (IEB-IEE).

IGCT1081, jobn, stepn

Component
Sequential access method (SAM) (5665-28414)

Issuing module
IGCT1081 - ESTAE

Explanation
During SVC 81 (SETPRT) processing, the ESTAE routine IGCT1081 requests an SVC dump for one of the following:
- The DEB is not valid
- The FCB image is not valid
- A system error occurred

In the dump title, the variable fields are:
- jobn
  The name of the affected job
- stepn
  The name of the affected step

The areas dumped are PSA, NUC, SQA, and RGN.

Associated problem data
Message IEC918I is issued, if the ESTAE routine was not entered directly from the recovery termination manager (RTM). See IEC903I in z/OS MVS System Messages, Vol 7 (IEB-IEE).
IGC0002F CATALOG CONTROLLER 3

Component
Catalog controller 3 (5695-DF105)

Issuing module
IGC0002F - ESTAE

Explanation
During SVC 26 (CATALOG/INDEX/LOCATE) processing, the catalog controller ESTAE routine IGC0002F requests an SVC dump if any OCx abend occurs. The ESTAE routine frees storage resources so they are not lost to the system. The areas dumped are PSA, LSQA, and RGN.

IKJEFLGM REQUEST

Component
TSO scheduler (5752-SC1T4)

Issuing module
IKJEFLGM - LOGON message module

Explanation
An error occurred during LOGON processing. An SVC dump is requested if one of the following messages is issued:

IKJ56451
An installation-exit error occurred

IKJ56452
A system error occurred

IKJ600I
An I/O, OBTAIN, or OPEN error occurred

IKJ603I
An installation-exit abend occurred

IKJ608I
A TSO service routine error occurred

The areas dumped are NUC, RGN, SQA, and LPA if TSO dump is requested.

Associated problem data
Refer to messages IKJ600I, IKJ603I, and IKJ608I in z/OS MVS System Messages, Vol 9 (IGF-IWM).

IKTLTERM - I/O ERROR

Component
TSO/VTAM (5665-28002)

Issuing module
IKTLTERM

Explanation
TSO/VTAM issued an abend due to an unrecoverable I/O error. The installation requested the SVC dump by specifying the RPL sense code for the I/O error via the RCFBDUMP keyword in the TSOKEYxx parmlib member. Excessive line or hardware errors might be occurring.
IOS - IECVERPL ERROR

Component
Input output supervisor (IOS) (5752-SC1C3)

Issuing module
IECVERPL

Explanation
An error occurred while either IECVERPL was in control or an ERP that does not have a recovery routine was in control. The areas dumped are PSA, SQA, LSQA, and TRT.

ISAM INTRFC, OPEN, IDA0192I, IDAICIA1, **AUDIT NOT STARTED**

ISAM INTRFC, OPEN, IDA0192I, IDAICIA1, **IDA0192I IN CONTROL**

ISAM INTRFC, CLOSE, IDA0200S, IDAICIA1, **AUDIT UNAVAILABLE**

ISAM INTRFC, CLOSE, IDA0200S, IDAICIA1, **IDAIIPM1 IN CONTROL**

ISAM INTRFC, CLOSE, IDA0200S, IDAICIA1, **IDA0200S IN CONTROL**

Component
VSAM - ISAM-interface (5665-28418)

Issuing module
IDAICIA1 - ESTAE

Explanation
An error occurred during the opening or closing of a DCB via the ISAM interface. Module IDAICIA1 (ISAM-interface data-set management recovery routine) requests an SVC dump macro. One of the five titles appears, depending on the error and on whether open or close was in control at the time of error.

Depending on the error, some or all of the following areas are dumped:
- The dump list itself
- The DCB
- The protected copy of the DCB
- The OPEN/CLOSE work area
- The recovery work area
- IICB
- ACB
- EXLST
- Buffers
- Message area
**SVC Dump Titles**

**ISSUER=IEFAB4ED, ERRCSECT=csect, COMPID=5752-SC1B4, COMPON=DEVICE ALLOCATION-sss...sss**

**Component Allocation (5752-SC1B4)**

**Issuing module**
IEFAB4ED - Allocation common ESTAE exit

**Explanation**
In the dump title, the variable fields are:

**csect**
Name of the failing CSECT. If the name of the failing CSECT is not available, csect contains **SEE VRA**. In addition, a message is put in the VRA that states: “THE CSECT IN THE SDWACSCT FIELD IS THE FIRST CSECT IN THE FAILING SUBCOMPONENT, NOT NECESSARILY THE FAILING CSECT”.

**sss...sss**
Name of the component routine. The names of the component routines and of the first CSECT in each routine are:

- **IEFAB4F5**
  Alloc catalog control
- **IEFAB410**
  Alloc initialization
- **IEFAB4E5**
  Alloc resource manager
- **IEEAB401**
  Alloc/unalloc put rtn
- **IEFAB421**
  Common allocation
- **IEFAB4A0**
  Common unallocation
- **IEFGB4DC**
  Data set reserve/release
- **IEFDB400**
  Dynamic allocation
- **IEFAB4EC**
  Group lock/unlock
- **IEFAB451**
  JFCB housekeeping
- **IEFBB401**
  Job step allocation
- **IEFBB410**
  Job step unallocation
- **IEFAB4F4**
  Unalloc catalog control
- **IEFAB493**
  Volume mount and verify
An error occurred during allocation processing. The ESTAE routine IEFAB4ED performs general recovery processing and requests an SVC dump (if no SDWA exists). If an SDWA exists, additional checks on the error are made. An SVC dump is then requested if the error is not a user error and one of the following occurred:

- A program check
- The restart key was pressed
- A dump was not previously taken
- An abend occurred and there was no percolation or if there was percolation, it was via FRR recovery processing.

The areas dumped are LPA, ALLPSA, SQA, TRT, SUM, SWA, and LSQA. Key control blocks used by allocation are included in the summary list in the SVC dump.

**ISSUER=IEFAB4E6, ERRCSECT=csect, COMPID=5752-SC1B4, COMPON=DEVICE ALLOCATION-sss...sss**

**Component**
Allocation (5752-SC1B4)

**Issuing module**
IEFAB4E6 - Recovery routine

**Explanation**
In the dump title, the variable fields are:

- **csect**
  Name of the failing CSECT.

- **sss...sss**
  Name of the component routine.

The csect and sss...sss fields are described in the dump titled “ISSUER=IEFAB4ED,...”.

An error occurred during allocation processing. The areas dumped are LPA, ALLPSA, SQA, TRT, SUM, and LSQA.

If the error occurred during processing related to the allocation address space (ALLOCAS), message IEF100I is issued, the allocation address space might be ended, and allocation processing continues. For other errors, all units allocated to the failing address space are unallocated and the job is abnormally ended.

**Associated problem data**
If the recovery routine was entered due to system completion code 05C, register 0 contains a reason code. See [z/OS MVS System Codes](http://publib.boulder.ibm.com/infocenter/zos/v2r12/topic/com.ibm.zos.v2r12.mvs/infocnt0046b.jsp) for an explanation of system code 05C and reason codes. If the recovery routine was entered due to an error related to allocation address space processing, message IEF100I is also issued. See [z/OS MVS System Messages, Vol 8](http://publib.boulder.ibm.com/infocenter/zos/v2r12/topic/com.ibm.zos.v2r12.mvs/msgsws8e.jsp) [IEF-IGD] for an explanation of message IEF100I.

**ISSUER=IEFAB4GA, ERRCSECT=csect, COMPID=5752-SC1B4, COMPON=DEVICE ALLOCATION-sss...sss**

**Component**
Allocation (5752-SC1B4)
SVC Dump Titles

Issuing module
IEFAB4GA - DDR/swap allocation interface routine

Explanation
In the dump title, the variable fields are:

- **csect**
  Name of the failing CSECT.

- **sss...sss**
  Name of the component routine.

The csect and sss...sss fields are described in the dump titled
“ISSUER=IEFAB4ED,...”.

An error occurred while allocation was scanning the UCB pointer list.
IEFAB4GA requests an SVC dump macro if a dump was not previously taken. A retry is done to exit IEFAB4GA normally. The areas dumped are LPA, ALLPSA, SQA, TRT, SUM, and LSQA.

Associated problem data
See [z/OS MVS System Codes](#) for an explanation of system code 05C, which is related to this dump.

**ISSUER=IEFAB4SF, ERRCSECT=csect, COMPID=5752-SC1B4, COMPON=DEVICE ALLOCATION-sss...sss**

Component
Allocation (5752-SC1B4)

Issuing module
IEFAB4SF - Allocation spool file processor

Explanation
In the dump title, the variable fields are:

- **csect**
  Name of the failing CSECT.

- **sss...sss**
  Name of the component routine.

The csect and sss...sss fields are described in the dump titled
“ISSUER=IEFAB4ED,...”.

An error occurred while allocation was processing a request to segment a SYSOUT data set. IEFAB4SF requests an SVC dump macro if a dump was not previously taken. The areas dumped are LPA, ALLPSA, SQA, TRT, SUM, and LSQA.

**ISSUER=IEFDB440, ERRCSECT=csect, COMPID=5752-SC1B4, COMPON=DEVICE ALLOCATION-sss...sss**

Component
Allocation (5752-SC1B4)

Issuing module
IEFDB440 - Unit allocation/unallocation service

Explanation
In the dump title, the variable fields are:
csect
Name of the failing CSECT.

sss...sss
Name of the component routine.
The csect and sss...sss fields are described in the dump titled
"ISSUER=IEFAB4ED,...".

An error occurred during allocation processing and RTM passed control to
callout routine ESTAERTN in module IEFDB440. ESTAERTN requests an SVC
dump macro if a dump was not previously taken. The areas dumped are:
LPA, ALLPSA, SQA, TRT, SUM, SWA, and LSQA. Control is returned to
RTM.

ISTAPCES - ACF/VTAM PSS ESTAE ROUTINE

Component
ACF/VTAM (5665-28001)

Issuing module
ISTAPCES - PSS ESTAE

Explanation
An abend occurred while an ACF/VTAM task was processing and an
ACF/VTAM IRB was active. The areas dumped are SQA, NUC, RGN, LPA,
TRT, ALLPSA, and CSA.

Associated problem data
For a description of the CRA fields recorded in the SDWA, see
z/OS V2R2
MVS Data Areas Volume 4 (SCF - XTL)

ISTAPCFR - ACF/VTAM PSS FUNCTIONAL RECOVERY

Component
ACF/VTAM (5665-28001)

Issuing module
ISTAPCFR - PSS FRR

Explanation
An abend occurred while ACF/VTAM was processing and running under
an SRB. The areas dumped are ALLPSA, CSA, NUC, SQA, TRT, LPA, and
RGN.

Associated problem data
For a description of the CRA fields recorded in the SDWA, see
z/OS V2R2
MVS Data Areas Volume 4 (SCF - XTL)

ISTAPCMT - ACF/VTAM ABEND IN MEMORY TERMINATION

Component
ACF/VTAM (5665-28001)

Issuing module
ISTAPCMT

Explanation
An abend occurred while the ACF/VTAM memory termination resource
manager was processing. ACF/VTAM attempts minimal cleanup so that
ACF/VTAM can be restarted. However, CSA storage might not be usable until the next IPL. The areas dumped are SQA, NUC, RGN, LPA, LSQA, TRT, ALLPSA, and CSA.

**Associated problem data**
For a description of the CRA fields recorded in the SDWA, see [z/OS V2R2 MVS Data Areas Volume 4 (SCF - XTL)].

**ISTATM00 - ACF/VTAM TERMINATION TASK INIT/TERMIXSTAE**

**Component**
ACF/VTAM (5665-28001)

**Issuing module**
ISTATM00 - ESTAE

**Explanation**
An abend occurred while the ACF/VTAM end task was processing. The ESTAE routine ISTATM00 requests an SVC dump macro for abends that occur during ACF/VTAM processing (but not for abends that occur during application processing). The areas dumped are SQA, LSQA, TRT, ALLPSA, CSA, and RGN.

**Associated problem data**
For a description of the CRA fields recorded in the SDWA, see [z/OS V2R2 MVS Data Areas Volume 4 (SCF - XTL)].

**ISTINCST - ACF/VTAM STAE EXIT AND RECOVERY**

**Component**
ACF/VTAM (5665-28001)

**Issuing module**
ISTINCST - ESTAE

**Explanation**
An abend occurred while the ACF/VTAM job step task was processing. The areas dumped are SQA, NUC, RGN, LPA, TRT, ALLPSA, and CSA.

**ISTORMMG - ACF/VTAM FRR DUMP**

**Component**
ACF/VTAM (5665-28001)

**Issuing module**
ISTORMMG

**Explanation**
An abend occurred while ISTORMMG was running in SRB mode. ISTORMMG frees CSA storage and recovery is attempted by zeroing the CSA to-be-freed queue (ATCORTBF). The areas dumped are SQA, NUC, RGN, LPA, ALLPSA, and CSA.

**Associated problem data**
For a description of the CRA fields recorded in the SDWA, see [z/OS V2R2 MVS Data Areas Volume 4 (SCF - XTL)].

**JES2 FSI ERROR. CODE=code RC=rc (text)**

**Component**
JES2 (5752-SC1BH)
SVC Dump Titles

Issuing module
HASPFSSM

Explanation
A catastrophic error occurred in the JES2 functional subsystem interface (FSI) support routines (HASPFSSM). JES2 issued a $ERROR macro. HASPFSSM was operating in a functional subsystem (FSS) address space. JES2 ended the FSS address space.

The HASPFSSM error routine FSMCATER requested an SVC dump. The areas dumped are ALLPSA, RGN, TRT, SQA, CSA, LPA, SWA, and LSQA. This dump is associated with JES2 message $HASP750 and system abend code 02C.

Associated problem data
See message $HASP750 in z/OS JES2 Messages and abend code 02C in z/OS MVS System Codes for information on this error.

JES3 LOCATE SUBTASK ABEND

Component
JES3 (5752-SC1BA)

Issuing module
IATLVLC

Explanation
An abend occurred during IATLVLC (locate subtask) processing. The ESTAE routine established by IATLVLC is given control to examine the function control table (FCT) active at the time of failure to determine which function or DSP failed. The areas dumped are SQA, CSA, PSA, RGN, LPA, and TRT.

JES3 SNA FRR IATSNDF

Component
JES3 (5752-SC1BA)

Issuing module
IATSNDF - FRR

Explanation
An SVC dump is written each time the FRR routine (IATSNDF) is entered. This FRR routine handles abends that occur during SNA RJP processing under an SRB. Therefore, control of dumping depends on the recursion control of the FRR preventing more than two retry failures. (A dump is taken for every retry failure.) The areas dumped are: SQA, ALLPSA, NUC, LSQA, RGN, TRT, CSA, and LPA.

Associated problem data
The SDWA contains LCB data, if available.

JOB=jobname hh:mm:ss yy.ydd DUMP BY IGG0CLA9 - VSAM CATALOG MANAGEMENT

Component
VSAM - Catalog Management (5665-28418)

Issuing module
IGG0CLA9 - ESTAE


**Explanation**

An abend occurred during catalog management processing. The ESTAE routine IGG0CLA9 requests an SVC dump, frees storage resources, and backs-out partially defined catalog entries in the VSAM catalogs. Message IEC338I is also issued if a validity check failed on a user field parameter list (FPL) or a catalog parameter list (CPL).

**Associated problem data**

The SDWA variable recording area (SDWAVRA) includes:

<table>
<thead>
<tr>
<th>Offset</th>
<th>Length</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0(0)</td>
<td>8</td>
<td>Contains the characters IGG0CLA9</td>
</tr>
<tr>
<td>8(8)</td>
<td>3</td>
<td>Entry point address of IGG0CLA9</td>
</tr>
<tr>
<td>11(B)</td>
<td>8</td>
<td>Name of the last routine called</td>
</tr>
<tr>
<td>19(13)</td>
<td>3</td>
<td>Entry point address of the last routine called</td>
</tr>
<tr>
<td>22(16)</td>
<td>8</td>
<td>Name of the calling routine</td>
</tr>
<tr>
<td>30(1E)</td>
<td>3</td>
<td>Entry point address of the calling routine</td>
</tr>
<tr>
<td>33(21)</td>
<td>4</td>
<td>Contains the characters CPL=</td>
</tr>
<tr>
<td>37(25)</td>
<td>28</td>
<td>CPL for the user</td>
</tr>
</tbody>
</table>

**LOGREC FAILURE, COMPON=LOGREC, COMPID=SCOBRS, ISSUER=xxxxxxxx, ABEND=ccc, REAS=rrrrrrrr**

**Component**

System Environmental Recording (Logrec) (5752-SCOBRS)

**Issuing module**

Module identified in ISSUER

**Explanation**

An abend or logical error was encountered in the system environmental recording (logrec) component in the specified module.

**ccc**

The system completion code. If ccc is not X'14C', then no reason code is provided.

**rrrrrrrr**

The reason code associated with the X'14C' abend. For an explanation, see the X'14C' abend in [z/OS MVS System Codes](#).

- For IFBSMFNT: The system may not have established the DSNLOGREC name/token, so the name of the logrec data set cannot be retrieved using IEANTTRT.
- For any other module: A routine in logrec encountered an error, forcing an abend.

The areas dumped are: PSA, RGN, LPA, TRT, CSA, ALLNUC, and SQA, along with a dump summary.

**Associated problem data**

The SDWA variable recording area (SDWAVRA) includes footprints from the module. The VRA also contains return codes from external processing and pointers used by the routine.
RACF INITIALIZATION FAILURE

Component
Resource Access Control Facility (RACF) (5752-XXH00)

Issuing module
ICHSEC02 - ESTAE

Explanation
An abend occurred during RACF initialization processing. The areas dumped are: CSA, NUC, RGN, and SQA.

Associated problem data
RACF issues messages ICH505A and, if an RVARY command failed, ICH529I. See z/OS Security Server RACF Messages and Codes for these messages.

Problem determination
Do the following:
1. See message ICH505A for the ABEND code associated with the dump.
2. If an RVARY command failed, see message ICH529I to find out if allocation or deallocation of the RACF data base failed.

RCT DUMPING LSQA

Component
Region control task (5752-SC1CU)

Issuing module
IEAVAR00 - ESTAE

Explanation
The ESTAE routine in IEAVAR00 requested an SVC dump when a previous error recovery routine could not diagnose the error in one of the following situations:
• The RCT RB was in control
• An error occurred in the previous recovery exit
• An RCT FRR routine requested the dump
• Retry recursion occurred.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains error flags and RCT flags. Additional footprints and data are available in the RCTD of the dumped storage.

RECORD PERMANENT ERROR, COMP=RTM, COMPID=SCRTM, ISSUER=IEAVTRET

Component
Recovery termination manager (RTM) - RECORD macro (5752-SCRTM)

Issuing module
IEAVTRET - ESTAE

Explanation
One of the following occurred:
• An operation exception (abend 0C1) occurred while IEAVTRET (RECORD macro processing) was in control.
A second error occurred while RTM was processing a temporary error type. RTM turns off the recording function and issues message IEA896I to state that the recording function is not active. RTM issues a return code of 20 following RECORD macro requests.

The areas dumped are LPA, NUC, PSA, SQA, and SUM.

**RECORD TEMPORARY ERROR, COMP=RTM, COMPID=SCRTM, ISSUER=IEAVTRET**

Component  
Recovery termination manager (RTM) - RECORD macro (5752-SCRTM)

Issuing module  
IEAVTRET

Explanation  
A protection exception (abend 0C4) or privileged operation (abend 0C2) occurred while:

- IEAVTRER (RECORD macro processing) was in control and the RCB buffer was not being manipulated by the requesting routine,
- The recording task (IEAVTRET) was in control and the error was not an operation exception (abend 0C1).

This abend is not a permanent error type.

The areas dumped are LPA, NUC, PSA, SQA, and SUM.

**REQUESTOR=xxxxxxxx, ISSUER=ISGCRCV, COMPID=SCSDS, COMPON=GRS**

Component  
Global resource serialization (5752-SCSDS)

Issuing module  
ISGCRCV - ESTAE

Explanation  
An error occurred while a command processing module was processing. In the dump title, the variable field xxxxxxxx indicates the failing module.

The ESTAE module ISGCRCV requests an SVC dump. The areas dumped include the current address space, global resource serialization control blocks, and the trace table.

**RESOURCE MANAGER**

Component  
Initiator (5752-SC1B6)

Issuing module  
IEFISEXR - ESTAE

Explanation  
A program check or a restart interruption occurred in the initiator or a subsystem interface resource manager. The ESTAE routine IEFISEXR requests an SVC dump. The areas dumped are SQA, PSA, LSQA, RGN, LPA, TRT, CSA, and NUC.
RESTART INTERRUPT IN CONVERTER**IEFNB9CR**

Component
Converter (5752-SC1B9)

Issuing module
IEFNB9CR - Converter recovery routine

Explanation
A restart interruption occurred during converter processing. The ESTAE routine IEFNB9CR requests an SVC dump. The areas dumped are LSQA, SWA, RGN, and LPA.

RESTART INTERRUPT IN INTERPRETER**IEFNB9IR**

Component
Interpreter (5752-SC1B9)

Issuing module
IEFNB9IR - Interpreter recovery routine

Explanation
A restart interruption occurred during interpreter processing. The recovery routine IEFBN9IR requests an SVC dump. The areas dumped are LSQA, SWA, RGN, and NUC.

SLIP DUMP ID=xxxx

Component
Recovery termination manager - SLIP processor (5752-SCSLP)

Explanation
A SLIP trap matched; the action specified on the trap definition is ACTION=SVCD or ACTION=SYNCSVCD. In response, the system requested an SVC dump. The areas dumped are defaulted or specified in the parameters on the SLIP command. In the dump title, ID=xxxx is the SLIP trap identifier.

This dump was requested and does not represent a problem.

SMF ABEND, ERRMOD=IFAPCWTR, RECEVMOD=IFAPCWTR

Component
System management facilities (SMF) (5752-SC100)

Issuing module
IFAPCWTR - FRR

Explanation
An abend occurred while moving SMF records from the user area into buffers in the SMF address space. The areas dumped are PSA, NUC, RGN, LPA, SQA, and SUMDUMP.

SMF ABEND, ERRMOD=xxxxxxxxx, RECEVMOD=IEEMB830

Component
System management facilities (SMF) (5752-SC100)

Issuing module
IEEMB830
SMF ABENDED, ERRMOD=IEEMB834, RECVMOD=IEEMB834

Component
System management facilities (SMF) (5752-SC100)

Issuing module
IEEMB834 - FRR

Explanation
An abend occurred during the SRB mode processing that writes to the
SMF recording data set. The areas dumped are PSA, NUC, RGN, LPA, SQA, and SUMDUMP.

Associated problem data
The FRR parameter area contains footprints and is mapped by the
structure FRRPARM in the IHAFRRS control block.

SMF TIMER - IEEMB839

Component
System management facilities (SMF) (5752-SC100)

Issuing module
IEEMB839 - FRR

Explanation
An error occurred in the SMF timer module while the dispatcher lock was
held. The areas dumped are PSA, NUC, RGN, SQA, LPA, TRT, and SUMDUMP.

SRM - IRARMSRV 55F ABEND DURING XMPOST

Component
System resources manager (SRM) (5752-SC1CX)

Issuing module
IRARMSRV

Explanation
An error occurred during the cross-address-space post function. The post
was requested by module IRARMEVT to notify the issuer of a REQSWAP
or TRANSWAP that the swap is complete or that the address space became
not swappable before the swap could be initiated. The address space being
posted is ended with a 55F completion code. The areas dumped are PSA, SQA, and TRT.

Associated problem data
The ASCB and OUCB for the ending address space are copied into the
SDUMP buffer pointed to be CVTSDBF. The buffer fields are mapped by
SDMPBUFF in module IRARMSRV.
SRM RECOVERY ENTERED, COMPON=SRM, COMPID=SC1CX, ISSUER=IRARMERR

Component
System resources manager (SRM) (5752-SC1CX)

Issuing module
IRARMERR - FRR

Explanation
An error occurred during SRM processing. Depending on the error, retry of the failing function is attempted or the error is percolated. The current address space is dumped.

Associated problem data
The SDWA variable recording area (SDWAVRA) contains the abending module name, module level, entry point address, recovery routine name, and the 6-word recovery parameter area (RRPA).

SSICS ABEND 6FB

Component
JES3 (5752-SC1BA)

Issuing module
IATSSCM

Explanation
A system error occurred while IATSSCM (subsystem communication scheduler) was processing in an address space other than the JES3 address space. Abend 6FB is issued. The areas dumped are PSA, RGN, LPA, TRT, CSA, NUC, and SQA.

Associated problem data
For a description of code 6FB, see z/OS MVS System Codes.

SSICS ESTAE-IATSSCM

Component
JES3 (5752-SC1BA)

Issuing module
IATSSCM

Explanation
IATSSCM (subsystem communication scheduler) was not able to reduce the system impact caused by communication failures for the second time. JES3 is put in the IATSSCM quiesce condition. The areas dumped are PSA, RGN, LPA, TRT, CSA, NUC, and SQA.

STORAGE DUMP TAKEN AT ENTRY TO IEEMB812 ESTAE EXIT

Component
System resources manager (SRM) (5752-SC1CX)

Issuing module
IEEMB812 - SRM SET Processor

Explanation
An error occurred during SRM processing of a SET command. The new
tables are freed and the old controls remain in effect. The SET command is retried. If the error recurs, IEEMB812 percolates the error.

**STORAGE DUMP TAKEN AT ENTRY TO IRARMERR**

**Component**
System resources manager (SRM) (5752-SC1CX)

**Issuing module**
IRARMERR - FRR

**Explanation**
An error occurred during SRM processing. Depending on the error, retry of the failing function is attempted or the error is percolated. The current address space is dumped.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains a message that gives an offset into the data module IRARMCNS. This offset is the location of the control block for the SRM routine in control when the error occurred.

**STORCSR DUMP, COMPID = SC1CK, ISSUER = IEAVG720**

**Component**
Communications task (5752-SC1CK)

**Issuing module**
IEAVG720

**Explanation**
An error occurred while IEAVG720 was performing Cell Pool services. The areas dumped are CSA, LPA, LSQA, NUC, PSA, RGN, SQA, SUM, and TRT.

**SWA CREATE**

**Component**
Scheduler work area (SWA) manager (5752-SC1B5)

**Issuing module**
IEFIB645

**Explanation**
A program check or a restart interruption occurred during interpreter, restart, warm start, or SWA create processing. The recovery routine IEFIB645 requests an SVC dump. The areas dumped are SQA, PSA, LSQA, RGN, LPA, TRT, CSA, and NUC.

**TCAS DUMP**

**Component**
TSO/VTAM (5665-28002)

**Issuing module**
IKTCAS52

**Explanation**
TCAS (terminal control address space) ended because of one of the following:
- The operator requested end through the STOP command
A program check occurred
The dump was taken as a result of the operator responding DUMP to message IKT012D.

**TIMER FRR DUMP**

**Component**
Timer supervisor (5752-SC1CV)

**Explanation**
An error occurred during timer supervision processing. The areas dumped are PSA, NUC, SQA, TRT, and LSQA for the current address space.

**Associated problem data**
The SDWA variable recording area (SDWAVRA) contains the data area TFRRPARM. TFRRPARM contains indicators that tell the type of processing taking place and the locks held at the time of the error, as well as the results of the TQE validation process.

**TSO OUTPUT CP ESTAE**

**Component**
TSO scheduler (5752-SC1T4)

**Issuing module**
IKJCT460 - ESTAE

**Explanation**
An abend error or a DETACH with STAE occurred during TSO command processing. The ESTAE exit routine IKJCT460 receives control from the supervisor and requests an SVC dump macro for:
- x0A abends (except 80A)
- All other abends except for a DETACH with STAE, the abends B37, D37, E37, 913, 622, and 222.

The areas dumped are RGN, NUC, SQA, and LPA.

**TSO SDUMP FROM IKJEFT05 - THE TMP ESTAE ROUTINE**

**Component**
TSO scheduler (5665-28502)

**Issuing module**
IKJEFT05

**Explanation**
The TMP ESTAE exit routine, IKJEFT05, requests an SVC dump macro on the first occurrence of an error in a TMP module. The areas dumped are NUC, LSQA, RGN, TRT, and SQA.

**TSOLOGON ESTAE**

**Component**
TSO scheduler (5752-SC1T4)

**Issuing module**
IKJEFLS - ESTAE

**Explanation**
A program check or PSW restart interruption occurred during TSO logon.
TSOLOGON ESTAI

Component
TSO scheduler (5752-SC1T4)

Issuing module
IKJEFLGB - ESTAI for the prompter

Explanation
During logon processing, the ESTAI routine IKJEFLGB requested an SVC dump for one of the following:
- A program check
- A PSW restart condition
- An abend in IKJEFLD (logon pre-prompt exit)

The areas dumped are RGN, NUC, SQA, and LPA.

Associated problem data
If a SDWA exists:
- Register 1 contains the address of the STAE work area.
- Register 14 contains the return address.

If a SDWA does not exist:
- Register 1 contains the abend code.
- Register 2 contains a pointer to the LWA.
- Register 14 contains the return address.

VSAM CHECKPOINT (IDA0xxxx) or VSAM RESTART (IDA0xxxx) MACHINE CHECK

VSAM CHECKPOINT (IDA0xxxx) or VSAM RESTART (IDA0xxxx) PROGRAM CHECK LOCATION=xxxxxxx

VSAM CHECKPOINT (IDA0xxxx) or VSAM RESTART (IDA0xxxx) RESTART KEY DEPRESSED

VSAM CHECKPOINT (IDA0xxxx) or VSAM RESTART (IDA0xxxx) PAGING ERROR

VSAM CHECKPOINT (IDA0xxxx) or VSAM RESTART (IDA0xxxx) ABEND Sxxx, Uxxxx, REGISTER 15=xxxxxxxx

Component
VSAM - Checkpoint/restart (5665-28418)

Issuing module
IDACKRA1 - ESTAE

Explanation
An error occurred during VSAM checkpoint or restart processing. The ESTAE routine requests an SVC dump. The title on the dump depends on

SVC Dump Titles

initialization or scheduling. The ESTAE routine IKJEFLS requests an SVC dump. The areas dumped are RGN, NUC, SQA, and LPA.
the type of error and whether checkpoint or restart was in control at the time of error. The areas dumped are SQA, LPA, and the user region.

**variable title - supplied by the system operator**

**Component**
- Dumping services - SDUMP, SNAP/ABDUMP (5752-SCDMP)

**Issuing module**
- IEECB866 - Console dump

**Explanation**
- The system operator issued a DUMP command and specified the title of the SVC dump on the command.

**variable title - supplied by the system operator**

**Component**
- JES2 (5752-SC1BH)

**Issuing module**
- HASPTERM or HASPRAS

**Explanation**
- The system operator entered an SVC dump title in response to message $HASP098. This title overrides the default dump title. The areas dumped are PSA, NUC, RGN, TRT, SQA, CSA, LPA, and SWA.

**Associated problem data**
- For information on the error, see messages $HASP098 and $HASP095 in z/OS JES2 Messages.

**SVC dumps without titles**

The SVC dumps in this topic do not have titles; however, additional information about the dump is still available.

**no title**

**Issuing module**
- IGG0CLCB - ESTAE

**Explanation**
- An abend occurred during the processing of a GENERIC LOCATE request for a CVOL. All storage resources are freed and the CVOL processor SDUMP routine requests an SVC dump. The area dumped is the LPA.

**no title**

**Component**
- IOS (5752-SC1C3)

**Issuing module**
- IGC0001F

**Explanation**
- An error occurred while IGC0001F was processing and holding a lock.
SVC Dump Titles

no title

Component
JES3 (5752-SC1BA)

Issuing module
IATIII (IATYIIW work area)

Explanation
An abend occurred during interpreter/initiator (IATIII) processing. The ESTAE routine established by IATIII is given control to examine the function control table (FCT) active at the time of failure to determine which function or DSP failed. The areas dumped are PSA, RGN, LPA, TRT, and CSA.

Associated problem data
Register 9 points to a work area containing formatted messages.
Part 2. Component Reference
Chapter 11. Introduction to component reference

The component reference section describes the diagnostic information and tools available for IBM MVS components. The information covered in each topic varies depending on what diagnostic information or tools are available for a particular component. However, nearly all topics describe the component output formatted from SVC, stand-alone, or SYSMDUMP dumps by the interactive problem control system (IPCS). This introduction includes:

- "Using IPCS to format component dump data" containing basic information about using IPCS.
- "Summary of dump and trace information for components" containing a summary of dump commands.

Using IPCS to format component dump data

To format component dump data, do the following:

- Obtain an SVC dump, stand-alone dump, or SYSMDUMP dump that includes the component address space and any related data spaces.
- Use Table 45 on page 430 to select the IPCS subcommand for a component.
- Format the dump with IPCS to produce diagnostic reports about a component as follows:
  1. Start an IPCS session.
  2. Do one of the following:
     - Select the COMMAND option on the IPCS Primary Option Menu panel. Enter the subcommand for the desired component on the IPCS Subcommand Entry panel. See Table 45 on page 430 for the subcommand for MVS components.
     - Select the ANALYSIS option on the IPCS Primary Option Menu panel. Select the COMPONENT option on the IPCS Analysis of Dump Contents panel. Enter an S next to the component you want on the IPCS Dump Component Data Analysis panel.

See z/OS MVS IPCS Commands for the syntax of the IPCS subcommands. See z/OS MVS IPCS User's Guide for an explanation of how to use the ANALYSIS COMPONENT option of the IPCS dialog.

Summary of dump and trace information for components

For each MVS component, Table 45 on page 430 shows:

- The suggested IPCS subcommand for formatting dump output for each component
- Whether IBM has provided a component trace.

Use this table as a quick reference to find the recommended IPCS dump subcommands for a specific component. If you need more information about formatting component dump data, see the individual topics in this section.

Component tracing

For component trace information about components, look in the third column of the table to see whether IBM has provided tracing for the component you are interested in. If IBM has provided tracing, the table contains the trace name for
### Component reference

that component. See component trace in *z/OS MVS Diagnosis: Tools and Service Aids* for information about requesting and formatting the component trace.

**Table 45. Summary of dump and trace information available for components**

<table>
<thead>
<tr>
<th>Component</th>
<th>IPCS Dump Command</th>
<th>Component Trace Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allocation/Unallocation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• ANALYZE RESOURCE subcommand</td>
<td>Lists jobs holding or waiting for device groups. See “ANALYZE RESOURCE subcommand output” on page 434.</td>
<td>None</td>
</tr>
<tr>
<td>• VERBEXIT ALCWAIT subcommand</td>
<td>Lists jobs waiting for devices. See “VERBEXIT ALCWAIT subcommand output” on page 435.</td>
<td></td>
</tr>
<tr>
<td>• LISTEDT HEADER subcommand</td>
<td>Information from the eligible devices table (EDT) control block. See “LISTEDT subcommand output” on page 436.</td>
<td></td>
</tr>
<tr>
<td>APPC</td>
<td></td>
<td>SYSAPPC</td>
</tr>
<tr>
<td>• APPCDATA subcommand</td>
<td>APPC/MVS component data. See “APPCDATA subcommand” on page 439.</td>
<td></td>
</tr>
<tr>
<td>• ASCHDATA subcommand</td>
<td>APPC/MVS transaction scheduler data. See “ASCHDATA subcommand” on page 440.</td>
<td></td>
</tr>
<tr>
<td>ASM</td>
<td></td>
<td>None</td>
</tr>
<tr>
<td>• ASMCHECK subcommand</td>
<td>Displays status of ASM at the time of the dump. See “ASMCHECK subcommand output” on page 473.</td>
<td></td>
</tr>
<tr>
<td>• VERBEXIT ASMDATA subcommand</td>
<td>Displays ASM control blocks. See “VERBEXIT ASMDATA subcommand output” on page 474.</td>
<td></td>
</tr>
<tr>
<td>COMMTASK</td>
<td>COMCHECK MCSINFO subcommand.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>See “Formatting COMMTASK dump data” on page 479.</td>
<td></td>
</tr>
<tr>
<td>Contents Supervision LLA subcomponent</td>
<td>None</td>
<td>SYSLLA</td>
</tr>
<tr>
<td>DIV</td>
<td>DIVDATA SUMMARY CURRENT ERROR subcommand.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>See “Formatting data-in-virtual dump data” on page 517.</td>
<td></td>
</tr>
<tr>
<td>DLF</td>
<td>DLFDATA SUMMARY CURRENT subcommand.</td>
<td>SYSVLF</td>
</tr>
<tr>
<td></td>
<td>See “Formatting DLF dump data” on page 885.</td>
<td></td>
</tr>
<tr>
<td>GRS</td>
<td>VERBEXIT GRSTRACE subcommand</td>
<td>SYSGRS</td>
</tr>
<tr>
<td></td>
<td>Displays information about the GRS component. See “VERBEXIT GRSTRACE subcommand output” on page 524.</td>
<td></td>
</tr>
<tr>
<td>IOS</td>
<td>IOSCHECK ACTVUCBS subcommand.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>See “Formatting IOS dump data” on page 539.</td>
<td></td>
</tr>
<tr>
<td>MMS</td>
<td>VERBEXIT MMSDATA subcommand.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>See “Formatting MMS dump data” on page 547.</td>
<td></td>
</tr>
<tr>
<td>z/OS UNIX</td>
<td>CBSTAT Subcommand. See “z/OS UNIX CBSTAT subcommand” on page 558.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OMVSMDATA Subcommand. See “OMVSMDATA subcommand” on page 559.</td>
<td></td>
</tr>
<tr>
<td>RSM</td>
<td>RSMCDATA SUMMARY subcommand.</td>
<td>SYSRSM</td>
</tr>
<tr>
<td></td>
<td>See “Formatting RSM dump data” on page 605.</td>
<td></td>
</tr>
<tr>
<td>RTM</td>
<td>SUMMARY FORMAT subcommand.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>See “Formatting RTM Dump Data” on page 649.</td>
<td></td>
</tr>
<tr>
<td>SRM</td>
<td>VERBEXIT SRMDATA subcommand.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>See “Formatting SRM dump data” on page 657.</td>
<td></td>
</tr>
<tr>
<td>SSI</td>
<td>SSIDATA subcommand.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>See “Formatting SSI Dump Data” on page 707.</td>
<td></td>
</tr>
<tr>
<td>VLF</td>
<td>VLFDATA SUMMARY subcommand.</td>
<td>SYSVLF</td>
</tr>
<tr>
<td></td>
<td>See “Formatting VLF dump data” on page 869.</td>
<td></td>
</tr>
<tr>
<td>VSM</td>
<td>VERBEXIT VSMDATA GLOBAL CURRENT ERROR subcommand.</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>See “Formatting VSM dump data” on page 897.</td>
<td></td>
</tr>
<tr>
<td>WLM</td>
<td>WLMDATA Subcommand.</td>
<td>SYSWLM</td>
</tr>
<tr>
<td></td>
<td>See “Formatting WLM dump data” on page 711.</td>
<td></td>
</tr>
<tr>
<td>XCF</td>
<td>COUPLE subcommand.</td>
<td>SYSXCF</td>
</tr>
<tr>
<td></td>
<td>See “Formatting dumping data using the IPCS subcommand” on page 817.</td>
<td></td>
</tr>
</tbody>
</table>
## Component reference

### Table 45. Summary of dump and trace information available for components (continued)

<table>
<thead>
<tr>
<th>Component</th>
<th>IPCS Dump Command</th>
<th>Component Trace Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>XES</td>
<td><strong>XESDATA subcommand</strong></td>
<td>SYSXES</td>
</tr>
<tr>
<td></td>
<td>XESDATA” on page 842</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>STRDATA subcommand</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>XESDATA” on page 842</td>
<td></td>
</tr>
</tbody>
</table>

See “Formatting dump data using the IPCS subcommand - XESDATA” on page 842.
Component reference
Chapter 12. Allocation/Unallocation

This topic contains the following diagnosis information for the allocation/unallocation component:

- “Eligible Devices Table (EDT)”
- “Formatting allocation/unallocation dump data” on page 434.

Eligible Devices Table (EDT)

During a normal system operation, there will only be one EDT. However, during a dynamic configuration change, the system will use more than one EDT to handle the configuration change. During a dynamic configuration change, the following EDTs may be built:

- Original EDT – this is the EDT that was in use before the configuration change began.
- Intermediate EDT – this EDT is only build when devices are being removed from the configuration and it contains the devices from the original EDT that are being removed. If devices are being added to the configuration, those devices are not part of the intermediate EDT.
- Final EDT – this EDT is the EDT that will be in use once the configuration change is complete and contains all of the devices being added and does not contain any devices that were removed.

Although there may be as many as three EDTs built during a dynamic configuration change, there will be only one or two EDTs present at a time. When devices are not being deleted from the configuration, the system will only build the final EDT and transition from the original EDT directly to the final EDT. Once that is complete, the original EDT will be deleted. When devices are being deleted from the configuration, the system will first build an intermediate EDT and transition from the original EDT to the intermediate EDT. Once that is complete, the system will then delete the original EDT and build the final EDT. Once that is complete, the intermediate EDT is deleted.

The system also uses the following two terms to describe an EDT:

- Primary EDT — an EDT that processes all new allocation requests.
- Secondary EDT — an EDT that processes all allocation requests that have not yet completed and are not used for new requests.

During a dynamic configuration change, when the system is transitioning from one EDT to another, the secondary EDT is the EDT that the system is transitioning from and the primary EDT is the EDT that the system is transitioning to. For example, when the system is deleting devices from the configuration, the system first transitions from the original EDT to the intermediate EDT and then from the intermediate EDT to the final EDT. In this case, when the system is transitioning from the original EDT to the intermediate EDT, the original EDT is the secondary EDT and the intermediate EDT is the primary EDT. Once that transition is complete, the system then transitions from the intermediate EDT to the final EDT. At this point, the intermediate EDT becomes the secondary EDT and the final EDT becomes the primary EDT.
An EDT transition cannot complete until all allocation requests that are using the secondary EDT complete.

In summary, the original, intermediate, and final EDT terms describe the physical EDTs that are created by the system. Over the course of a dynamic configuration change, these terms do not change. The primary and secondary EDT terms describe the logical EDT that is being transitioned from or transitioned to and also describes which EDT is being used to allocate new requests. Over the course of a dynamic configuration change, the primary and secondary EDT may describe different physical EDTs at different points in time.

The secondary EDT receives no new allocation requests. The system removes it when it finishes processing the allocation requests that use the secondary EDT. An EDT transition cannot complete until all allocation requests that are using secondary EDT complete.

When the system has only one EDT, it is known as the primary EDT. The EDT created at IPL, for example, is initially described as the primary EDT.

As you diagnose problems with the allocation component, be aware that dynamic configuration adds additional EDTs to the system.

### Formatting allocation/unallocation dump data

IPCS provides three subcommands to obtain diagnostic reports about allocation and unallocation.

- The ANALYZE subcommand with the keyword RESOURCE lists the jobs holding device groups and the jobs waiting for device groups.
- The VERBEXIT ALCWAIT subcommand looks at devices instead of device groups, listing jobs that are waiting for devices.
- The LISTEDT subcommand displays information from the EDT.


### ANALYZE RESOURCE subcommand output

The ANALYZE RESOURCE report identifies each resource, or device group, that is experiencing contention. Under each resource, it lists the jobs that hold the device group and the jobs requiring, or waiting for, the device group. For example in Figure 5 on page 435, Job S1400 is holding resource #0001 (device group 001B), while jobs S1401 and S1402 are waiting for it.
ANALYZE RESOURCE XREF subcommand output

If you add the XREF keyword to ANALYZE RESOURCE, IPCS would add the following information to the previous report:

- For each job that holds a device group, the report lists all other device groups that job holds.
- For each job waiting for a device group, the report lists all other device groups that job holds.

VERBEXIT ALCWAIT subcommand output

Specifying VERBEXIT ALCWAIT gives a report that lists the jobs waiting for a device. Figure 6 on page 436 shows the format of this report.

Figure 5. Example: ANALYZE RESOURCE subcommand output
The following fields appear in this report:

- **jjjjjjjj**: The job name.
- **nnnn**: The address space identifier (ASID).
- **uuuuuuuu**: The unit name associated with a device. (When the EDT is not available in a dump, the report does not show any unit names.)

**Figure 7** shows another example of VERBEXIT ALCWAIT output. In this case, job TEST in address space 012D is waiting for devices associated with units 3480, T3480, 3400-9, and SYS3480R:

```
* * * * * SUMMARY OF JOB(S) WAITING FOR DEVICES * * * * *

JOB jjjjjjjjj ASID nnnn WAITING FOR DEVICE(S) ASSOCIATED WITH
uuuuuuuu, uuuuuuuu, ...

JOB jjjjjjjjj ASID nnnn WAITING FOR DEVICE(S) ASSOCIATED WITH
uuuuuuuu, uuuuuuuu, ...

JOB jjjjjjjjj ASID nnnn WAITING FOR DEVICE(S) ASSOCIATED WITH
uuuuuuuu, uuuuuuuu, ...
```

**LISTEDT subcommand output**

When you specify LISTEDT with no parameters, IPCS produces a header report about the primary EDT. [“Eligible Devices Table (EDT)” on page 433](#) describes the primary EDT. [Figure 8 on page 437](#) shows the format of this report.
The header information includes the version and ID of the EDT. It also includes the date and time that the EDT was built (which is the date and time that the IODF was built.) It also includes the EDT state, which indicates that the EDT is either the original, intermediate, or final EDT or that it may also display None, which indicates that no EDT transition is occurring. However, the EDT state may be inaccurate when no EDT transition is occurring, so there is no secondary EDT. The EDT state should be ignored.

The report then lists the offset of each subtable of the EDT. Each section can be formatted separately with a different LISTEDT keyword or the LISTEDT DETAIL command can be used to display all of the EDT sections.

**LISTEDT SECONDARY subcommand output**

Use LISTEDT SECONDARY to process the secondary EDT. "Eligible Devices Table (EDT)" on page 433 describes the secondary EDT. The report will have the same format as the report shown in Figure 8.

### Table: EDT Sections

<table>
<thead>
<tr>
<th>Offset</th>
<th>Number of Entries</th>
<th>First Entry/Entry Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Look-Up-Value Section</td>
<td>00297A0</td>
<td>00000051</td>
</tr>
<tr>
<td>Generic Section</td>
<td>00298CB</td>
<td>000000072</td>
</tr>
<tr>
<td>Group Pointer Table</td>
<td>002A024B</td>
<td>00002370</td>
</tr>
<tr>
<td>Group Section</td>
<td>00853010</td>
<td>00000A91</td>
</tr>
<tr>
<td>Device Number Section</td>
<td>00850930</td>
<td>000014CC</td>
</tr>
<tr>
<td>Group Mask Table</td>
<td>002992F8</td>
<td>00000054</td>
</tr>
<tr>
<td>Group Mask Conversion Table</td>
<td>001B7C78</td>
<td>00000A91</td>
</tr>
<tr>
<td>Preference Table</td>
<td>002B7F8E8</td>
<td>00000026</td>
</tr>
<tr>
<td>Tape Max Eligible Table</td>
<td>00267FA0</td>
<td>00000007</td>
</tr>
<tr>
<td>Library Section</td>
<td>002B1E40</td>
<td>00000003</td>
</tr>
<tr>
<td>Device Pool Section</td>
<td>002B1EC0</td>
<td>0000000A</td>
</tr>
<tr>
<td>Compatible Generic Section</td>
<td>002B1F78</td>
<td>00000007</td>
</tr>
</tbody>
</table>

* * * END OF IEFEDT00 FORMAT * * *
Chapter 13. APPC/MVS

This topic contains information about formatting APPC/MVS data and APPC/MVS transaction scheduler data for diagnosis.

Formatting APPC dump data

The IPCS APPCDATA and ASCHDATA subcommands format dump information to help diagnose problems with APPC/MVS or the APPC/MVS transaction scheduler (ASCH). The information from the dumps is displayed as a report. For information about using IPCS and the syntax of the IPCS APPCDATA and ASCHDATA, see z/OS MVS IPCS Commands.

APPCDATA subcommand

The IPCS APPCDATA subcommand formats dump information within the APPC component. To request a particular report, specify the report type and a level of detail as parameters after the APPCDATA subcommand. If you do not specify parameters, you see a summary of all reports. For information about using IPCS and the syntax of the IPCS APPCDATA subcommand, see z/OS MVS IPCS Commands.

You can request the following report types:

Table 46. APPCDATA report types. Find the right APPC report using this table as a guide.

<table>
<thead>
<tr>
<th>Report name</th>
<th>Report displays</th>
<th>See the topic about</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATUS</td>
<td>The overall status of the APPC component.</td>
<td>APPCDATA STATUS subcommand output on page 440</td>
</tr>
<tr>
<td>CONFIGURATION</td>
<td>The configuration of local logical units (LUs) in terms of their connections to partner LUs.</td>
<td>APPCDATA CONFIGURATION subcommand output on page 441</td>
</tr>
<tr>
<td>CONVERSATIONS</td>
<td>Each local transaction program (TP) and its conversations for a particular address space or all address spaces. If no address space identifier (ASID) is specified, information for every address space with a TP is displayed.</td>
<td>APPCDATA CONVERSATIONS subcommand output on page 445</td>
</tr>
<tr>
<td>SERVERDATA</td>
<td>Information about APPC/MVS servers and allocate queues.</td>
<td>APPCDATA SERVERDATA subcommand output on page 453</td>
</tr>
<tr>
<td>FMH5MANAGER</td>
<td>The number of TP FMH-5 attach requests that are waiting to be processed and information about the ones currently being processed.</td>
<td>APPCDATA FMH5MANAGER subcommand output on page 464</td>
</tr>
<tr>
<td>CTRACE</td>
<td>The status of component trace for APPC, trace options, and other trace-related information.</td>
<td>APPCDATA CTRACE subcommand output on page 466</td>
</tr>
</tbody>
</table>

Each report comes in three levels of detail. If you do not request a level of detail, you see a summary of the report. You can request the following report levels:

<table>
<thead>
<tr>
<th>Report level</th>
<th>Displays</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUMMARY</td>
<td>Summary information for the report type. If you do not request a level of detail, you will see the summary level of the report.</td>
</tr>
</tbody>
</table>
**APPLICATION PROGRAMMING INTERFACE (APPC) DIAGNOSIS**

<table>
<thead>
<tr>
<th>Report level</th>
<th>Displays</th>
<th>See topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>DETAIL</td>
<td>Detailed information about a specific report type.</td>
<td>&quot;ASCHDATA DETAIL subcommand output&quot; on page 471</td>
</tr>
<tr>
<td>EXCEPTION</td>
<td>Inconsistencies detected in a specific report type. When there are no</td>
<td>&quot;ASCHDATA SUMMARY subcommand output&quot; on page 468</td>
</tr>
<tr>
<td></td>
<td>inconsistencies, the message “No exceptions detected” is displayed.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exception reports contain:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• A message containing a reason code</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• A hexadecimal dump of damaged areas from the dump</td>
<td></td>
</tr>
</tbody>
</table>

IBM might request this information for diagnosis.

**ASCHDATA subcommand**

The IPCS ASCHDATA subcommand formats dump information to help diagnose problems within the APPC/MVS transaction scheduler. To obtain information about a specific scheduler class, specify the class name in parentheses following the class operand on the ASCHDATA subcommand. If you do not specify a class name, the report displays information about all classes. You can request the following report levels.

<table>
<thead>
<tr>
<th>Report level</th>
<th>Displays</th>
<th>See topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>DETAIL</td>
<td>Detailed information about a specific scheduler class or about all</td>
<td>&quot;ASCHDATA DETAIL subcommand output&quot; on page 471</td>
</tr>
<tr>
<td></td>
<td>scheduler classes.</td>
<td></td>
</tr>
<tr>
<td>SUMMARY</td>
<td>Summary information about a scheduler class or classes.</td>
<td>&quot;ASCHDATA SUMMARY subcommand output&quot; on page 468</td>
</tr>
<tr>
<td>EXCEPTION</td>
<td>Inconsistencies detected for the ASCHDATA report. When there are no</td>
<td></td>
</tr>
<tr>
<td></td>
<td>inconsistencies, the message “No exceptions detected” is displayed.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exception reports contain:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• A message containing a reason code</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• A hexadecimal dump of damaged areas from the dump</td>
<td></td>
</tr>
</tbody>
</table>

IBM might request this information for diagnosis.

**APPCDATA STATUS subcommand output**

The APPCDATA STATUS subcommand displays the status of the APPC address space as a message. The APPCDATA STATUS SUMMARY and DETAIL reports are identical. Figure 9 is an example of the APPCDATA STATUS DETAIL.

---

**Figure 9. Example: APPCDATA STATUS subcommand output**

Information displayed in this report includes:

---
Status Message
The message that displays the status of the APPC address space at the time of the dump. The status message is one of the following:

STARTUP
The APPC address space was being initialized at the time of the dump.

ACTIVE
At the time of the dump, the APPC address space was fully initialized and capable of processing transactions.

NOT ACTIVE
At the time of the dump, the APPC address space was unable to process transactions.

TERMINATION/RESTART
The system ended the APPC address space because of a critical error. At the time of the dump, the APPC address space was in the process of restarting.

TERMINATION/NORESTART
The system ended the APPC address space. The APPC address space did not attempt to restart itself.

CANCELLED
The system ended the APPC address space because of an operator CANCEL command.

MEMORY TERMINATION
The system ended the APPC address space and its memory in response to either an operator FORCE command or a critical error.

UNKNOWN
At the time of the dump, the status of the APPC address space could not be determined.

APPCDATA CONFIGURATION subcommand output
The APPCDATA CONFIGURATION subcommand displays the configuration of local LUs in terms of their connections to partner LUs.

CONFIGURATION SUMMARY report
The CONFIGURATION SUMMARY report displays the configuration of each local LU at the time of the dump. Topics displayed for each local LU include:

- Local LU name
- Status of the local LU
- Local LU resource manager name and token
- VTAM generic resource name
- Number of partners
- Number of partner/mode pairs
- Number of units of recovery (URs)
- Total expressions of interest

Figure 10 on page 442 is an example of the APPCDATA CONFIGURATION SUMMARY report.
Local LU Name

The name of an LU on your system through which a local TP communicates. An LU is a system interface to a SNA network. The LUs for partner TPs are called partner LUs. Sessions, which allow program-to-program communication, are established between a local LU and partner LUs.

Status

The status of the local LU is one of the following:

Pending

The local LU was waiting to be connected to the Virtual Telecommunications Access Method (VTAM) network. Possible reasons for the wait are as follows:

- The LU name entered after the ACBNAME operand in the APPCPMxx parmlib member did not exactly match the LU name defined to VTAM in SYS1.VTAMLST.
- An APPC definition statement for the LU name was not in SYS1.VTAMLST.
- VTAM was not active.
- The transaction scheduler associated with the LU was not active.
Pending Active
The local LU was about to become active. (In the output from the DISPLAY APPC, LU command, this status is included under PENDING LUs.)

Active
The local LU was connected to the VTAM network.

In termination
The local LU was being disconnected from the VTAM network.

Pending Outbound Only
The local LU was about to become outbound only. (In the output from the DISPLAY APPC, LU command, this status is included under PENDING LUs.)

Outbound only
The local LU was only capable of processing outbound TPs.

Unknown
The local LU configuration was not known.

Local LU Resource Manager Name
The name of the local LU, as it is known to RRS. If the VTAM APPL definition statement for this LU defines it as capable of processing protected conversations, APPC/MVS supplies this resource manager name when registering the LU with RRS. If the LU is not defined as capable of processing protected conversations, the report displays *NONE*.

Local LU Resource Manager Token
The token of the local LU, as it is known to RRS. If the VTAM APPL definition statement for this LU defines it as capable of processing protected conversations, and APPC/MVS successfully registers the LU, RRS returns this token for the LU to use. If the LU is not defined as capable of processing protected conversations, the report displays *NONE*.

Generic Resource Name
The VTAM generic resource name associated with the LU. The generic resource name identifies a group of LUs that provide the same function. This name is specified on the GRNAME parameter of the LUADD statement in an APPCPMxx parmlib member. If a generic resource name has not been specified in parmlib, the report displays *NONE*.

Number of Partners
The number of partner LUs with which the local LU established sessions.

A local LU can establish sessions with one or more partner LUs. Partners can be on the same system or on remote systems.

Number of Partner/Mode Pairs
A logon mode establishes the session characteristics between a local LU and a partner LU. Each logon mode establishes a specific type of session. The unique combination of partner LU and logon mode defines a partner/mode pair.

A local LU and its partner can have more than one logon mode. For example, when one partner of a local LU has two logon modes, there are two partner/mode pairs. When the local LU has another partner with three logon modes, there is a total of five partner/mode pairs for the local LU.

Number of URs
The number of units of recovery in which the LU has expressed interest with RRS. A unit of recovery represents part of a TP’s processing for a protected
conversation. Expressing interest in a unit of recovery enables the LU to process Commit and Backout calls from TPs that allocate protected conversations.

**Total Expressions of Interest**

The total number of expressions of interest that the LU has made with RRS.

**CONFIGURATION DETAIL report**

The CONFIGURATION DETAIL report displays the configuration of each local LU at the time of the dump. Information displayed for each local LU duplicates the CONFIGURATION SUMMARY report. In addition, the report lists the following topics for each partner LU:

- Partner LU name
- Number of LOGON modes
- Logon mode name
- URIDs and expressions of interest for each UR
- Diagnostic information

Following is an example of the APPCDATA CONFIGURATION DETAIL report.

```
Detail Report for CONFIGURATION
-------------------------------
Diag001: 7F618F8000000014  1
Diag002: 7F6C9F8000000010  1

Local LU name: Z0A6AP01 Status: Active
Local LU Resource Manager Name : *NONE*
Local LU Resource Manager Token: *NONE*
Generic Resource Name: MVSLU
Diag003: 7F618F8000000014  2
Diag004: 7F61DF8000000013  3
Number of partners:  0
Number of URs:  0

Local LU name: Z0A6AP02 Status: Active
Local LU Resource Manager Name : *NONE*
Local LU Resource Manager Token: *NONE*
Generic Resource Name: MVSLU
Diag003: 7F618F8000000014  5
Diag004: 7F61DF8000000013  18
Number of partners:  0
Number of URs:  0

Local LU name: Z0A6AP03 Status: Active
Local LU Resource Manager Name : ATB.USIBMZ0.Z0A6AP03.IBM
Local LU Resource Manager Token: 01000001020DC0000000000300000001
Generic Resource Name: MVSLU3
Diag003: 7F618F8000000014  3
Diag004: 7F61DF8000000013  6
Number of partners:  0
Number of URs:  0

Local LU name: Z0A6AP04 Status: Active
Local LU Resource Manager Name : ATB.USIBMZ0.Z0A6AP04.IBM
Local LU Resource Manager Token: 01000001020DC0000000000200000001
Generic Resource Name: MVSLU3
Diag003: 7F618F8000000014  4
Diag004: 7F61DF8000000013  9
Number of partners:  2
Partner LU name: USIBMZ0.Z0A4AP03
Diag005 : 7F61DF8000000013  21
Number of modes:  1
```
Logon mode name: TRANPAR

Partner LU name: USIBMZ0.Z0A6AP04
Diag005 : 7F61DF8000000013 15
Number of modes: 1
Logon mode name: TRANPAR

Number of URs: 3
URID: AD49C273EEFC00000000004010200000
Expressions of Interest: 2

URID: AD49C382EEFC280000000005010200000
Expressions of Interest: 1

URID: AD49C38AEEFC50000000006010200000
Expressions of Interest: 1

Partner LU Name
The name of the partner LU. An LU is a system interface to a SNA network. An LU on your system through which a local TP communicates is a local LU. The LUs for partner TPs are partner LUs. Sessions, which allow program-to-program communication, are established between a local LU and partner LUs. A partner LU can be on the same system as the local LU or on a remote system.

The partner LU name might be a network-qualified LU name: that is, the combined network ID and network LU name (two 1-8 byte Type A character strings, concatenated by a period: network_ID.network_LU_name). The partner LU name is network-qualified if the network ID is known; if not, only the network LU name appears in the report.

Number of Logon modes
The number of logon modes. A logon mode establishes the session characteristics between a local LU and a partner LU. Each logon mode establishes a specific type of session. A local LU and its partner can have more than one logon mode. Logon modes are defined in the VTAM log mode table.

Logon Mode Name
A logon mode establishes the session characteristics between a local LU and a partner LU. Each logon mode name represents specific characteristics for a session. Logon mode names are defined in the VTAM log mode table.

URID
The identifier for a unit of recovery.

Expressions of Interest
The number of expressions of interest that the LU has made with RRS for the unit of recovery identified by the URID.

Diagxxx
Diagnostic information for IBM use only.

APPCDATA CONVERSATIONS subcommand output
The APPCDATA CONVERSATIONS subcommand displays information about the conversations for each local TP. Conversations can exist between a local TP and one or more partner TPs. Before a conversation can be allocated, a session must be established between a local LU and a partner LU.

To limit this report to the conversations in a single address space, specify the address space identifier (ASID) as one to four hexadecimal digits within
parentheses immediately following the APPCADATA CONVERSATIONS subcommand. If you do not specify an ASID, the report displays information about conversations in all address spaces.

**CONVERSATIONS SUMMARY report**
For each TP in an address space, the CONVERSATIONS SUMMARY report displays the following topics:
- Address Space ID
- Scheduler name
- TP name
- TP ID
- LU name
- Work unit ID
- Number of conversations

Figure 11 on page 447 is an example of the APPCADATA CONVERSATIONS SUMMARY report.
### Summary Report for CONVERSATIONS

Address space ID (ASID): '0022'X  
Scheduler name: ASCH

TP name: TBDRIVER  
TP_ID: 0618691000000017  
LU name: Z0A6AP04  
Work Unit ID: A0000003  
Number of conversations: 2

Address space ID (ASID): '0023'X  
Scheduler name: ASCH

TP name: APOLLO  
TP_ID: 061860300000001A  
LU name: Z0A6AP04  
Work Unit ID: A0000005  
Number of conversations: 1

Address space ID (ASID): '0025'X  
Scheduler name: N/A

TP name: *UNKNOWN*  
TP_ID: 06186BD000000019  
LU name: Z0A6AP04  
Work Unit ID: N/A  
Number of conversations: 1

Address space ID (ASID): '0026'X  
Scheduler name: N/A

TP name: *UNKNOWN*  
TP_ID: 06186E900000001B  
LU name: Z0A6AP04  
Work Unit ID: N/A  
Number of conversations: 1

Address space ID (ASID): '0027'X  
Scheduler name: N/A

TP name: TRACYB  
TP_ID: 06186FF000000023  
LU name: Z0A6AP02  
Work Unit ID: N/A  
Number of conversations: 0

Address space ID (ASID): '0028'X  
Scheduler name: N/A

TP name: *UNKNOWN*  
TP_ID: 0618715000000024  
LU name: Z0A6AP04  
Work Unit ID: N/A  
Number of conversations: 0

---

**Figure 11. Example: PPCDATA CONVERSATIONS SUMMARY report**

**Address Space ID**

Information about the conversations for TPs in a particular address space follows the **Address Space ID** heading. The ASID is displayed as four hexadecimal digits after this heading. When the report displays information about conversations for TPs in all address spaces, the ASIDs appear in increasing numeric order.

**Scheduler Name**

The scheduler name is the name of the transaction scheduler that received and scheduled the work for the transaction program. If the scheduler was the APC/MVS transaction scheduler, **ASCH** appears in this field. If a different
scheduler was involved, a name representing that scheduler appears. When no TPs are running in an address space, N/A appears under the scheduler name.

**TP Name**

A TP is part of a distributed application that communicates with another program, also a TP. The communication between TPs is called a conversation. Conversations are started by a TP that issues an allocate call. A TP can converse with more than one other TP. The TP whose point-of-view is being considered is called the local TP. A TP with which the local TP is conversing is called a partner TP. The partner TP can be on the same system as the local TP, or on a remote system.

The name of the TP that starts a conversation is usually not known, because the allocate call specifies only the name of the TP to be attached. When a local TP starts all conversations, its name is not available and this report displays *UNKNOWN*. If a partner TP starts a conversation with the local TP, the local TP name becomes available from the allocate call and is displayed in this report.

**TP ID**

A TP ID is a token that identifies a specific TP instance. A TP instance is created for an inbound conversation or by a request to allocate an outbound conversation from something other than a TP. A TP instance differs from a TP in that the TP is a program using communication functions and a TP instance is the actual processing of those functions in MVS.

**LU Name**

An LU is a system interface to a SNA network. An LU on your system through which a local TP communicates is a local LU. LUs for partner TPs are partner LUs. Sessions, which allow program-to-program communication, are established between a local LU and partner LUs.

**Work Unit ID**

A work unit ID is an identifier for a TP that is assigned by the scheduler. This ID will appear on externals of the scheduler, such as a console display, to identify the work unit associated with this TP instance. If no work unit ID was used for the conversation, this value will be N/A.

**Number of Conversations**

A TP can converse with one or more partner TPs. There is no limit to the number of conversations other than the limit imposed by the number of available sessions.

**CONVERSATIONS DETAIL report**

For each TP in an address space, the CONVERSATIONS DETAIL report duplicates the summary report. In addition, the report displays the following topics for each conversation:

- Conversation ID
- Conversation correlator
- Partner TP name
- Attach user ID
- Conversation type
- Sync level
- Unit of recovery identifier (URID)
- Logical unit of work identifier (LUWID)
- Resource manager name
- Attached by partner TP
The following is an example of the APPCDATA CONVERSATIONS DETAIL report:

```
Detail Report for CONVERSATIONS
-------------------------------
Address space ID (ASID): '0022'X
Scheduler name: ASCH

TP name: TBDRIVER
TP_ID: 0618691000000017
LU name: Z0A6AP04
Work Unit ID: A0000003

Conversation ID: 0618F3F8000000018 Correlator: 0618F3F8000000018
Partner TP name: TBDRIVER
Attach user ID: DBUTLER
Conversation type: BASIC Sync level: SYNCPT
URID : AD49C2737EEFC000000000401020000
LUWID: USIBMZ0.Z0A6AP04 C26D566FB104 0001
Resource Manager Name : ATB.USIBMZ0.Z0A6AP04.IBM
Attached by Partner LU: USIBMZ0.Z0A4AP03 Logon mode: TRANPAR
Current state: SYNCPT DEALLOCATE

Conversation ID: 0618F660000000019 Correlator: 0618F660000000019
Partner TP name: TBDRIVER
Attach user ID: DBUTLER
Conversation type: BASIC Sync level: SYNCPT
URID : AD49C2737EEFC000000000401020000
LUWID: USIBMZ0.Z0A6AP04 C26D566FB104 0001
Resource Manager Name : ATB.USIBMZ0.Z0A6AP04.IBM
Attached by Partner LU: USIBMZ0.Z0A4AP03 Logon mode: TRANPAR
Current state: DEFER RECEIVE
```

```
Address space ID (ASID): '0023'X
Scheduler name: ASCH

TP name: APOLLO
TP_ID: 06186D300000001A
LU name: Z0A6AP04
Work Unit ID: A0000005

Conversation ID: 061905980000001C Correlator: 0000000000000000
Partner TP name: APOLLO
Attach user ID: DBUTLER
Conversation type: BASIC Sync level: NONE
URID : N/A
LUWID: N/A
Resource Manager Name : N/A
Attached by Partner LU: USIBMZ0.Z0A6AP04 Logon mode: TRANPAR
Current state: RECEIVE
Waiting for data TOD: 08/08/1996 18:19:57.410602
```

```
Detail Report for CONVERSATIONS
-------------------------------
Address space ID (ASID): '0022'X
Scheduler name: ASCH

TP name: TBDRIVER
TP_ID: 0618691000000017
LU name: Z0A6AP04
Work Unit ID: A0000003
```
Connection ID: 0618F3F800000018 Correlator: 0618F3F800000018
Partner TP name: TBDRIVER
Attach user ID: DBUTLER
Conversation type: BASIC Sync level: SYNCPT
URID: AD49C2737EEFC0000000481020000
LUWID: USIBMZ0.Z0A4AP03 C26D566FB104 0001
Resource Manager Name: ATB.USIBMZ0.Z0A6AP04.IBM
Attached by Partner LU: USIBMZ0.Z0A4AP03 Logon mode: TRANPAR
Current state: SYNCPT DEALLOCATE

Conversation ID: 0618F86000000019 Correlator: 0618F86000000019
Partner TP name: TBDRIVER
Attach user ID: DBUTLER
Conversation type: BASIC Sync level: SYNCPT
URID: AD49C2737EEFC0000000481020000
LUWID: USIBMZ0.Z0A4AP03 C26D566FB104 0001
Resource Manager Name: ATB.USIBMZ0.Z0A6AP04.IBM
Allocated to Partner LU: USIBMZ0.Z0A4AP03 Logon mode: TRANPAR
Current state: DEFER RECEIVE

Address space ID (ASID): '0023'X
Scheduler name: ASCH

TP name: APOLLO
TP_ID: 06186D30000001A
LU name: Z0A6AP04
Work Unit ID: A0000005

Conversation ID: 061905980000001C Correlator: 0000000000000000
Partner TP name: APOLLO
Attach user ID: DBUTLER
Conversation type: BASIC Sync level: NONE
URID: N/A
LUWID: N/A
Resource Manager Name: N/A
Attached by Partner LU: USIBMZ0.Z0A6AP04 Logon mode: TRANPAR
Current state: RECEIVE
Waiting for data TOD: 08/08/1996 18:19:57.410602

Address space ID (ASID): '0025'X
Scheduler name: N/A

TP name: *UNKNOWN*
TP_ID: 06186E90000001B
LU name: Z0A6AP04
Work Unit ID: N/A

Conversation ID: 06190A000000001D Correlator: 06190A000000001D
Partner TP name: MARINER

Address space ID (ASID): '0026'X
Scheduler name: N/A

TP name: *UNKNOWN*
TP_ID: 06186E90000001B
LU name: Z0A6AP04
Work Unit ID: N/A
Attach user ID: DBUTLER
Conversation type: BASIC  Sync level: SYNCPT
URID : AD49C3B27EFC2800000000501020000
LUWID: USIBMZ0.Z0A6AP04 C3B2F7069180 0001
Resource Manager Name : ATB.USIBMZ0.Z0A6AP04.IBM
Allocated to Partner LU: USIBMZ0.Z0A6AP04 Logon mode: TRANPAR
Current state: SEND

Address space ID (ASID): '0027'X
Scheduler name: N/A
TP name: TRACYB
TP_ID: 06186FF000000023
LU name: Z0A6AP02
Work Unit ID: N/A
No conversations to be processed.

Address space ID (ASID): '0028'X
Scheduler name: N/A
TP name: *UNKNOWN*
TP_ID: 0618715000000024
LU name: Z0A6AP04
Work Unit ID: N/A
No conversations to be processed.

Conversation ID
The conversation ID is an identifier that is supplied and maintained by the system. It is sometimes called a resource ID. When a TP successfully allocates a conversation, the system returns a conversation ID that uniquely identifies that conversation. Transaction programs specify that ID whenever they issue a call to each other.

Conversation Correlator
A conversation correlator is used to help restore protected resources to a consistent state following the failure of an LU, session, or conversation.

The conversation correlator is supplied and maintained by the LU. If no conversation correlator was used, this value will be zeros.

Partner TP Name
The name of the partner TP. A partner TP is a program with which another TP, called a local TP, has a conversation. A TP whose point-of-view is being considered is the local TP. The TP with which the local TP is conversing is called a partner TP. The partner TP can be on the same system as the local TP, or on a remote system. The name of the TP that starts a conversation is usually not known because the allocate call specifies only the name of the TP to be attached. When the local TP starts a conversation with a partner TP, the partner TP name is known and is displayed in this report. When a partner TP starts the conversation, its name is not known and *UNKNOWN* is displayed in this report.

Attach User ID
The attach user ID is the userid that was passed to the partner LU to indicate where an attached TP was running. If the conversation was started by the local TP, the userid displayed is the ID under which the partner TP was running. If the conversation was started by the partner TP, the user ID displayed is the ID under which the local TP was running.

Conversation Type
A TP can carry on two types of conversations:
**Mapped**
A conversation that allows the exchange of arbitrary data records. A mapped conversation call conceals from the application program the logical-record data-stream format required in a basic conversation.

**Basic**
A conversation that contains logical records that include 2-byte fields (LL). The LLs specify the amount of data to follow before the next LL.

Basic conversations are generally used by LU service programs that provide user services.

When the conversation type is not known, *UNKNOWN* is displayed.

**Sync Level**
Sync level is the level of synchronization between programs in a distributed transaction. APPC/MVS supports the following levels of synchronization:

- **None**
  There is no synchronization of activities in a distributed transaction.

- **Confirm**
  Allows a TP to use the confirm call to synchronize activities with a partner TP.

- **Syncpt**
  Allows a TP to perform sync point processing on this conversation. The TP and its partner can issue Commit and Backout calls, and recognize returned parameter values relating to resource recovery processing.

When the sync level is not known, *UNKNOWN* is displayed.

**URID**
The identifier for a unit of recovery. A unit of recovery represents part of a TP's processing for a protected conversation. If the conversation is not a protected conversation, the report displays N/A for this field.

**LUWID**
A logical unit of work ID is an identifier for the processing a program performs from one sync point to the next. If the conversation is not a protected conversation, the report displays N/A for this field.

**Resource Manager Name**
The name of the local LU, as it is known to RRS. If the LU is capable of processing protected conversations, APPC/MVS supplies this resource manager name when registering the LU with RRS. If the LU is not defined as capable of processing protected conversations, the report displays N/A for this field.

**Attached by Partner LU**
The name of the partner LU where the conversation originated. Conversations can be attached by the partner LU or allocated to the partner LU, depending on where a conversation originates. When a conversation was attached by a partner LU, the partner TP started the conversation and issued the allocate call to the local TP.

The partner LU name might be a network-qualified LU name; that is, the combined network ID and network LU name (two 1-8 byte Type A character strings, concatenated by a period: network_ID.network_LU_name). The partner LU name is network-qualified if the network ID is known; if not, only the network LU name appears in the report.
Allocated to Partner LU
The name of the partner LU where the conversation was received is displayed in this field. Conversations can be attached by the partner LU or allocated to the partner LU, depending on where a conversation originates. When a conversation was allocated to a partner LU, the local TP started the conversation and issued the allocate call to the partner TP.

The partner LU name might be a network-qualified LU name; that is, the combined network ID and network LU name (two 1-8 byte Type A character strings, concatenated by a period: network_ID.network_LU_name). The partner LU name is network-qualified if the network ID is known; if not, only the network LU name appears in the report.

Logon Mode
A logon mode defines a particular set of session characteristics for the conversation. The characteristics include the class of service to be used on the conversation and the synchronization level. Logon modes are defined by a system administrator for each partner LU with which the local LU communicates. There can be more than one logon mode defined for a single partner LU.

Current State
The current state is the state of the conversation at the time the dump was taken. Possible states are:
- Reset
- Initialize
- Send
- Receive
- Send pending
- Confirm
- Confirm and send
- Confirm and deallocate
- Defer receive
- Defer deallocate
- Syncpt
- Syncpt send
- Syncpt deallocate
- *UNKNOWN*

For certain states, a message might also appear. Possible messages are:
- Waiting for data
- Waiting for confirm
- Data available to be received.

TOD (Time of Day)
The TOD field is displayed when the TP was in a wait state at the time of the dump. The time displayed is the time the program began the wait. A TP can be in a wait state after it requests data or after it issues a CONFIRM call. The TOD field displays the date and time in the format mm/dd/yyyy hour:minutes:seconds: microseconds.

APPCDATA SERVERDATA subcommand output
The APPCDATA SERVERDATA subcommand displays information about allocate queues and APPC/MVS servers. An APPC/MVS server is an address space that
has requested that certain inbound allocate requests be directed to it, rather than to a transaction scheduler. When a server receives an allocate request, a conversation takes place between it and the TP that issued the allocate request. Typically, the TP requires that some function be performed on its behalf by the server. The server processes, or serves, the TP's request by performing the requested function. Depending on how it is designed, a server may serve multiple allocate requests concurrently.

An installation can have any number of servers. In addition, an installation can choose to have one or more transaction schedulers active.

APPC/MVS servers select a subset of inbound allocate requests through a process called registering. Servers register for allocate requests that bear a specific combination of TP name and the name of the LU that was targeted by the allocate request. Servers can further limit their selection of requests by specifying certain "filters": user ID, security profile, and partner LU.

APPC/MVS monitors inbound allocate requests for those for which a server has registered. APPC/MVS places such allocate requests on structures called allocate queues. Servers can retrieve allocate requests from allocate queues for later processing as needed. A server can register any number of times, each time specifying a different combination of selection criteria (TP name/local LU name, plus filters). APPC/MVS creates a separate allocate queue for each unique registration.

**SERVERDATA SUMMARY report**

The SERVERDATA SUMMARY report displays the following information for each allocate queue:

- TP name
- Local LU name
- User ID
- Profile
- Partner LU name
- Queue token
- Current® servers
- Current allocates
- Total allocates
- Pending Receive Allocates
- Keep time
- Time created
- Time of last receive
- Time of last unregister

In the SERVERDATA SUMMARY report, information about each APPC/MVS server follows the information for allocate queues. For each server, the SERVERDATA SUMMARY report displays the following information (listed by server address space):

- Address space ID
- Whether the server has an outstanding Get_Event call
- Number of events
- Number of allocate queues
The following example of the APPCDATA SERVERDATA SUMMARY report shows three allocate queues, each of which is being served by the same server. Information about each allocate queue begins with the name of the TP associated with the particular allocate queue. In this example, each of the three allocate queues is associated with a different TP name (TOM001, TOM002, and TOM003).

Information about the server (address space ID 0041) follows the information about the allocate queues.

For a description of each field in the APPCDATA SERVERDATA SUMMARY report (Figure 12), see the section that follows the example.

---

Summary Report for SERVERDATA

----------

ALLOCATE QUEUES

TP name: TOM002
Local LU name: M05AP003
User ID: * Profile: * Partner LU name: M05AP003
Queue token: 02D5C97D00000002
Current servers: 1 Current allocates: 1
Total allocates: 1 Pending receive allocates: 0
Keep time: 0
Time created: 04/12/1996 19:58:24.914258
Time of last receive: *NONE*
Time of last unregister: *NONE*

TP name: TOM003
Local LU name: M05AP003
User ID: * Profile: * Partner LU name: M05AP003
Queue token: 02D5CA7D000000003
Current servers: 1 Current allocates: 1
Total allocates: 1 Pending receive allocates: 0
Keep time: 0
Time created: 04/12/1996 19:58:24.984713
Time of last receive: *NONE*
Time of last unregister: *NONE*

TP name: TOM001
Local LU name: M05AP003
User ID: * Profile: * Partner LU name: M05AP003
Queue token: 02D5CB7D000000001
Current servers: 1 Current allocates: 1
Total allocates: 1 Pending receive allocates: 0
Keep time: 0
Time created: 04/12/1996 19:58:24.012822
Time of last receive: *NONE*
Time of last unregister: *NONE*

SERVERS

Address space ID (ASID): 0041 Outstanding GET_EVENT: NO
Number of events: 3
Number of allocate queues: 3

Figure 12. Example: APPCDATA SERVERDATA SUMMARY report

Each field in the APPCDATA SERVERDATA SUMMARY report is described in the section that follows.

**TP Name**
This value is the name of the TP associated with the allocate queue. An APPC/MVS server specified this TP name when it registered to serve certain allocate requests entering the system (through the Register_For_Allocates service). The server also specified the TP's local LU, and, optionally, the user
ID, profile, and partner LU associated with such allocate requests. If the system cannot determine the TP name, *UNKNOWN* is displayed.

Local LU Name
The local LU name is the name of the LU at which the TP specified by TP name resides. An APPC/MVS server specified this LU name when it registered to serve certain allocate requests entering the system (through the Register_For_Allocates service). The server also specified the TP name, and, optionally, the user ID, profile, and partner LU associated with such allocate requests. If the system cannot determine the local LU name, *UNKNOWN* is displayed.

User ID
This value is the user ID associated with the allocate queue. If a blank value was specified for the user ID when the server registered for inbound allocate requests, an asterisk (*) is displayed.

Profile
This value is the security profile (for example, a RACF group name) associated with the allocate queue. If a blank value was specified for the profile when the server registered for inbound allocate requests, an asterisk (*) is displayed.

Partner LU Name
This value is the name of the LU at which the client TP resides. The partner LU is the LU through which the allocate request flowed when it entered the network. The partner LU name might be a network-qualified LU name; that is, the combined network ID and network LU name (two 1-8 byte Type A character strings, concatenated by a period: network_ID.network_LU_name). The partner LU name is network-qualified if the network ID is known; if not, only the network LU name appears in the report. If a blank value was specified for the partner LU name when the server registered for inbound allocate requests, an asterisk (*) is displayed.

Queue Token
APPC/MVS creates an allocate queue for each unique combination of filter attributes specified when the server registered for inbound allocate requests. When APPC/MVS creates an allocate queue, it returns an allocate queue token to the server. The allocate queue token uniquely identifies the allocate queue. The server uses the allocate queue token to identify a specific allocate queue on subsequent calls to APPC/MVS allocate queue services.

Current Servers
This number is the number of servers that are currently serving a particular allocate queue. More than one server can serve the same allocate queue. If multiple servers specify the same set of filter attributes when registering for inbound allocate requests, the servers will share the same allocate queue (and allocate queue token). Conversely, a server can serve more than one allocate queue. If a server specifies more than one unique set of inbound allocate requests when it registers, the server will serve each allocate queue that results. For example, if there is one server on the system, and it is serving two allocate queues, this report lists one current server for each allocate queue.

Current Allocates
APPC/MVS places inbound allocate requests for servers in structures called allocate queues. Servers can retrieve allocate requests from the allocate queues (through the Receive_Allocate service). The number of current allocates in an allocate queue reflects the number of allocate requests that have not yet been received by a server. There is no limit on the number of allocate requests an allocate queue can contain.
Total Allocates
This number is the total number of inbound allocate requests that have been added to a particular allocate queue since it was created. This number reflects the number of allocate requests that currently reside on the allocate queue, plus the number of allocates that previously resided on the queue and were subsequently removed by a server (through the Receive_Allocate service).

Pending Receive Allocates
This is the number of pending Receive_Allocate requests that one or more servers of a specific allocate queue have issued. When a server attempts to receive an allocate request from an empty allocate queue (and the server has specified that its Receive_Allocate request is allowed to wait), the Receive_Allocate request is considered to be pending until it completes.

Keep Time
An APPC/MVS server can optionally specify a “keep time” for any allocate queue it serves. Keep time is the number of seconds an allocate queue is maintained by APPC/MVS in the absence of registered servers for the allocate queue. Specifically, keep time would apply when the last server of the allocate queue unregisters. When keep time is in effect, APPC/MVS allows the allocate queue to continue to grow as new inbound allocate requests for a server enter the system. If a server does not resume serving the allocate queue within the specified keep time, APPC/MVS purges the allocate queue. If no keep time has been specified for an allocate queue, APPC/MVS purges the queue immediately after the last server of the queue unregisters.

Time Created
The date and time when the allocate queue was created. The date and time are displayed in the format mm/dd/yyyy hour:minutes:seconds:microseconds. If the system cannot determine the time at which the allocate queue was created, *UNKNOWN* is displayed.

Time of Last Receive
The date and time when a server most recently received an allocate request from the allocate queue (through the Receive_Allocate service). The date and time are displayed in the format mm/dd/yyyy hour:minutes:seconds:microseconds. If no allocate requests have been received from the allocate queue, *NONE* is displayed.

Time of Last Unregister
This is the date and time when the last server to serve the allocate queue unregistered (leaving no servers registered for the queue). If a keep time was specified for the allocate queue, APPC/MVS maintains the queue from the time of the last unregister until the keep time expires, or until another server resumes serving the queue. If no keep time was specified, this field is not set. The date and time are displayed in the format mm/dd/yyyy hour:minutes:seconds:microseconds. If one or more servers are registered for the allocate queue, *NONE* is displayed.

Address Space ID
Information about a particular APPC/MVS server begins with the address space ID (ASID), which uniquely identifies the server’s address space. The ASID is displayed as four hexadecimal digits.

Outstanding Get_Event
An APPC/MVS server can receive notification of certain events related to a specific allocate queue for which the server is currently registered. The server requests notification of such events through the Set_Allocate_Queue_Notification service. When the specified event occurs,
APPC/MVS places an element that represents the event on a structure known as an event queue. The server can retrieve events from its event queue through the Get_Event service. A server can specify whether to have the Get_Event service wait if there are no elements on its event queue. When the event occurs, the Get_Event call returns to the server. An outstanding Get_Event call is one that has not yet returned to the server.

**Number of Events**
An APPC/MVS server can receive notification of certain events related to a specific allocate queue for which the server is currently registered. The server requests notification of such events through the Set_Allocate_Queue_Notification service. When the specified event occurs, APPC/MVS places an element that represents the event on a structure known as an event queue. The server can retrieve events from its event queue through the Get_Event service. The number of events reflects the number of event elements currently contained in the server’s event queue. There is no limit on the number of event elements an event queue can contain.

**Number of Allocate Queues**
APPC/MVS places the inbound allocate requests for which a server has registered on a structure called an allocate queue. APPC/MVS creates an allocate queue for each unique combination of filter attributes specified when the server registered for inbound allocate requests (through the Register_For_Allocates service). The number of allocate queues is the number of allocate queues for which a particular server is currently registered. There is no limit on the number of allocate queues for which a server can be registered.

**SERVERDATA DETAIL report**
The SERVERDATA DETAIL report duplicates the summary report. In addition, the report displays the following information:

- Register time
- Time of last receive issued
- Time of last receive returned
- Total allocates received
- Conversation ID
- Access method conversation ID
- Conversation type
- Conversation correlator
- Mode name
- Sync level
- Time request was queued
- Address of the access method control block (ACB).
- Event
- Event object
- Event qualifier
- Minimum one-time event threshold
- Maximum one-time event threshold
- Minimum continuous event threshold
- Maximum continuous event threshold
In the following example of the APPCDATA SERVERDATA DETAIL report, three allocate queues are being served by five servers. Information for each allocate queue is displayed first, followed by information about each server (listed by address space ID).

Note that each allocate queue is distinguished by the combination of values displayed for the following keywords: TP name, Local LU name, User ID, Profile, and Partner LU name. Allocate queues are also uniquely identified by an allocate queue token. Near the end of the report, there is information about each server. Servers are identified by address space ID.

In the report, you can determine that three server address spaces (ASIDs 0025, 0024, and 0023) serve the same allocate queue because each server holds the same allocate queue token.

### Allocate Queues

**Allocate Queues**

<table>
<thead>
<tr>
<th>TP name: TOM001</th>
<th>Local LU name: M05AP003</th>
<th>User ID: *</th>
<th>Profile: *</th>
<th>Partner LU name: *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queue token: 0202797000000002</td>
<td>Current servers: 2</td>
<td>Current allocates: 1</td>
<td>Total allocates: 1</td>
<td>Pending receive allocates: 0</td>
</tr>
<tr>
<td>Keep time: 0</td>
<td>Time created: 04/12/1996 15:06:41.106149</td>
<td>Time of last receive: <em>NONE</em></td>
<td>Time of last unregister: <em>NONE</em></td>
<td></td>
</tr>
</tbody>
</table>

**Servers**

<table>
<thead>
<tr>
<th>Address space ID (ASID): 0017</th>
<th>Register time: 04/12/1996 15:06:59.369960</th>
<th>Time of last receive issued: <em>NONE</em></th>
<th>Time of last receive returned: <em>NONE</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Address space ID (ASID): 0012</td>
<td>Register time: 04/12/1996 15:06:41.106149</td>
<td>Time of last receive issued: <em>NONE</em></td>
<td>Time of last receive returned: <em>NONE</em></td>
</tr>
</tbody>
</table>

**Pending Receive Allocates**

No pending receive allocates for this allocate queue

**Current Allocates**

Conversation ID: 0352409000000002
Access Method Conversation ID: 65086256
Conversation type: BASIC
Mode name: TRAAPAR
Partner LU name: MCLNT2L.M05AP003
Sync level: NONE
User ID: * Profile: *
Time queued: 04/12/1996 15:22:04.323001
ACB address: 00000000

**Allocate Queues**

<table>
<thead>
<tr>
<th>TP name: TOM001</th>
<th>Local LU name: M05AP004</th>
<th>User ID: *</th>
<th>Profile: *</th>
<th>Partner LU name: *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queue token: 0202797000000002</td>
<td>Current servers: 3</td>
<td>Current allocates: 1</td>
<td>Total allocates: 1</td>
<td>Pending receive allocates: 0</td>
</tr>
<tr>
<td>Keep time: 0</td>
<td>Time created: 04/12/1996 15:06:41.106149</td>
<td>Time of last receive: <em>NONE</em></td>
<td>Time of last unregister: <em>NONE</em></td>
<td></td>
</tr>
</tbody>
</table>

**Servers**

<table>
<thead>
<tr>
<th>Address space ID (ASID): 0025</th>
<th>Register time: 04/12/1996 15:15:01.602451</th>
<th>Time of last receive issued: <em>NONE</em></th>
<th>Time of last receive returned: <em>NONE</em></th>
</tr>
</thead>
</table>
APP/MVS

Total allocates received: 0
Address space ID (ASID): 0023
Register time: 04/12/1996 15:18:40.197114
Time of last receive issued: *NONE*
Time of last receive returned: *NONE*
Total allocates received: 0

PENDING RECEIVE ALLOCATES
No pending receive allocates for this allocate queue

CURRENT ALLOCATES
Conversation ID: 03E2518800000004
Access Method Conversation ID: 65986384
Conversation type: BASIC
Mode name: TRANPAR Partner LU name: MCLNT2L.M05AP003
Sync level: NONE User ID: Profile:
Time queued: 04/12/1996 15:30:13.586332
ACB address: 00000000

ALLOCATE QUEUES
TP name: TOM002
Local LU name: M05AP004
User ID: * Profile: * Partner LU name: *
Queue token: 02D27A7000000003
Current servers: 1 Current allocates: 0
Total allocates: 0 Pending receive allocates: 1
Keep time: 0
Time created: 04/12/1996 15:17:44.724485
Time of last receive: *NONE*
Time of last unregister: *NONE*

SERVERS
Address space ID (ASID): 0026
Register time: 04/12/1996 15:17:44.724485
Time of last receive issued: *NONE*
Time of last receive returned: *NONE*
Total allocates received: 0

PENDING RECEIVE ALLOCATES
Address space ID (ASID): 0026

CURRENT ALLOCATES
No current allocates on this allocate queue

SERVERS
Address space ID (ASID): 0026 Outstanding GET_EVENT: NO

EVENTS
Event: MAX
Event object: 02D27A7000000003
Event qualifier: 1

QUEUE TOKEN ELEMENTS
Allocate queue token: 02D27A70000000033
Minimum one-time event threshold: *NONE*
Maximum one-time event threshold: 25
Minimum continuous event threshold: 1
Maximum continuous event threshold: *NONE*

Address space ID (ASID): 0025 Outstanding GET_EVENT: NO

EVENTS
No events found for this server.

QUEUE TOKEN ELEMENTS
Allocate queue token: 02D2797000000002
Minimum one-time event threshold: *NONE*
Maximum one-time event threshold: *NONE*
Minimum continuous event threshold: *NONE*
Maximum continuous event threshold: *NONE*
Address space ID (ASID): 0024 Outstanding GET_EVENT: NO

EVENTS
No events found for this server.

QUEUE TOKEN ELEMENTS
Allocate queue token: 02D2797000000002

---

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Register time

Register time is the date and time at which the server successfully registered for the allocate queue (through the Register_For_Allocates service). If the allocate queue did not already exist when the server registered, APPC/MVS created the allocate queue at this time. The date and time are displayed in the format `mm/dd/yyyy hour:minutes:seconds:microseconds`. If the system cannot determine the register time, *UNKNOWN* is displayed.

Time of Last Receive Issued

The date and time at which the server last issued the Receive_Allocate service. The date and time are displayed in the format `mm/dd/yyyy hour:minutes:seconds:microseconds`. If the server has not yet issued the Receive_Allocate service, *NONE* is displayed.

Time of Last Receive Returned

The date and time at which the Receive_Allocate service last completed. The call to the Receive_Allocate service might or might not have been successful. The date and time are displayed in the format `mm/dd/yyyy hour:minutes:seconds:microseconds`. If no call to the Receive_Allocate service has yet completed, *NONE* is displayed.

Total Allocates Received

This number is the total number of allocate requests the server has received since the time it registered. If the server had previously stopped serving the allocate queue, and later resumed service, the number of total allocates received does not reflect the server's activity prior to the time it resumed service.
Conversation ID
The conversation ID is an identifier that the system supplies and maintains. It is sometimes called a resource ID. When a server successfully receives an allocate request from an allocate queue, the system returns a conversation ID to the server. The conversation ID uniquely identifies that conversation. Servers specify the conversation ID on later calls to APPC/MVS services.

Access Method Conversation ID
The access method conversation ID is an identifier that the system supplies and maintains. For conversations that are running LU=REMOTE, the access method conversation ID is the VTAM conversation ID. Otherwise, this value represents APPC-defined data.

Conversation Type
APPC/MVS applications can carry on two types of conversations:

Mapped
A conversation that allows the exchange of arbitrary data records. A mapped conversation call conceals from the application program the logical-record data-stream format required in a basic conversation.

Basic
A conversation that contains logical records. Each record includes a 2-byte field (LL) that specifies the amount of data to follow before the next LL. Basic conversations are generally used by LU service programs that provide user services.

When the conversation type is not known, *UNKNOWN* is displayed.

Conversation Correlator
A conversation correlator is used to help restore protected resources to a consistent state following the failure of an LU, session, or conversation. The conversation correlator is supplied and maintained by the LU. If no conversation correlator was used, this value will be zeroes.

Mode Name
The name of the logon mode that defines a particular set of session characteristics for the conversation. The characteristics include the class of service to be used on the conversation and the synchronization level. Logon modes are defined by a system administrator for each partner LU with which the local LU communicates. There can be more than one logon mode defined for a single partner LU.

Sync Level
Sync level is the level of synchronization between programs in a distributed transaction. APPC/MVS supports the following levels of synchronization:

None
There is no synchronization of activities in a distributed transaction.

Confirm
Allows a TP to use the confirm call to synchronize activities with a partner TP.

Syncpt
Allows a TP to perform sync point processing on this conversation. The TP and its partner can issue Commit and Backout calls, and recognize returned parameter values relating to resource recovery processing.

When the sync level is not known, *UNKNOWN* is displayed.
Time Queued

Time queued is the date and time at which APPC/MVS placed a particular inbound allocate request on the allocate queue. The date and time are displayed in the format mm/dd/yyyy hour:minutes:seconds:microseconds. When the system cannot determine the time an allocate was queued, *UNKNOWN* is displayed.

Address of the Access Method Control Block (ACB)

APPC/MVS uses the access method control block (ACB) to identify the particular LU from which a server is receiving inbound allocate requests. When the ACB is not known, this field shows ‘00000000’ (all zeroes).

Event

A server can request to be notified in the event an allocate queue for which it is registered reaches a user-specified minimum or maximum number (threshold) of allocate requests. When the specified event occurs, APPC/MVS notifies the server by placing an element that represents the event on the server's event queue. The server requests such notification through the Set_Allocate_Queue_Notification service. MIN or MAX is displayed to indicate whether the server requested to be notified of a minimum or maximum threshold being reached. The number of allocate requests specified for the threshold is the value displayed for Event Qualifier, which follows the EVENT heading in the report. If the server has not requested to be notified of an event, the EVENT field is not displayed.

Event object

A server can request to be notified of events that are related to any of the allocate queues for which it is registered. The server requests such notification through the Set_Allocate_Queue_Notification service. When the server requests notification of an event, it specifies which allocate queue APPC/MVS is to monitor by supplying the allocate queue token associated with the particular allocate queue. The server received the allocate queue token when it registered for the allocate queue. The allocate queue token is called an event object when it is used for event notification. In this report, event notification for a particular allocate queue can be determined by locating the allocate queue token under the QUEUE TOKEN ELEMENTS heading that matches the event object.

Event qualifier

A server can request to be notified in the event an allocate queue for which it is registered reaches a user-specified minimum or maximum number (threshold) of allocate requests. The server requests such notification through the Set_Allocate_Queue_Notification service. When it requests notification of an event, the server specifies a specific numeric value for the minimum or maximum threshold. This value is the event qualifier. For example, a server would specify an event qualifier value of 25 as part of requesting to be notified when the allocate queue reaches a maximum threshold of 25 allocate requests.

Minimum One-time Event Threshold

When a server requests notification of an event, it can specify a minimum one-time event threshold. Here, APPC/MVS notifies the server (through the server's event queue) the first time the allocate queue decreases to the specified number of allocate requests. After the event occurs, APPC/MVS stops monitoring for it. If the allocate queue is already less than the specified minimum threshold when the server requests notification, APPC/MVS notifies the server immediately. If the server has not requested to be notified of an event, *NONE* is displayed.

Maximum One-time Event Threshold

When a server requests notification of an event, it can specify a maximum
one-time event threshold. Here, APPC/MVS notifies the server (through the server’s event queue) the first time the allocate queue increases to a specified number of allocate requests. After the event occurs, APPC/MVS stops monitoring for it. If the allocate queue is already greater than the specified maximum threshold when the server requests notification, APPC/MVS notifies the server immediately. If the server has not requested to be notified of an event, *NONE* is displayed.

**Minimum Continuous Event Threshold**
When the server requests notification of an event, it can specify a minimum continuous event threshold. Here, APPC/MVS notifies the server (through the server’s event queue) every time the allocate queue decreases to the specified number of allocate requests. Once the event occurs, APPC/MVS does not notify the server again until the allocate queue increases above the number and then decreases to it again. APPC/MVS continues to monitor for the event until the server cancels its notification request, or stops serving the allocate queue, or APPC/MVS is ended. If the allocate queue is already less than the specified minimum threshold when the server requests notification, APPC/MVS notifies the server immediately. If the server has not requested to be notified of an event, *NONE* is displayed.

**Maximum Continuous Event Threshold**
When the server requests notification of an event, it can specify a maximum continuous event threshold. Here, APPC/MVS notifies the server (through the server’s event queue) every time the allocate queue increases to the specified number of allocate requests. Once the event occurs, APPC/MVS does not notify the server again until the allocate queue decreases below the number and then increases to it again. APPC/MVS continues to monitor for the event until the server cancels its notification request, or stops serving the allocate queue, or APPC/MVS is ended. If the allocate queue is already greater than the specified maximum threshold when the server requests notification, APPC/MVS notifies the server immediately. If the server has not requested to be notified of an event, *NONE* is displayed.

**APPCDATA FMH5MANAGER subcommand output**
The APPCDATA FMH5MANAGER subcommand formats information about FMH-5 attach requests. The FMH-5 manager processes incoming allocate calls from transaction programs. The allocate calls become FMH-5 attach requests.

**FMH5MANAGER SUMMARY report**
The summary report for FMH5 manager includes the following topics:
- FMH-5 attach requests outstanding
- FMH-5 attach requests being processed

**FMH-5 Requests Outstanding**
The number of FMH-5 requests outstanding is the number of requests that were waiting to be received at the time of the dump. An FMH-5 attach request is submitted every time a TP issues an allocate call to initiate a conversation with another TP.

**FMH-5 Requests Being Processed**
Before a conversation can be established between TPs, an FMH-5 attach request must be processed. Processing includes checking that proper security information is present and valid, and ensuring that only supported features are requested. When no FMH-5 attach requests were being processed at the time of the dump, you see a message that states no requests were being processed.
FMH5MANAGER DETAIL report

The detail report for the FMH-5 manager duplicates everything in the summary report. Also, the report lists, for both active and outstanding FMH-5 requests, the LU names and the total number of requests they received. For each LU name, the requests are then broken down into the number of requests originating from a specific partner LU name. If the request was being processed and dump data is available, the report displays the data.

The topics include:
- Local LU name
- Partner LU name
- Number of FMH-5 requests not yet received
- FMH-5 request data

Figure 13 shows an example of the APPCDATA FMH5MANAGER DETAIL report.

Information displayed in this report includes:

Local LU Name
An LU is a system interface to a SNA network. A local LU is an LU on your system through which a local TP communicates. The LUs for partner TPs are called partner LUs. Sessions, which allow program-to-program communication, are established between a local LU and partner LUs. After sessions are established, each local LU can receive incoming FMH-5 attach requests. The attach requests are allocate calls from TPs that are seeking to start conversations with TPs defined to the local LU.
Partner LU Name
An LU is a system interface to a SNA network. An LU on your system, through which a local TP communicates, is a local LU. The LUs for partner TPs are partner LUs. Sessions, which allow program-to-program communication, are established between a local LU and partner LUs. A partner LU can be on the same system as the local LU, or on a remote system. After sessions are established, LUs can send and receive FMH-5 attach requests. The attach requests are allocate calls from TPs that are seeking to start conversations with TPs defined to LUs on your system.

The partner LU name might be a network-qualified LU name; that is, the combined network ID and network LU name (two 1-8 byte Type A character strings, concatenated by a period: network_ID.network_LU_name). The partner LU name is network-qualified if the network ID is known; if not, only the network LU name appears in the report.

Number of FMH-5 Requests Not Yet Received
Before an FMH-5 attach request can be processed, it must be received. Once a request is received, it is available as dump data. When one or more FMH-5 requests are in the process of being received, this heading appears in the report. Otherwise, this heading does not appear.

FMH-5 Request Data
After an FMH-5 request is received, it is available as dump data, which is displayed under this heading.

APPCDATA CTRACE subcommand output
The APPCDATA CTRACE subcommand formats information about the status of APPC component tracing at the time of the dump. For information about formatting APPC component trace output, see the component trace chapter of z/OS MVS Diagnosis: Tools and Service Aids.

CTRACE SUMMARY report
The summary report for the APPCDATA CTRACE subcommand includes the following topics:
- APPC component trace status
- Most recent trace options
- Most recent User ID filters
- Most recent ASID filters
- Most recent jobname filters

Component Trace Status
The status of APPC component trace can be either on or off. If the status is ON, the TRACE CT,ON,COMP=SYSAPPC command was entered to turn tracing on, and the trace results were placed into a dump data set. You can format the dump data set and display an APPCDATA CTRACE report. If the status is OFF, either tracing was not turned on or tracing was turned off before the dump was taken. If tracing was turned off, there might be residual trace results in the dump data set, which appear in the report.

Most Recent Trace Options
When the TRACE CT command is entered, trace options for a particular component can be specified. These trace options can be set up as parameters in a parmlib member whose name is specified after the PARM keyword, or an operator can list the options with a REPLY command. If no trace options were specified, N/A appears in the report under the trace options heading.
Most Recent User ID Filters
To limit the amount of information traced, an operator can specify the user IDs whose transactions are to be traced. An operator can list up to nine IDs after the USERID option of the TRACE CT,ON,COMP=SYSAPPC command. If no user IDs were specified as filters, N/A appears in the report under this heading. This is not necessarily an error.

Most Recent ASID Filters
To limit the amount of information traced, an operator can specify the address space IDs whose transactions are to be traced. An operator can list up to 16 ASIDs after the ASID option of the TRACE CT,ON,COMP=SYSAPPC command. If no ASIDs were specified as filters, N/A appears in the report under this heading.

Most Recent Jobname Filters
To limit the amount of information traced, an operator can specify the job name whose transactions are to be traced. An operator can list up to 16 job names after the JOBNAME option of the TRACE CT,ON,COMP=SYSAPPC command. If no job names were specified as filters, N/A appears in the report under this heading.

CTRACE DETAIL report
The report for the CTRACE DETAIL subcommand duplicates everything in the summary report and adds the following:
• Most recent controlling console ID
• CART for routing messages
• Trace table information

Figure 14 is an example of the APPCDATA CTRACE DETAIL report.

```
Detail Report for CTRACE
------------------------
APPC/MVS Component trace status: OFF
Most recent controlling console ID: 00000001
CART for routing messages: 0000000000000000
Most recent trace options:
GLOBAL   ABNORMAL
Most recent user ID filters: N/A
Most recent ASID filters: N/A
Most recent jobname filters: N/A
Trace table information
Trace table size:   512K
DATA1: ATBCTDSP
DATA2: 8000060100000006
DATA3: 01010020
DATA4: 00001000
```

Figure 14. Example: APPCDATA CTRACE DETAIL report

Information displayed in this report includes:
**APP/MVS**

**Most Recent Controlling Console ID**

The console identifier where APPC component trace was most recently started or stopped appears after this heading. If no console identifier is available, N/A appears after this heading. The APPC component trace can be started and stopped by an operator. To start APPC component trace, the operator enters the TRACE CT,ON,COMP=SYSAPPC command, and to stop it, the operator enters the TRACE CT,OFF,COMP=SYSAPPC command.

**CART for Routing Messages**

If a command and response token (CART) was passed to APPC component trace, it appears under this heading. If no CART was passed, N/A appears under this heading. A CART allows a system command to be associated with a response.

**Trace Table Information**

The trace table contains internal information from the APPC component trace. The trace table size is displayed as four decimal digits that represent kilobytes of data. The remaining data is internal information for IBM use.

**ASCHDATA SUMMARY subcommand output**

The ASCHDATA SUMMARY report displays information about a specific scheduler class or about all scheduler classes. For each scheduler class, the ASCHDATA summary report displays the following topics:

- Status of Scheduler
- Subsystem Name
- Default Class
- Generic Initiators
- Class
- Status of Class
- Maximum Number of Initiators
- Minimum Number of Initiators
- Expected Response Time
- Message Limit
- Jobs Waiting for Execution
- Total Active Initiators
- Total Active Waiting MULTI_TRANS Initiators
- Total Idle Initiators

**Status of Scheduler**

The status of the APPC/MVS transaction scheduler address space, ASCH, at the time of the dump was one of the following:

**STARTUP**

The ASCH address space was being initialized at the time of the dump.

**ACTIVE**

At the time of the dump, the ASCH address space was fully initialized and capable of processing transactions.

**NOT ACTIVE**

At the time of the dump, the ASCH address space was unable to process transactions.
TERMINATION/RESTART
The system ended the ASCH address space because of a critical error. At the time of the dump, the ASCH address space was in the process of restarting itself.

TERMINATION/NORESTART
The system ended the ASCH address space in response to one of the following:
• The operator entered a CANCEL command
• The operator entered a FORCE command
• A critical error

The ASCH address space did not attempt to restart itself.

UNKNOWN
At the time of the dump, the status of the ASCH address space could not be determined.

Subsystem Name
The subsystem to which all newly created APPC transaction initiators are assigned. If neither JES2 nor JES3 is required to run APPC transaction initiators, the subsystem name is either MSTR or the contents of parmlib member IEFSSNxx.

Default Class
The default class is the scheduling class assigned to TPs when no class is specified in the TP profile. The default class is named in the OPTIONS statement of an ASCHPMxx parmlib member.

Generic Initiators
Generic initiators are APPC initiators that temporarily are not associated with any class because there is a lack of APPC work requests. This field appears only when generic initiators exist.

Class
The scheduler class. A scheduler class determines the processing characteristics for a job. Processing characteristics include the expected response time and the number of initiators for the class. Classes are defined in the ASCHPMxx parmlib member. Each class has a class name, maximum number of initiators, minimum number of initiators, and expected response time goal. The class in which a job will run is specified in the TP profile. The class name from the TP profile must match a class name defined in an ASCHPMxx parmlib member.

Status of Class
The status of an APPC/MVS transaction scheduler class at the time of a dump is one of the following:

Active
The scheduler class was processing jobs.

In termination
The scheduler class was ending.

Unknown
The status of the scheduler class could not be determined.

Maximum Number of Initiators
The maximum number of initiators is the highest number of initiators allowed to process jobs in a particular class. The number of initiators available to process jobs, together with the expected response time, determines how quickly work is processed. The minimum number of initiators is the number
that must be available at all times for the class. If the maximum and minimum numbers of initiators are too high for the amount of processing required, initiators stand idle. If the numbers of initiators are too low for the amount of processing required, excessive paging results and work is delayed. The maximum number of initiators for a class is specified in the ASCHPMxx parmlib member.

**Minimum Number of Initiators**

The number of initiators available to process jobs together with the expected response time, determines how quickly work is processed. The maximum number of initiators is the highest number of initiators allowed to process jobs in a particular class. The minimum number of initiators is the number that must be available at all times for the class. If the maximum and minimum numbers of initiators are too high for the amount of processing required, initiators stand idle. If the numbers of initiators are too low for the amount of processing required, excessive paging results and work is delayed. The minimum number of initiators for a class is specified in the ASCHPMxx parmlib member.

**Expected Response Time**

The expected response time for a class is the maximum amount of time it should take to process each job. The response time, in addition to the maximum and minimum number of initiators, determines how quickly jobs are processed. Response time appears in `hours:minutes:seconds.microseconds` format. The expected response time for a class is specified in the ASCHPMxx parmlib member.

**Message Limit**

Message limit is the maximum size of the job log for TPs in a particular class of initiators. The size is displayed as the number of 133-byte messages the job log can contain for this class. The message limit for a class is specified in the ASCHPMxx parmlib member.

**Total Number of Jobs Waiting for Execution**

The total number of jobs waiting for execution is the number of jobs on the APPC/MVS transaction scheduler queue waiting for a free initiator.

**Total Number of Active Initiators**

Active initiators are the initiators processing jobs. The total number of active initiators cannot exceed the maximum number of initiators specified for the class in the ASCHPMxx parmlib member.

**Total Number of Active Waiting MULTI_TRANS Initiators**

Active waiting MULTI_TRANS initiators are initiators that are waiting for multi_trans work for this class. When a TP is scheduled as MULTI_TRANS, an environment is created to obtain multiple calls for the TP. Resources remain available and the TP remains initialized for all requests. If there are no requests to run the TP, the MULTI_TRANS initiator will wait for a period of time. Eventually if no work comes in, resources are cleaned up and the TP ends. The initiator then becomes available to run any type of work for this class.

**Total Number of Idle Initiators**

Idle initiators are the initiators available to process any type of work for this class. If initiators for a class remain idle, eventually the total number of initiators for the class will decrease, but the total number of initiators will never drop below the minimum number of initiators specified for the class.
ASCHDATA DETAIL subcommand output

The ASCHDATA DETAIL report displays information about a specific scheduler class or about all scheduler classes. Figure 15 is an example of the ASCHDATA DETAIL report.

```
Detail Report for ASCH SCHEDULER

Status of ASCH SCHEDULER: ACTIVE
ASCH SCHEDULER subsystem name: MSTR
ASCH SCHEDULER default class: A

Class: A Status of class: ACTIVE

Maximum number of initiators: 10
Minimum number of initiators: 5
Expected response time: 00:00:51.000000
Message limit: 20

Total number of jobs waiting for execution: 0
Total number of active initiators: 2

Address space ID (ASID): '0016'X

TP start time: 10/14/1996 17:44:44.426817
TP name: TPMAINP
Current job ID: A0000006
Local LU name: M09AP001
Partner LU name: M09AP001
User ID from FMH5: IBMUSER

Address space ID (ASID): '0017'X

Total number of active waiting MULTI_TRANS initiators: 2

Address space ID (ASID): '0018'X

TP start time: 10/14/1996 17:34:41.448941
TP name: TPMAINP
Current job ID: A0000003
Local LU name: M09AP001
Partner LU name: M09AP001
User ID from FMH5: IBMUSER

Address space ID (ASID): '0019'X

Total number of idle initiators: 1

Address space ID (ASID): '001A'X
```

Figure 15. Example: ASCHDATA DETAIL report

The report for the ASCHDATA DETAIL subcommand duplicates everything in the summary report plus the following:

- Job ID
- Local LU Name
- Partner LU Name
- TP Name
- User ID from FMH5
- Time Job Started Wait
- Address Space ID
- TP Start Time
APP/PC/MVS

- Current Job ID

Job ID
The job ID is the identifier of a job processing on the APPC/MVS transaction scheduler queue. Additional information about the job follows the job identifier, such as the local LU name associated with the job, the TP name of the TP that came as an inbound FMH-5 attach request, and the time the job began to wait on the scheduler queue.

Local LU Name
An LU is a system interface to a SNA network. A local LU is an LU on your system through which a local TP communicates. The LUs for partner TPs are called partner LUs. Sessions, which allow program-to-program communication, are established between a local LU and partner LUs.

Partner LU Name
An LU is a system interface to a SNA network. An LU on your system, through which a local TP communicates, is a local LU. The LUs for partner TPs are partner LUs. Sessions, which allow program-to-program communication, are established between a local LU and partner LUs. A partner LU can be on the same system as the local LU or on a remote system. The partner LU name might be a network-qualified LU name; that is, the combined network ID and network LU name (two 1-8 byte Type A character strings, concatenated by a period: network_ID.network_LU_name). The partner LU name is network-qualified if the network ID is known; if not, only the network LU name appears in the report.

TP Name
A TP is part of a cooperative application that communicates with another part, which is also a TP. The communication between TPs is started by an allocate callable service that becomes an FMH-5 attach request. When the scheduler receives an FMH-5 attach request, it gives the request a job ID and puts it on a queue for the appropriate class. The names of the TPs that are associated with inbound FMH-5 attach requests are the names that appear in this report.

User ID from FMH5
The user ID from FMH5 is the ID that was passed into MVS/APPC with the allocate request. The ID is associated with the security environment in which the TP will run.

Time Job Started Wait
The time the job started to wait is the time that the job was put on the APPC scheduler queue. The date and time are displayed in the format mm/dd/yyyy hour:minutes:seconds:microseconds.

Address Space ID
The address space ID is the 4 digit hexadecimal identifier of the address space for an initiator. The identifier is expressed as four hexadecimal digits. At the time of the dump, the initiator could have been active on a particular job or could have completed a job and be idle.

TP Start Time
The TP start time is the time the job started for the TP. The date and time are displayed in the format mm/dd/yyyy hour:minutes:seconds:microseconds.

Current Job ID
The current job ID is the identifier for a job that was running at the time the dump was taken.
Chapter 14. Auxiliary Storage Manager (ASM)

This topic contains information about formatting auxiliary storage manager (ASM) dump data. For example, ASM dump data will display any outstanding page requests at the time of the dump.

Formatting ASM dump data

IPCS provides two functions to obtain ASM diagnosis data from a dump. The ASMCHECK subcommand describes the status of ASM at the time of the dump. The VERBEXIT ASMDATA subcommand formats the contents of ASM control blocks. [Z/OS MVS IPCS Commands] gives the syntax for the ASMCHECK and ASMDATA subcommands and [Z/OS MVS IPCS User's Guide] explains how to choose the options in the IPCS dialog.

ASMCHECK subcommand output

The following report is an example of the report generated by the ASMCHECK subcommand. Use this report to check the status of I/O requests in the system. If the number of I/O requests received is greater than the number of I/O requests completed by 10 or more, you may have a hardware problem. In the example above the numbers are close enough that no hardware errors are indicated.

If you think you might have a hardware problem, examine the status of the paging device and check the logrec data set for hardware errors.

The following report is an example of ASMCHECK subcommand output if storage-class memory (SCM) is used for paging:

ASM10000I ASMVX AT 024C1A10
ASM10000I PART AT 024C1A10: PAGE DATA SET 0 IS ON UNIT 02E6
ASM10000I PART AT 024C1AC0: PAGE DATA SET 1 IS ON UNIT 02E7
ASM10001I PARTE AT 0247ACCC: STORAGE-CLASS MEMORY

The following information appears in the report if storage-class memory (SCM) is used for paging:

**ASMVT AT aaaaaaaaa**

The address of the ASM vector table (ASMVT).

**nnnn I/O REQUESTS RECEIVED**

The number of I/O requests received by ASM.

**NON-SWAP WRITE I/O REQUESTS RECEIVED**

The number of non-swap write I/O requests received by ASM.

**nnnn I/O REQUESTS COMPLETED BY ASM**

The number of I/O requests completed by ASM. If this number is less than the
number of requests received, then either ASM or IOS was processing an I/O request at the time of the dump. This request can be found in one of the three following places:

- In ASM waiting for PCCWs.
- In IOS waiting for I/O completion.
- In error retry waiting for redrive (errors on writes only).

**ASMVX AT aaaaaaaaaa**
The address of the ASM extension table (ASMVX).

**nnnn nnnnk|SCM I/O|WRITE REQUESTS RECEIVED nnnnn COMPLETED**
The number, size, and type of SCM requests received and completed.

**PART AT aaaaaaaaaa**
The address of the paging activity reference table (PART).

**PAGE DATA SET n IS ON UNIT ddd**
The location of each paging device. Request status and additional information is also displayed, if applicable.

**VERBEXIT ASMDATA subcommand output**
You can generate the following reports with the VERBEXIT ASMDATA subcommand:
FULL Report
Produces a full report of ASM control blocks. FULL is the default and overrides any other specified options.

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASMHD</td>
<td>Header</td>
</tr>
<tr>
<td>ASMVT</td>
<td>Vector table</td>
</tr>
<tr>
<td>DEIB</td>
<td>Data extent information block</td>
</tr>
<tr>
<td>IORB</td>
<td>I/O request block</td>
</tr>
<tr>
<td>IOSB</td>
<td>I/O supervisor block</td>
</tr>
<tr>
<td>LGVT</td>
<td>Logical group vector table</td>
</tr>
<tr>
<td>PART</td>
<td>Paging activity reference table</td>
</tr>
<tr>
<td>PAT</td>
<td>Paging allocation table</td>
</tr>
<tr>
<td>PCCW</td>
<td>Paging channel command work area</td>
</tr>
<tr>
<td>PCT</td>
<td>Performance characteristics table</td>
</tr>
<tr>
<td>SRB</td>
<td>Service request block</td>
</tr>
</tbody>
</table>

SUMMARY Report
Produces a summary report of the paging-related control blocks.

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASMVT</td>
<td>Vector table</td>
</tr>
<tr>
<td>DEIB</td>
<td>Data extent information block</td>
</tr>
<tr>
<td>IORB</td>
<td>I/O request block</td>
</tr>
<tr>
<td>IOSB</td>
<td>I/O supervisor block</td>
</tr>
<tr>
<td>PART</td>
<td>Paging activity reference table</td>
</tr>
<tr>
<td>PAT</td>
<td>Paging allocation table (PATMAP is excluded)</td>
</tr>
<tr>
<td>PCCW</td>
<td>Paging channel command work area (only PCCWs that are in use are formatted)</td>
</tr>
<tr>
<td>PCT</td>
<td>Performance characteristics table</td>
</tr>
<tr>
<td>SRB</td>
<td>Service request block</td>
</tr>
</tbody>
</table>

VIO Report
VIO produces a summary report of the virtual I/O related control blocks:

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASMHD</td>
<td>Header</td>
</tr>
</tbody>
</table>
Auxiliary Storage Manager

ASMVT
Vector table

LGVT Logical group vector table

For more information about control blocks, see z/OS MVS Data Areas in the z/OS Internet Library (http://www.ibm.com/systems/z/os/zos/bkserv/)
Chapter 15. Communications task (COMMTASK)

Communications task (COMMTASK) provides diagnostic data in dumps. This topic contains the following diagnosis information for COMMTASK:

- "COMMTASK diagnosis methods."
- "Formatting COMMTASK dump data" on page 479.

For basic information about COMMTASK, see [z/OS MVS Planning: Operations](#).

Tip: "Communication tasks" are referred to as "Console services" in some context.

COMMTASK diagnosis methods

COMMTASK provides several diagnostic functions to view the following information in dumps:

- Messages in the wait state message area.
- Branch entry messages on the delayed message queue.
- Message suppressed during nucleus initialization program (NIP) processing.

You can view messages in the wait state message area with the following IPCS functions:

- The STATUS WORKSHEET subcommand or option 2.3 (WORKSHEET) of the IPCS dialog gives central processor information. One section of this report provides the formatted wait state message area. The following is an example of formatted wait state message area for an 'XA2B' wait state as it appears in the IPCS report:

```
Wait State Message Issued at 08:40:10 on Day 255 of 1989:
IGF912W EXTENDED STORAGE FAILURE, RE-IPL THE SYSTEM
```

- The CBFORMAT WSMA subcommand formats the wait state message area and produces a report similar to the preceding example.

You can view branch entry messages on the delayed message queue with another IPCS function. The VERBEXIT MTRACE subcommand or the MTRACE selection in option 2.6 (COMPONENT) of the IPCS dialog produces a report that contains the following sections:
Communications task

***NIP MESSAGES ON THE DELAYED ISSUE QUEUE***

<table>
<thead>
<tr>
<th>WQE ADDRESS</th>
<th>DATE</th>
<th>TIME</th>
<th>MESSAGE TEXT</th>
</tr>
</thead>
<tbody>
<tr>
<td>01FE4560</td>
<td>89187</td>
<td>08:40:10</td>
<td>THIS IS THE 1ST NIP TIME SVC 35</td>
</tr>
<tr>
<td>01FE5060</td>
<td>89187</td>
<td>08:42:10</td>
<td>THIS IS THE 2ND NIP TIME SVC 35</td>
</tr>
<tr>
<td>01FE6060</td>
<td>89187</td>
<td>08:43:10</td>
<td>THIS IS THE 3RD NIP TIME SVC 35</td>
</tr>
<tr>
<td>01FE7060</td>
<td>89187</td>
<td>09:44:10</td>
<td>THIS IS CONTROL LINE OF MULTI-LINE NIP TIME SVC 35</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>THIS IS 1ST DATA LINE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>THIS IS 2ND DATA LINE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>THIS IS THE DATA END LINE</td>
</tr>
<tr>
<td>01FEA060</td>
<td>89187</td>
<td>10:48:10</td>
<td>THIS IS A NIP TIME ACTION MESSAGE</td>
</tr>
</tbody>
</table>

***BRANCH ENTRY MESSAGES ON THE DELAYED ISSUE QUEUE***

<table>
<thead>
<tr>
<th>WQE ADDRESS</th>
<th>DATE</th>
<th>TIME</th>
<th>MESSAGE TEXT</th>
</tr>
</thead>
<tbody>
<tr>
<td>01FE8560</td>
<td>89187</td>
<td>09:50:10</td>
<td>THIS IS THE 1ST BE WTO</td>
</tr>
<tr>
<td>01FE9060</td>
<td>89187</td>
<td>09:52:10</td>
<td>THIS IS THE 2ND BE WTO</td>
</tr>
<tr>
<td>01FEA060</td>
<td>89187</td>
<td>09:53:10</td>
<td>THIS IS THE 3RD BE WTO</td>
</tr>
<tr>
<td>01FEB060</td>
<td>89187</td>
<td>09:54:10</td>
<td>THIS IS CONTROL LINE OF MULTI-LINE BE WTO</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>THIS IS 1ST DATA LINE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>THIS IS 2ND DATA LINE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>THIS IS THE DATA END LINE</td>
</tr>
<tr>
<td>01FEA060</td>
<td>89187</td>
<td>09:58:10</td>
<td>THIS IS A BE WTO ACTION MESSAGE</td>
</tr>
</tbody>
</table>

Messages that are suppressed during NIP processing will be found either on the delayed message queue, as shown in the MTRACE output example, or in the system log.

**Diagnosing a gap on the delayed issue queue**

You may find a situation where there is a gap in the branch entry messages on the delayed issue queue. This gap occurs when the system was unable to find space to queue branch entry messages for delayed issue. When this happens, the system issues two messages with the following information:

1. At the time the error occurs, the system queues a delayed issue message indicating that some messages might be lost.
2. When the situation is normal again, the system issues another delayed issue message that gives the following information:
   - The number of messages that could not be queued for delayed issue, and therefore were not logged.
   - How many of those messages were action/WTORs.
   - How many of those messages would have been displayed on the delayed issue, and therefore were never displayed.
   - How many of those messages were action/WTORs.

Both messages appear in the hardcopy log only.

**Note:** Because the delayed message buffer can be expanded dynamically, the system will rarely run out of space to queue messages for delayed issue. But when the system does run out of space, the following conditions could cause it:

- Callers have issued branch-entry WTO/R/DOM repeatedly, and they have been in a condition which prevents expansion of the buffer (cannot do branch-entry GETMAIN). Additionally, COMMTASK has not been dispatched to issue and free the messages from the buffer.
Callers have issued branch-entry WTO/R/DOM repeatedly, and COMMTASK has not been dispatched. The buffer has been expanded to the limits of the extended system queue area (ESQA).

Callers have issued branch-entry WTO/R/DOM repeatedly, and the delayed message task (a subtask of COMMTASK) has become permanently inactive as a result of recursive abends. The buffer has been expanded to the limits of ESQA.

Formatting COMMTASK dump data

The IPCS COMCHECK subcommand formats the contents of specific COMMTASK control blocks and related diagnostic information. z/OS MVS IPCS Commands gives the syntax for the COMCHECK subcommand and z/OS MVS IPCS User's Guide explains how to use the COMCHECK option of the IPCS dialog.

The COMCHECK subcommand produces the following reports from the COMMTASK information in a dump:

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Report displays</th>
<th>Explanation topic</th>
</tr>
</thead>
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<td>DATABLKS</td>
<td>Information that IBM might request for problem determination.</td>
<td>COMCHECK DATABLKS subcommand output</td>
</tr>
<tr>
<td>LISTNAMES</td>
<td>Lists the console names defined to the specified keyname.</td>
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</tr>
<tr>
<td>MCSINFO</td>
<td>Information about message queueing and console management.</td>
<td>COMCHECK MCSINFO subcommand output on page 480</td>
</tr>
<tr>
<td>NAME or ID</td>
<td>Formats a multiple console support (MCS), SMCS or extended MCS console for the specified console name or identifier.</td>
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<tr>
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<td>Lists all console names defined within a sysplex at the time of the dump.</td>
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<td>RDCM</td>
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<td>Status of MCS or SMCS consoles.</td>
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</tr>
<tr>
<td>UPDATES</td>
<td>Information that IBM might request for problem determination.</td>
<td>COMCHECK UPDATES subcommand output on page 515</td>
</tr>
</tbody>
</table>

The topics that follow show sample output for each keyword of the COMCHECK subcommand and describes the information contained in each report.

**COMCHECK DATABLKS subcommand output**

The COMCHECK DATABLKS subcommand displays information that IBM might request for problem determination.
Communications task

**COMCHECK LISTNAMES subcommand output**

The COMCHECK LISTNAMES subcommand lists the console names defined to a specified 1- to 8-character keyname.

The following is an example of a COMCHECK LISTNAMES report:

```
COMUNICATION TASK ANALYSIS
CONSOLE NAMES DEFINED TO KEY MCS
  EXTMCS1
  EXTMCS2
```

The following field appears in the report:

**CONSOLE NAMES DEFINED TO KEY keyname**

A list of console names defined to a specified keyname.

**COMCHECK MCSINFO subcommand output**

The COMCHECK MCSINFO subcommand displays the following:

- Number of queued messages
- Limit of write-to-operator messages (MLIM)
- Number of unprocessed messages by console
- Outstanding write-to-operator with reply (WTOR) messages

The following is an example of a COMCHECK MCSINFO report:

```
COMMUNICATION TASK CONSOLE ANALYSIS
IEA31001I NUMBER OF MESSAGES QUEUED (UCMWQR) IS 3. LIMIT (UCMWQLM) IS 1,500
IEA31002I 3 MAJOR WQES CHAINED FROM UCM
IEA31003I UCMSTS STATUS FLAG BYTE IS X'60' FOR FOLLOWING CONSOLE
IEA31004I 0 WQES FOUND FOR CONSOLE C3E0SY1
IEA31005I OPERATOR REPLY 01 WAS OUTSTANDING
  17.57.33 SYS2B JES2 *01 $HASP426 SPECIFY OPTIONS - JES2 SP 2.2.0
IEA31013I Configuration Mode currently in: DISTRIBUTED
IEA31014I Migration Information - Current Migration Instance:3
IEA31015I Migration Information - Start Time: 15:13:18
IEA31016I Migration Information - End Time: 15:13:19
IEA31017I Migration Information - End Date: 2006314
```

The following fields appear in the report:

**Message IEA31001I**

The number of messages that are queued and the maximum number of messages that can be queued.

**Message IEA31002I**

The number of write-to-operator queue elements (WQE) that are chained from the unit control module (UCM).

**Message IEA31003I**

The unit control module entry (UCME) has a nonzero UCMSTS status byte value. For a description of the status byte value, see z/OS MVS Data Areas in [http://www.ibm.com/systems/z/os/zos/bkserv/](http://www.ibm.com/systems/z/os/zos/bkserv/)
Communications task

Message IEA31004I
The number of WQEs for this console.

Message IEA31005I
Indicates that an operator reply (ORE) was outstanding.

Message IEA31013I
Indicates the console services mode of the system when the dump was taken.

Message IEA31014I
Indicates the number of times the system has been migrated.

Message IEA31015I
Indicates the start time of the last migration.

Message IEA31016I
Indicates the end time of the last migration.

Message IEA31017I
Indicates the date of the last successful migration.

Message IEA31018I
Indicates that the sysplex is in a migration.

The remaining messages in the report are variable. See z/OS MVS Dump Output Messages for the appropriate replies to these messages.

COMCHECK NAME or ID subcommand output

The COMCHECK NAME and COMCHECK ID subcommands give information about an MCS, SMCS, subsystem console, or extended MCS console at the time of the dump. Use COMCHECK NAME when you specify the console’s 2- to 8-character symbolic name. Use COMCHECK ID when you specify the console’s 4-byte identifier assigned for the system. For information specific to a console, use the COMCHECK UCME subcommand.

The following is an example of a COMCHECK NAME(nmmnmmn) or COMCHECK ID(iiiiiiii) report:
In this example, CONSID1 is the name and X'02000001' is the console identifier of the extended MCS console. Either COMCHECK NAME(CONSID1) or COMCHECK ID(02000001) is the correct syntax used to obtain this report.

The following fields appear in the report:

**NAME**
The name of the specific console. (In the example, this is the extended MCS console name.) If no name was specified, the console identifier appears in this field.

**CONSOLE ID**
A 4-byte identifier the system assigns to the console.

**TERMINAL**
The terminal name associated with this console.

**KEY**
The 1- to 8-character keyname that identifies the messages that the system requests.

**SYSTEM NAME**
The name of the system to which this console is defined.

**NUMBER OF MESSAGES QUEUED**
The number of messages retained for later viewing.

**STATUS**
One of the following states:

- **ACTIVE**
The console is currently active.
INACTIVE
The console is currently inactive.

DEFINED
The device is currently defined. This status applies to subsystem consoles only.

AUTHORITY
The command group assigned to the console, as follows:

INFO Informational commands.
SYS System control commands.
I/O Input/output (I/O) control commands.
CONS Console control commands.
MASTER Master authority commands.
ALL All commands.

MESSAGE FORMAT
The format of the message when it is displayed on this console, as follows:

TIMESTAMP
A time stamp, in the format $hh:mm:ss$.

JOBNAME/JOBID
The name or ID of the job issuing the message.

SYSNAME
The name of the system issuing the message.

NOSYSJB
All information except the system and job names.

MESSAGE
Only the message text is displayed.

MESSAGE TYPE
Indicates the type of information that is continually displayed at this console, as follows:

JOBNAME
The job name or job identifier when the job starts and ends.

STATUS
Displays data set names and volume serial numbers when they are free; with dispositions of keep, catalog, and uncatalog.

SESSION
Displays the user identifier for each time sharing terminal when a Time Sharing Option Extensions (TSO/E) session starts and ends.

TIME
Displays the time along with the job name and session; the time is displayed in $hh:mm:ss$ format.

NONE
Displays none of the above information.

MESSAGE LEVEL
Lists the message level options specified in the CONSOLxx parmlib member or in the CONTROL command, as follows:
Communications task

WTOR
Console displays write to operator (WTOR) messages.

IMMEDIATE ACTION
Console displays immediate action messages.

CRITICAL EVENTUAL ACTION
Console displays critical eventual action messages.

EVENTUAL ACTION
Console displays eventual action messages.

INFORMATIONAL
Console displays informational messages.

BROADCAST
Console displays broadcast messages.

NONE
Console displays only messages specifically directed to the console and command responses.

QUEUING FLAG
The type of message delivery specified at console initialization, which is one of the following values:

FIFO  Messages are delivered from the message data space on a first in, first out basis.

SEARCH  Messages are delivered from the message data space based on search criteria specified in the MCSOPER macro.

NONE  No messages are placed into, or delivered from, the message data space.

DOM FLAG
The delete operator message (DOM) disposition of this console, which is one of the following values:

NORMAL  The console receives DOMs only for messages that have been received and placed in its message data space.

ALL  The console receives all DOMs in the system.

NONE  The console receives no DOMs.

CMDSYS
The name of the system that runs the commands entered from this console.

RECEIVES AUTO MESSAGES
Indicates whether this console receives automatable messages. The response is either YES or NO.

RECEIVES HARDCOPY MESSAGES
Indicates whether this console receives hardcopy messages. The response is either YES or NO.

RECEIVES INTIDS MESSAGES
Indicates whether this console receives INTIDS messages. The response is either YES or NO.
Communications task

RECEIVES UNKNIDS MESSAGES
Indicate whether this console receives UNKNIDS messages. The response is either YES or NO.

ALERT PERCENTAGE
The percentage of the message buffer that, when full, indicates a buffer shortage.

RESUME PERCENTAGE
The percentage of the message buffer that, when full, allows message processing to resume after a buffer shortage.

CONSOLE STATUS AREA ALET
The console status area access list entry table. It is used with the console status area address to look at the console status area's data structure.

CONSOLE STATUS AREA ADDRESS
The address of the console status area for this console.

ROUTING CODES
The set of routing codes for messages displayed at this console.

MSCOPE LIST
A list of the names of systems from which this console is receiving messages.

COMCHECK NAMELIST subcommand output
The COMCHECK NAMELIST subcommand gives a list of all console names defined within a Sysplex at the time of the dump. For specific information about a console name listed, use the COMCHECK NAME subcommand.

The following output is an example of the COMCHECK NAMELIST report:

<table>
<thead>
<tr>
<th>CONSOLE</th>
<th>TASK</th>
<th>NAME ID</th>
<th>TYPE</th>
<th>ON SYSTEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONS01</td>
<td>00000001</td>
<td>MCS</td>
<td>SY1</td>
<td></td>
</tr>
<tr>
<td>CONS02</td>
<td>00000004</td>
<td>MCS</td>
<td>SY2</td>
<td></td>
</tr>
<tr>
<td>CONS03</td>
<td>00000005</td>
<td>MCS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONS04</td>
<td>00000006</td>
<td>MCS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMCS101</td>
<td>03000001</td>
<td>EMCS</td>
<td>SY1</td>
<td></td>
</tr>
<tr>
<td>EMCS102</td>
<td>02000003</td>
<td>SYSCONS</td>
<td>SY2</td>
<td></td>
</tr>
<tr>
<td>MCSY1</td>
<td>00000002</td>
<td>MCS</td>
<td>SY1</td>
<td></td>
</tr>
<tr>
<td>MCSY2</td>
<td>00000003</td>
<td>MCS</td>
<td>SY2</td>
<td></td>
</tr>
<tr>
<td>SMCS22</td>
<td>00000014</td>
<td>SMCS</td>
<td>SY1</td>
<td></td>
</tr>
<tr>
<td>SS1</td>
<td>00000012</td>
<td>SUBSYSTEM</td>
<td>SY1</td>
<td></td>
</tr>
</tbody>
</table>

In this example, CONS01 is the name of an active MCS console on SY1, and CONS03 is the name of an inactive MCS console.

The following fields appear in the report:

CONSOLE NAME
A 2- through 8-character name either defined in the CONSOLxx parmlib member during system initialization, or activated during normal processing. This column lists all console names throughout the sysplex.

CONSOLE TYPE
Indicates the type of console. Possible values include:
Communications task

MCS  Indicates that this is an MCS console.
EMCS  Indicates that this is an extended MCS console.
SMCS  Indicates that this is an SMCS console.

SUBSYSTEM  
Indicates that this is a subsystem console.

SYSCONS  
Indicates that this is a system console.

ACTIVE ON SYSTEM  
The name of the system on which the console is active when the dump is 
taken. This column is blank if the console name is not active.

COMCHECK RDCM subcommand output  
The COMCHECK RDCM subcommand formats device independent display 
operator console support (DIDOCs) resident display control modules (RDCMs).

To obtain the status for a RDCM, you must first find the address of its associated 
control block. Use COMCHECK RDCM(LIST) to find the addresses of all RDCMs 
in the dump. Choose an address from the list and use COMCHECK 
RDCM(address) to format the RDCM at that address.

If you want to view the status of all RDCMs in the dump, use COMCHECK 
RDCM(ALL).

The following is an example of a COMCHECK RDCM(address) report:

<table>
<thead>
<tr>
<th>COMMUNICATION TASK ANALYSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>RDCM INFORMATION</td>
</tr>
<tr>
<td>CONSOLE ID:</td>
</tr>
<tr>
<td>RDCM ADDRESS:</td>
</tr>
<tr>
<td>CONSOLE NAME:</td>
</tr>
<tr>
<td>CONSOLE TYPE:</td>
</tr>
<tr>
<td>PFK KEYS ARE OPERATIONAL:</td>
</tr>
<tr>
<td>PFK BUFFER ADDRESS:</td>
</tr>
<tr>
<td>LENGTH OF PFK BUFFER:</td>
</tr>
<tr>
<td>PREVIOUS CONSOLE USE WAS:</td>
</tr>
<tr>
<td>STATUS DISPLAY CONSOLE:</td>
</tr>
<tr>
<td>NUMBER OF LINES IN MESSAGE AREA:</td>
</tr>
</tbody>
</table>

In this example, X'00580C18' is the address of the RDCM. COMCHECK 
RDCM(00580C18) is the correct syntax used to obtain this report.

The following fields appear in the report:

CONSOLE ID  
A 4-byte identifier that the system assigns to the console at system 
initialization.

RDCM ADDRESS  
The address of the resident display control module (RDCM) that is being 
formatted.
**CONSOLE NAME**
A 2- through 8-character name defined in the CONSOLxx parmlib member at system initialization. If no name was specified, the console identifier appears in this field.

**CONSOLE TYPE**
Indicates the type of console. Possible values include:
- **MCS**: Indicates that this is an MCS console.
- **SMCS**: Indicates that this is an SMCS console.

**PFK KEYS ARE OPERATIONAL**
One of the following:
- **YES**: PF keys are operational for this console. They are defined in the program function key (PFK) tables in the PFKTABxx parmlib member.
- **NO**: PF keys are not operational for this console. The PF keys are not operational when a console is closed, or when a PFK table is not defined and the system cannot obtain the default PFK table.

**PFK BUFFER ADDRESS**
The address of the buffer containing the PFK table.

**LENGTH OF PFK BUFFER**
The length of the buffer containing the PFK table.

**PREVIOUS CONSOLE USE WAS**
The console operating mode in effect prior to a change in operating mode. It is one of the following:
- **FULL I/O CAPABILITY**: The console can receive input, display output, accept commands, and receive status displays and messages.
- **STATUS DISPLAY ONLY**: The console cannot accept commands; the system uses the screen to receive status displays.
- **MESSAGE STREAM ONLY**: The console cannot accept commands; the system uses the screen to present general messages.

If no change in operating mode occurred, this field contains the mode specified at initialization.

**STATUS DISPLAY CONSOLE:**
One of the following:
- **YES**: The console has status display mode capability. The system can use the screen to receive status displays.
- **NO**: The console cannot be put into status display mode.

**NUMBER OF LINES IN MESSAGE AREA**
The size of the message area for this console.

**COMCHECK SBC subcommand output**
The COMCHECK SBC option formats information from the supplemental branch entry console (SBC) control block.

The SBC contains information about the delayed issue queue. The queue contains messages and delete operator message (DOM) requests issued by system...
initialization and branch-entry WTO/WTOR/DOM processing in programs that run when a Supervisor Call (SVC) instruction cannot be issued or require the request to be handled synchronously. The system issues requests on the delayed issue queue as SVC requests.

The following is an example of a COMCHECK SBC report:

<table>
<thead>
<tr>
<th>COMMUNICATION TASK ANALYSIS</th>
<th>BRANCH-ENTRY AND NIP WTO/WTOR/DOM INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>DELAYED ISSUE QUEUE BROKEN:</td>
<td>NO</td>
</tr>
<tr>
<td>DELAYED ISSUE QUEUE FULL:</td>
<td>NO</td>
</tr>
<tr>
<td>DELAYED ISSUE TASK IS PROCESSING DELAYED ISSUE QUEUE:</td>
<td>NO</td>
</tr>
<tr>
<td>DELAYED ISSUE SRB CAN BE SCHEDULED:</td>
<td>YES</td>
</tr>
<tr>
<td>NIP WTO/WTOR/DOM PROCESSING ACTIVE:</td>
<td>NO</td>
</tr>
<tr>
<td>NUMBER OF ACTION/WTOR MESSAGES NOT LOGGED:</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL NUMBER OF MESSAGES NOT LOGGED:</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL NUMBER OF SYNCHRONOUS MESSAGES NOT DISPLAYED:</td>
<td>0</td>
</tr>
<tr>
<td>NUMBER OF NIP MESSAGES ON THE DELAYED ISSUE QUEUE:</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL NUMBER OF MESSAGES ON THE DELAYED ISSUE QUEUE:</td>
<td>0</td>
</tr>
<tr>
<td>NUMBER OF NIP DOM REQUESTS ON THE DELAYED ISSUE QUEUE:</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL NUMBER OF DOM REQUESTS ON THE DELAYED ISSUE QUEUE:</td>
<td>0</td>
</tr>
<tr>
<td>INFORMATIONAL MESSAGES SUPPRESSED DURING NIP:</td>
<td>YES</td>
</tr>
<tr>
<td>NUMBER OF INFORMATIONAL MESSAGES SUPPRESSED DURING NIP:</td>
<td>801</td>
</tr>
<tr>
<td>TOTAL NUMBER OF BWJE REQUESTS ON THE DELAYED ISSUE QUEUE:</td>
<td>0</td>
</tr>
</tbody>
</table>

The following field appears in the report:

**DELAYED ISSUE QUEUE BROKEN**
One of the following:

- **YES** The delayed issue queue is valid.
- **NO** The delayed issue queue is not valid.

**DELAYED ISSUE QUEUE FULL**
One of the following:

- **YES** The delayed issue queue is full. The delayed issue task can free up space on the queue during normal processing, or a different program can obtain space for additional entries. If the condition persists, the queue may not be valid.
- **NO** The delayed issue queue is not full.

**DELAYED ISSUE TASK IS PROCESSING DELAYED ISSUE QUEUE**
One of the following:

- **YES** The delayed issue task is actively processing entries on the delayed issue queue.
- **NO** The delayed issue task is not actively processing entries on the delayed issue queue.

**DELAYED ISSUE SRB CAN BE SCHEDULED**
One of the following:

- **YES** The service request block (SRB) routine for the delayed issue task is initialized and can be scheduled.
- **NO** The routine has not been initialized or has abended.

**NIP WTO/WTOR/DOM PROCESSING ACTIVE**
One of the following:
The system initialization service that processes WTO, WTOR and DOM requests is active.

The system initialization WTO/WTOR/DOM service is not active. One of the following occurred:
- The dump was taken early in system initialization, before the service was initialized.
- The dump was taken after COMMTASK started handling WTO, WTOR, and DOM requests.

The number of:
- WTO messages requiring operator action
- WTOR messages that could not be logged on SYSLOG, because the system was unable to add the message to the delayed issue queue

The total number of WTO and WTOR messages not logged on SYSLOG. The system was unable to log the messages because they could not be added to the delayed issue queue.

The total number of synchronous WTO and WTOR messages not displayed. They were not displayed because WTO/WTOR processing was unable to display them on a console with master authority.

The number of messages on the delayed issue queue that were issued during system initialization.

The total number of messages on the delayed issue queue.

The number of DOM requests on the delayed issue queue that were made during system initialization.

The total number of DOM requests on the delayed issue queue.

One of the following:
- YES  Informational messages are suppressed during system initialization. The system sends the messages to SYSLOG.
- NO  Informational messages are not suppressed during system initialization. The system displays the messages on the console.

The total number of informational messages suppressed during system initialization. If informational messages are not suppressed during NIP processing, this field contains zero.

The number of job-end requests on the delayed issue queue.

The COMCHECK SYSCONS subcommand gives information on the status of the system console.
Communications task

The following is an example of a report generated when the COMCHECK SYSCONS subcommand is entered:
The following fields appear in the report:

**NAME**

The System console name defined in the CONSOLxx parmlib member at system initialization.
Communications task

CONSOLE ID
A 4-byte identifier that the system assigns to the console at system initialization.

TERMINAL
The terminal name associated with this console.

KEY
The 1- to 8-character keyname that identifies the message that the system requests.

SYSTEM NAME
The name of the system to which this console is defined.

NUMBER OF MESSAGES QUEUED
The number of messages retained for later viewing.

STATUS
One of the following:

ACTIVE
The console is currently active.

DEFINED
The device is currently inactive.

AUTHORITY
The command group assigned to the console, as follows:

INFO  Informational commands.
SYS   System control commands.
I/O   Input/output (I/O) control commands.
CONS  Console control commands.
MASTER Master authority commands.
ALL   All commands.

MESSAGE FORMAT
The format of the message when it is displayed on this console, as follows:

TIMESTAMP
A time stamp, in the format hh.mm.ss.

JOBNAME/JOBID
The name or ID of the job issuing the message.

SYSNAME
The name of the system issuing the message.

NOSYSJB
All information except the system and job names.

MESSAGE
Only the message text is displayed.

MESSAGE TYPE
Indicates the type of information that is continually displayed at this console, as follows:

JOBNAME
The job name or job identifier when the job starts and ends.
Communications task

**STATUS**
Displays data set names and volume serial numbers when they are free; with dispositions of keep, catalog, and uncatalog.

**SESSION**
Displays the user identifier for each time sharing terminal when a Time Sharing Option Extensions (TSO/E) session starts and ends.

**TIME**
Displays the time along with the job name and session; the time is displayed in the **hh.mm.ss** format.

**NONE**
Displays none of the above information.

**MESSAGE LEVEL**
Lists the message level options specified in the CONSOLxx parmlib member or in the CONTROL command, as follows:

**WTOR**
Console displays write to operator (WTOR) messages.

**IMMEDIATE ACTION**
Console displays immediate action messages.

**CRITICAL EVENTUAL ACTION**
Console displays critical eventual action messages.

**EVENTUAL ACTION**
Console displays eventual action messages.

**INFORMATIONAL**
Console displays informational messages.

**BROADCAST**
Console displays broadcast messages.

**NONE**
Console displays only messages specifically directed to the console and command responses.

**QUEUING FLAG**
The type of message delivery specified at console initialization, which is one of the following:

**FIFO**
Messages are delivered from the message data space on a first in, first out basis.

**SEARCH**
Messages are delivered from the message data space based on search criteria specified in the MCSOPER macro.

**NONE**
No messages are placed into, or delivered from, the message data space.

**DOM FLAG**
The delete operator message (DOM) disposition of this console, which is one of the following:

**NORMAL**
The console receives DOMs only for messages that have been received and placed in its message data space.

**ALL**
The console receives all DOMs in the system.
NONE
The console receives no DOMs.

CMDSYS
The name of the system that runs the commands entered from this console.

PROBLEM DETERMINATION MODE
One of the following values:

YES The system console is in problem determination mode and can issue MVS system commands and receive messages to assist with diagnostics and problem determination. The operator can issue VARY CN,DEACTIVATE to end problem determination mode for the system console.

NO The system console is not in problem determination mode. The operator can issue VARY CN,ACTIVATE to activate problem determination mode for the system console.

RECEIVES AUTO MESSAGES
Indicates whether this console receives automatable messages. The response is either YES or NO.

RECEIVES HARDCOPY MESSAGES
Indicates whether this console receives hardcopy messages. The response is either YES or NO.

RECEIVES INTIDS MESSAGES
Indicates whether this console receives INTIDS messages. The response is either YES or NO.

RECEIVES UNKNIDS MESSAGES
Indicates whether this console receives UNKNIDS messages. The response is either YES or NO.

ALERT PERCENTAGE
The percentage of the message buffer that, when full, indicates a buffer shortage.

RESUME PERCENTAGE
The percentage of the message buffer that, when full, allows message processing to resume after a buffer shortage.

CONSOLE STATUS AREA ALET
The console status area access list entry table. It is used with the console status area address to look at the data structure of the console status area.

CONSOLE STATUS AREA ADDRESS
The address of the console status area for this console.

ROUTING CODES
The set of routing codes for messages displayed at this console.

MSCOPE LIST
A list of the names of systems from which this console is receiving messages.

CONSOLE NAME
A 2- to 8- character name for the system console defined in the CONSOLxx parmlib member during system initialization.

If no name was specified at initialization, this field contains the name of the system on which the console is located. If the specified name was a duplicate of an existing console name, this field contains SYSCNxx, where xxx is a unique identifier assigned by the system.
**CONSOLE ID**
A 4-byte identifier that the system assigns to the system console at system initialization.

**SYSTEM CONSOLE ACTIVE**
One of the following values:
- **YES** The system console is active and can be used as an extended MCS console.
- **NO** The system console is not active. This condition is normal if the communications task is not yet initialized. If the communications task is initialized, a problem occurred while activating the system console. In this case, the system issues message IEA128I and the system console cannot be used as an extended MCS console.

**PROBLEM DETERMINATION MODE**
One of the following values:
- **YES** The system console is in problem determination mode and can issue MVS system commands and receive messages to assist with diagnostics and problem determination. The operator can issue VARY CN,DEACTIVATE to end problem determination mode for the system console.
- **NO** The system console is not in problem determination mode. The operator can issue VARY CN,ACTIVATE to activate problem determination mode for the system console.

**PROBLEM DETERMINATION MODE CHANGE IN PROGRESS**
One of the following:
- **YES** The system detected that a VARY CN,ACTIVATE command to activate problem determination mode or a VARY CN,DEACTIVATE command to end problem determination mode has been issued for the system console, but the system is already processing a previous VARY CN,ACTIVATE or VARY CN,DEACTIVATE command. The system ignores the command.
- **NO** The system is not currently processing a VARY CN,ACTIVATE or VARY CN,DEACTIVATE command for the system console.

**SYSTEM CONSOLE RECEIVING ONLY SYNCHRONOUS MESSAGES**
This field indicates whether the system console is receiving only synchronous messages or both synchronous and non-synchronous messages.
- **YES** The system console is receiving only synchronous messages because the system console non-synchronous message processing function is not available.
- **NO** The system console is receiving both synchronous and non-synchronous messages.

**SYSTEM CONSOLE DOM LIST PROCESSING ABENDED**
This field indicates whether delete operator message (DOM) list processing for the system console has abended. The DOM list contains elements representing messages held on the system console.
- **YES** DOM requests are not being processed for the system console because the DOM list for the console is not valid. The system tried to repair the list. The next field in this report, SYSTEM CONSOLE DOM LIST VALID, contains NO if the repair worked (and therefore the list is valid) and YES if it did not work.
DOM requests are being processed for the system console.

**SYSTEM CONSOLE DOM LIST VALID**

This field indicates whether the DOM list for the system console is valid. The DOM list contains elements representing messages held on the system console.

**YES**

The system console DOM list is not valid. The system tried once to repair the list, but was not successful. No more DOM requests will be added to the list until the system can delete the existing list and create a new one.

**NO**

The system console DOM list is valid.

**NUMBER OF MESSAGES HELD ON THE SYSTEM CONSOLE DOM LIST**

The number of delete requests currently on the DOM list for the system console.

**MACHINE CHECK LISTENER EXIT TOKEN**

This field displays the address of the token for the machine check listener exit routine. This exit routine initiates processing if a machine check occurs on the system console. The token contains the address of the event notification listener element (ENFLS) that contains information about this listener exit routine.

If the address is zero, the system cannot process machine checks for the system console.

**STATE CHANGE LISTENER EXIT TOKEN**

This field displays the address of the token for the state change listener exit routine. This exit routine initiates processing if the state of the system console changes from available to unavailable or vice versa. The token contains the address of the event notification listener element (ENFLS) that contains information about this listener exit routine.

If the address is zero, the system cannot process state changes for the system console.

**OUTPUT TASK ECB**

The system posts the output task event control block (ECB) when a non-synchronous message is ready to be displayed on the system console.

**INPUT TASK ECB**

The system posts the input task ECB to retry processing if the unsolicited input listener exit routine fails.

**ALERT ECB**

The system posts the alert ECB if an error occurs in the system console queue. The system also issues message IEA125I describing the error.

**MESSAGE ECB**

The system posts the message ECB when a message is ready to be displayed on the system console.

**20 MINUTE ECB**

The system sets a 20 minute timer if the system console becomes unavailable due to a state change or machine check. If the system console becomes available within 20 minutes, the system cancels the timer. Otherwise, the system posts the 20 minute ECB so that all messages can be deleted from the system console queue.

**2 MINUTE**

The system sets a two minute timer if a message cannot be sent to the system Communications task.
Communications task

console because the processor controller element (PCE) hardware buffer is full. After two minutes, the system posts the two minute ECB so that the message can be sent again.

STATE CHANGE ECB
The system posts the state change ECB if the state of the system console changes from available to unavailable or vice versa or if a machine check occurs.

This report goes on to display information that is normally displayed for an extended MCS console. "COMCHECK NAME or ID subcommand output" on page 481 describes these fields.

COMCHECK SYSPLEX subcommand output
The COMCHECK SYSPLEX subcommand displays the number of sysplex members and information that IBM might request for problem determination.

The following is an example of a COMCHECK SYSPLEX report:

COMMUNICATION TASK ANALYSIS

SYSPLEX MEMBER TABLE INFORMATION

| NUMBER OF CONTROL MEMBERS: | 5 |
| MAXIMUM NUMBER OF SYSPLEX MEMBER: | 32 |
| CURRENT NUMBER OF SYSPLEX MEMBERS: | 2 |
| UPDATE TASK QUEUE HEAD: | 00000000 |
| UPDATE TASK QUEUE TAIL: | 00000000 |
| UPDATE SUBTASK QUEUE HEAD: | 7F418834 |
| UPDATE SUBTASK QUEUE TAIL: | 7F417F34 |
| SEND TASK QUEUE HEAD: | 7F311E4D |
| SEND TASK QUEUE TAIL: | 7F311E4D |
| RECEIVE TASK QUEUE HEAD STREAM 1: | 00000000 |
| RECEIVE TASK QUEUE TAIL STREAM 1: | 00000000 |
| RECEIVE TASK QUEUE HEAD STREAM 15: | 00000000 |
| RECEIVE TASK QUEUE TAIL STREAM 15: | 00000000 |
| RETAINED MESSAGE UPDATE QUEUE HEAD: | 00000000 |
| RETAINED MESSAGE UPDATE QUEUE TAIL: | 00000000 |
| ADDRESS OF FIRST MESSAGE IN DOM QUEUE: | 00000000 |
| ADDRESS OF LAST MESSAGE IN DOM QUEUE: | 00000000 |
| ADDRESS OF FIRST MESSAGE IN BUILD QUEUE: | 00000000 |
| ADDRESS OF LAST MESSAGE IN BUILD QUEUE: | 00000000 |

MESSAGE TRIMMING STATISTICS

SINGLE-LINE MESSAGES RECEIVED: 68,683
SINGLE-LINE MESSAGE SCANS: 401

SINGLE-LINE RECEIVE SCAN TRACE

<table>
<thead>
<tr>
<th>Number of Msgs</th>
<th>Local Date and Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10/27/2003 15:49:56.643271</td>
</tr>
<tr>
<td>1</td>
<td>10/27/2003 15:49:59.890812</td>
</tr>
<tr>
<td>2</td>
<td>10/27/2003 16:00:29.948938</td>
</tr>
<tr>
<td>1</td>
<td>10/27/2003 16:03:47.594757</td>
</tr>
<tr>
<td>1</td>
<td>10/27/2003 16:03:47.819875</td>
</tr>
<tr>
<td>1</td>
<td>10/27/2003 16:03:47.823706</td>
</tr>
<tr>
<td>1</td>
<td>10/27/2003 16:03:48.888812</td>
</tr>
<tr>
<td>1</td>
<td>10/27/2003 16:03:49.032849</td>
</tr>
<tr>
<td>1</td>
<td>10/27/2003 16:03:49.040494</td>
</tr>
</tbody>
</table>
Communications task

MAJOR-LINE MESSAGES RECEIVED: 2,607
MAJOR-LINE MESSAGE SCANS: 24

MAJOR-LINE RECEIVE SCAN TRACE
Number of Msgs | Local Date and Time
--------------------------------------------------
1 10/27/2003 15:46:56.411084
1 10/27/2003 15:46:56.494370
1 10/27/2003 15:46:58.837500
1 10/27/2003 15:49:56.646267
2 10/27/2003 15:49:56.650895
2 10/27/2003 15:49:56.651743
2 10/27/2003 15:49:56.653755
8 10/27/2003 15:49:56.656046
5 10/27/2003 15:49:56.660256
2 10/27/2003 15:49:56.669761
2 10/27/2003 16:03:47.571117
2 10/27/2003 16:03:48.880373
2 10/27/2003 16:03:49.720921

MINOR-LINE MESSAGES RECEIVED: 41,052
MINOR-LINE MESSAGE SCANS: 25

MINOR-LINE RECEIVE SCAN TRACE
Number of Msgs | Local Date and Time
--------------------------------------------------
8 10/27/2003 16:03:47.594669
2 10/27/2003 16:03:47.594758
2 10/27/2003 16:03:48.880374
2 10/27/2003 16:03:48.884505
4 10/27/2003 16:03:48.885604
2 10/27/2003 16:03:48.885995
2 10/27/2003 16:03:48.886808
2 10/27/2003 16:03:48.886866
2 10/27/2003 16:03:49.728922
2 10/27/2003 16:03:49.730191
2 10/27/2003 16:03:49.731337
2 10/27/2003 16:03:49.731396
1 10/27/2003 16:03:49.731845
2 10/27/2003 16:03:49.737957
1 10/27/2003 16:03:49.739016
2 10/27/2003 16:03:49.740438

SINGLE-LINE MSGCHAIN TRIMS: 36,137
SINGLE-LINE MSGCHAIN SCANS: 2

SINGLE-LINE MSGCHAIN SCAN TRACE
Number of Msgs | Local Date and Time
--------------------------------------------------
8,293 10/27/2003 16:01:06.038581

MAJOR-LINE MSGCHAIN TRIMS: 7,493
### Communications task

**MAJOR-LINE MSGCHAIN SCANS:** 2

**MAJOR-LINE MSGCHAIN SCAN TRACE**

<table>
<thead>
<tr>
<th>Number of Msgs</th>
<th>Local Date and Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>126</td>
<td>10/27/2003 15:59:25.030875</td>
</tr>
<tr>
<td>1</td>
<td>10/27/2003 15:59:46.405843</td>
</tr>
</tbody>
</table>

**MINOR-LINE MSGCHAIN TRIMS:** 59,944

**MINOR-LINE MSGCHAIN SCANS:** 2

**MINOR-LINE MSGCHAIN SCAN TRACE**

<table>
<thead>
<tr>
<th>Number of Msgs</th>
<th>Local Date and Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1,008</td>
<td>10/27/2003 15:59:25.030875</td>
</tr>
<tr>
<td>8</td>
<td>10/27/2003 15:59:46.405843</td>
</tr>
</tbody>
</table>

**SINGLE-LINE MSGBLDQ TRIMS:** 0

**SINGLE-LINE MSGBLDQ SCANS:** 0

**SINGLE-LINE MSGBLDQ SCAN TRACE**

<table>
<thead>
<tr>
<th>Number of Msgs</th>
<th>Local Date and Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MAJOR-LINE MSGBLDQ TRIMS:** 0

**MAJOR-LINE MSGBLDQ SCANS:** 0

**MAJOR-LINE MSGBLDQ SCAN TRACE**

<table>
<thead>
<tr>
<th>Number of Msgs</th>
<th>Local Date and Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MINOR-LINE MSGBLDQ TRIMS:** 0

**MINOR-LINE MSGBLDQ SCANS:** 0

**MINOR-LINE MSGBLDQ SCAN TRACE**

<table>
<thead>
<tr>
<th>Number of Msgs</th>
<th>Local Date and Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**LATE MINOR-LINE TRIMS:** 14,984

**LATE MINOR-LINE SCANS:** 1

**LATE MINOR-LINE SCAN TRACE**

<table>
<thead>
<tr>
<th>Number of Msgs</th>
<th>Local Date and Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**LOST MINOR-LINE TRIMS:** 14,984

**LOST MINOR-LINE SCANS:** 1

**LOST MINOR-LINE SCAN TRACE**

<table>
<thead>
<tr>
<th>Number of Msgs</th>
<th>Local Date and Time</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The following fields appear in the report:

**MAXIMUM NUMBER OF SYSPLEX MEMBERS**

The maximum number of systems allowed in this sysplex.

**CURRENT NUMBER OF SYSPLEX MEMBERS**

The number of systems that are currently defined to this sysplex.

The remaining fields in this report give information that IBM could request for problem determination.

In the MESSAGE TRIMMING STATISTICS section, the following fields appear in the report:

**Type of message RECEIVED**

The total number of the indicated type of message received since IPL from other members of the sysplex.

**Type of message SCANS**

The total number of times since IPL that the Message Receive Subtask was dispatched to process the type of messages indicated.

**Type of message SCAN TRACE**

The trace table showing details of the most recent dispatches of the Message Receive Subtask when the indicated type of message were processed and messages were received or trimmed. Each entry contains the time the Message Receive Subtask processed the collection and the number of messages that were trimmed. Dashes indicate trace entries that have not been written.

**Type of collection TRIMS**

The total number of the type of message indicated since IPL that were discarded while being collected for processing by the Message Receive Subtask. These messages were trimmed from the collection to prevent depletion of Consoles address space private storage that might otherwise occur during periods of excessively high message arrival rates.

**Type of collection SCANS**

The total number of times since IPL that the Message Receive Subtask was dispatched to process the type of collection indicated.

**Type of collection SCAN TRACE**

The trace table showing details of the most recent dispatches of the Message Receive Subtask when the indicated type of collection of messages were received or trimmed.

**COMCHECK SYSPLEX(CNTRLMEM) subcommand output**

The COMCHECK SYSPLEX(CNTRLMEM) report displays information for each control member that IBM might request for problem determination.

The following is an example of a COMCHECK SYSPLEX(CNTRLMEM) report:
Communications task

### COMMUNICATION TASK ANALYSIS

### SYSPLEX CONTROL MEMBER INFORMATION

- **Control Member Name:** SYSMCS#MCS
- **Control Member Token:** 00000001 00020001
- **Time of Last Update to This Member:** 18:35:00:77
- **Last Sysid in Sysplex:** 4
- **Shared Data Level of Last Update:** 212
- **Time of Last Update to Shared Data:** 19:19:12:17
- **Token of Last System Making an Update:** 01000003 00020006

### Serialization of Control Member

- **Tcb Address of Enq Holder:** 00000000
- **Asid Address of Enq Holder:** 00000000

### Information for Outbound Update

- **Shared Data Level:** 0
- **Time Data Queued:** 00:00:00:00

### Information for Inbound Update

- **Shared Data Level:** 0
- **Time Data Queued:** 00:00:00:00
- **Data Element Address:** 00000000
- **Number of Parts Received:** 0
- **Number of Parts Sent:** 0

### Type of Process in Progress

- **Refresh:** NO
- **Inbound Update:** NO
- **Outbound Update:** NO
- **Commit Sent:** NO

These fields display information that IBM might request for problem determination.

### COMCHECK SYSPLEX(SYSEM) subcommand output

The COMCHECK SYSPLEX(SYSMEM) subcommand displays the names of systems defined to the sysplex and additional information that IBM might request for problem determination.

The following is an example of a COMCHECK SYSPLEX(SYSMEM) report:

### COMMUNICATION TASK ANALYSIS

### SYSPLEX SYSTEM MEMBER INFORMATION

- **Sysplex Member Name:** J80
- **Sysplex Member Token:** 0100000C 00020006
- **Time of Last Update to This Member:** 19:54:28:96
- **Sysid of This Member:** 27
- **Address of First Datablk:** 7FFE3DFC
- **Number of Timeouts:** 0

### SYSPLEX SYSTEM MEMBER INFORMATION

- **Sysplex Member Name:** J90
- **Sysplex Member Token:** 0200000D 00020007
- **Time of Last Update to This Member:** 20:05:45:10
- **Sysid of This Member:** 28
- **Address of First Datablk:** 7F497DFC
- **Number of Timeouts:** 0

The following fields appear in the report:
Communications task

**SYSPLEX MEMBER NAME**
The name of the processor in the sysplex.

The remaining fields display information that IBM might request for problem determination.

**COMCHECK TDCM subcommand output**
The COMCHECK TDCM subcommand formats DIDOCS pageable display control modules (TDCM). TDCMs contain information related to MCS console screen management.

To obtain the status for a TDCM, you must first find the address of its associated control block. Use COMCHECK TDCM(LIST) to find the addresses of all TDCMs in the dump. Choose an address from the list and use COMCHECK TDCM(*address*) to format the TDCM at that address.

If you want to view the status of all TDCMs in the dump, use COMCHECK TDCM(ALL).

The following is an example of a COMCHECK TDCM(*address*) report:

<table>
<thead>
<tr>
<th>COMMUNICATION TASK ANALYSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDCM INFORMATION</td>
</tr>
<tr>
<td>CONSOLE ID:</td>
</tr>
<tr>
<td>CONSOLE TYPE:</td>
</tr>
<tr>
<td>TDCM ADDRESS:</td>
</tr>
<tr>
<td>CONSOLE NAME:</td>
</tr>
<tr>
<td>CONVERSATIONAL MODE:</td>
</tr>
<tr>
<td>MESSAGE DELETION MODE:</td>
</tr>
<tr>
<td>MESSAGE ROLL TIME(SECONDS):</td>
</tr>
<tr>
<td>MESSAGE ROLL NUMBER(LINES):</td>
</tr>
<tr>
<td>MESSAGE SEGMENTATION(LINES):</td>
</tr>
<tr>
<td>NUMBER OF LINES IN MESSAGE AREA:</td>
</tr>
<tr>
<td>ADDRESS OF SCREEN IMAGE BUFFER:</td>
</tr>
<tr>
<td>ADDRESS OF OUT OF LINE SIB:</td>
</tr>
<tr>
<td>ADDRESS OF CHANNEL PROGRAM AREA:</td>
</tr>
</tbody>
</table>

In this example, X'00580C90' is the address of the TDCM. COMCHECK TDCM(00580C90) is the correct syntax used to obtain this report.

The following fields can appear in a COMCHECK TDCM report:

**CONSOLE ID**
A 4-byte identifier that the system assigns to the console at system initialization.

**CONSOLE TYPE**
Indicates the type of console. Possible values include:

- **MCS** Indicates that this is an MCS console.
- **SMCS** Indicates that this is an SMCS console.

**TDCM ADDRESS**
The address of the pageable display control module.
CONSOLE NAME
A 2- through 8-character name defined in the CONSOLxx parmlib member at system initialization. If no name was specified, the console identifier appears in this field.

CONVERSATIONAL MODE
One of the following:

YES Conversational message deletion is in effect. The system allows you to verify a request to delete a message before deleting it from the screen.

NO Non-conversational message deletion is in effect. The system immediately deletes messages from the screen when you enter a deletion request.

MESSAGE DELETION MODE
One of the following:

AUTOMATIC The system deletes certain messages from the screen automatically whenever the message area is full and messages are waiting to be displayed.

MANUAL The system deletes messages from the screen only when you enter a deletion request. All messages waiting to be displayed remain in a queue until screen space becomes available.

ROLL Roll mode is in effect. A specified number of messages (the value of RNUM in the CONSOLxx parmlib member) roll off the screen at a specified time interval (the value of RTME in CONSOLxx).

ROLL DELETABLE The same as roll mode, except that action messages accumulate at the top of the screen.

WRAP The same as roll mode, except that new messages overlay the messages displayed at the top of the screen. An on-screen position indicator identifies the oldest and newest messages.

MESSAGE ROLL TIME (SECONDS)
The time interval between message rolls. The value in this field can be 1/4, 1/2, or any decimal number from one to 999.

MESSAGE ROLL NUMBER (LINES)
The maximum number of lines included in one message roll. The number of lines is limited to the size of the message area.

MESSAGE SEGMENTATION (LINES)
The number of lines in the message area that will be deleted when the operator issues the CONTROL E, SEG command.

NUMBER OF LINES IN MESSAGE AREA
The size of the message area for this console.

ADDRESS OF OUT OF LINE SIB
The screen image area that contains out of line information that determines the physical appearance of the out of line areas at any time.

ADDRESS OF SCREEN IMAGE BUFFER
The screen image area contains information that determines the physical
Communications task

appearance of the console screen at any time. The information contained in the
screen image area is used to build the channel program area.

ADDRESS OF CHANNEL PROGRAM AREA
The channel program area contains the channel program for MCS consoles
that, when run, will build the screen image that physically appears on the
console.

The ADDRESS OF WSF AREA, ADDRESS OF SMCS INPUT AREA, and ADDRESS OF
BUFFER LIST ENTRIES fields described later are displayed only when the
console is an SMCS console.

ADDRESS OF WSF AREA
The area that contains write structured field (WSF) information for SMCS
consoles.

ADDRESS OF SMCS INPUT AREA
The input buffer used by SMCS consoles.

ADDRESS OF BUFFER LIST ENTRIES
The area that contains buffer list entries (BLENTs) for SMCS consoles.

COMCHECK UCM subcommand output
The COMCHECK UCM subcommand gives summary control block information for
the unit control module (UCM) base, prefix, and extension.

The following is an example of a COMCHECK UCM report:
Communications task

<table>
<thead>
<tr>
<th>COMMUNICATION TASK ANALYSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>UCM INFORMATION</td>
</tr>
<tr>
<td>CONFIGURATION MODE:</td>
</tr>
<tr>
<td>CURRENTLY IN TRANSITION:</td>
</tr>
<tr>
<td>ADDRESS OF FIRST ORE:</td>
</tr>
<tr>
<td>ADDRESS OF LAST ORE:</td>
</tr>
<tr>
<td>CURRENT NUMBER OF ORE:</td>
</tr>
<tr>
<td>ORE LIMIT:</td>
</tr>
<tr>
<td>WTOR SHORTAGE:</td>
</tr>
<tr>
<td>ADDRESS OF FIRST WQE:</td>
</tr>
<tr>
<td>ADDRESS OF LAST WQE:</td>
</tr>
<tr>
<td>CURRENT NUMBER OF WQE:</td>
</tr>
<tr>
<td>WQE LIMIT:</td>
</tr>
<tr>
<td>WQE SHORTAGE:</td>
</tr>
<tr>
<td>WQE STORAGE EXHAUSTED:</td>
</tr>
<tr>
<td>MESSAGES DISCARDED WHILE WQES EXHAUSTED:</td>
</tr>
<tr>
<td>DOM IDS HAVE WRAPPED:</td>
</tr>
<tr>
<td>IEAVMXIT:</td>
</tr>
<tr>
<td>AMRF ACTIVE:</td>
</tr>
<tr>
<td>AMRF FAILED:</td>
</tr>
<tr>
<td>ADDRESS OF FIRST UCME:</td>
</tr>
<tr>
<td>ADDRESS OF LAST UCME:</td>
</tr>
<tr>
<td>HOLDMODE SPECIFIED:</td>
</tr>
<tr>
<td>DEFAULT LOGON SPECIFICATION:</td>
</tr>
<tr>
<td>SYSTEM IS MEMBER OF SYSPLEX:</td>
</tr>
<tr>
<td>CURRENT SYSTEM NAME:</td>
</tr>
<tr>
<td>CURRENT SYSTEM ID:</td>
</tr>
<tr>
<td>ACTIVE PFK SUFFIX:</td>
</tr>
<tr>
<td>ACTIVE CONSOLOXX SUFFIX:</td>
</tr>
<tr>
<td>COMM TASK ASID:</td>
</tr>
<tr>
<td>COMM TASK TCB ADDRESS:</td>
</tr>
<tr>
<td>IEEWAIT RESTARTED:</td>
</tr>
<tr>
<td>HCFORMAT OF CENTURY WAS SPECIFIED:</td>
</tr>
<tr>
<td>SMCS STATUS:</td>
</tr>
<tr>
<td>SMCS APPLICATION ID:</td>
</tr>
<tr>
<td>SMCS APPLICATION ID IN USE BY SYS:</td>
</tr>
<tr>
<td>SMCS GENERIC ID IN USE BY SYSTEM:</td>
</tr>
<tr>
<td>SMCS SYSPLEX WIDE GENERIC ID:</td>
</tr>
<tr>
<td>SMCS ACB ADDRESS:</td>
</tr>
<tr>
<td>IEECVSMA TCB ADDRESS:</td>
</tr>
<tr>
<td>SMCS SETLOGON RPL ADDRESS:</td>
</tr>
<tr>
<td>SMCS NIB ADDRESS:</td>
</tr>
<tr>
<td>SMCS END OF TASK ECB ADDRESS:</td>
</tr>
<tr>
<td>HARDCOPY/SYSLOG ROUTING CODES:</td>
</tr>
</tbody>
</table>

The following fields appear in the report:

**CONFIGURATION MODE**

One of the following modes:

**SHARED**

The console services is in shared mode.

**DISTRIBUTED**

The console services is in distributed mode. DISTRIBUTED mode is the default.

**CURRENTLY IN TRANSITION**

One of the following values:

**YES** Console services is in transition.

**No** Console services is not in transition.
Communications task

ADDRESS OF FIRST ORE
The address of the first operator reply element (ORE) in the ORE chain.

ADDRESS OF LAST ORE
The address of the last operator reply element (ORE) in the ORE chain.

CURRENT NUMBER OF ORE
The total number of OREs in the ORE chain at the time the dump was written.

ORE LIMIT
The maximum number of OREs in the ORE chain allowed by the system.

WTOR SHORTAGE
One of the following:
YES 80 percent of the current WTOR buffer limit is full.
NO No WTOR buffer shortage existed at the time the dump was written.

ADDRESS OF FIRST WQE
The address of the first write to operator queue element (WQE).

ADDRESS OF LAST WQE
The address of the last WQE.

CURRENT NUMBER OF WQE
The number of WQEs on the WQE chain at the time the dump was written.

WQE LIMIT
The maximum number of WQEs allowed by the system.

WQE SHORTAGE
One of the following:
YES 80 percent of the current number of WQE buffers are in use. The default number of buffers is 1500.
NO No WQE buffer shortage existed at the time the dump was written.

WQE STORAGE EXHAUSTED
One of the following:
YES All of the communications task storage was in use and the system was discarding messages when the dump was written.
NO Communications task storage was available at the time the dump was taken.

MESSAGES DISCARDED WHILE WQES EXHAUSTED
The number of messages that the system had discarded at the time the dump was written. Messages were discarded because all of the communications task storage was in use.

DOM IDS HAVE WRAPPED
One of the following:
YES The system issued X'FFFFFFF' delete operator message (DOM) identifiers. The system assigns the number 1 to the next DOM identifier.
NO The number of DOM identifiers has not reached X'FFFFFFF'.

IEAVMXIT
One of the following:
Communications task

ACTIVE
IEAVMXIT is active for this system. This exit gains control whenever the system processes messages that are defined to the exit.

INACTIVE
IEAVMXIT is not active for this system.

AMRF ACTIVE
One of the following:

YES The action message retention facility (AMRF) is active for this system.
NO The AMRF is not active for this system at the time the dump was written.

AMRF FAILED
One of the following:

YES The AMRF failed.
NO The AMRF did not fail.

ADDRESS OF FIRST UCME
The address of the first unit control module entry (UCME).

ADDRESS OF LAST UCME
The address of the last UCME.

HOLDMODE SPECIFIED
One of the following:

YES Hold mode is in effect. For each console, pressing the ENTER key without entering a command will suspend or resume message rolling.
NO Hold mode is not in effect for this system.

DEFAULT LOGON SPECIFICATION
The logon definition specified on the DEFAULT statement in CONSOLxx.

SYSTEM IS MEMBER OF SYSPLEX
One of the following:

YES The system to which this console is defined belongs to a set of one of more systems in a multisystem environment. Programs in the system can use cross-coupling facility (XCF) services.
NO The system is not a member of a sysplex.

CURRENT SYSTEM NAME
The name of the system defined to a sysplex.

CURRENT SYSTEM ID
An identifier that XCF assigns to a sysplex member. If the system is not a member of a sysplex, and has a JES2 subsystem, the system identifier is 0.

ACTIVE PFK SUFFIX
The 2-character suffix for the PFKTABxx parmlib member at the time the dump was written. This member contains the program function key (PFK) tables that have the installation definitions for PFKs. If no member was specified, NONE appears in this field.

ACTIVE CONSOLXX SUFFIX
The 2-character suffix for the CONSOLxx parmlib member at the time the dump was written. It contains console statements or other parameters that, in conjunction with the members MPFLSTxx and PFKTABxx, control the following:
Communications task

- Message traffic routing
- Message deletion
- PFK definitions

**COMM TASK ASID**
The address space identifier (ASID) for the communications task (COMMTASK).

**COMM TASK TCB ADDRESS**
The address of the COMMTASK task control block (TCB).

**IEEVWAIT RESTARTED**
One of the following:
- **YES** The system restarted the IEEVWAIT service routine.
- **NO** The system did not restart the IEEVWAIT service routine.

**SMCS STATUS**
Indicates the status of the SMCS application. Possible values include:

- **ACTIVE**
  The SMCS application is connected to SecureWay Security Server and SMCS consoles are available for use.

- **NOT ACTIVE**
  SMCS is not active at this time. SMCS has failed and has completed termination cleanup processing.

- **INITIALIZING**
  SMCS is beginning to initialize.

- **WAITING FOR VTAM**
  SMCS is attempting to communicate with VTAM, but VTAM is not available at this time.

- **WAITING FOR SMCS APPLID ACTIVATION**
  SMCS is communicating with SecureWay Security Server, but one of the following has occurred to the APPLID that SMCS is to use:
  - The APPLID has not been activated by SecureWay Security Server.
  - The APPLID was found to be not valid APPLID, but some other SecureWay Security Server resource.

  The installation must ensure the separation of system logger logstream resources (separate catalogs and DASD). The logstream offload dataset naming convention must be included in the inclusion list as discussed in [z/OS MVS Planning: Global Resource Serialization](#).

- **SHUTTING DOWN**
  SMCS has been requested to shut down. SMCS will cleanup and wait for the SMCS APPLID to become active.

- **NOT INSTALLED**
  An APPLID was not specified in the CONSOLxx member of parmlib. SMCS consoles will not be available for use on this system.

- **SMCS TERMINATING — FAILURE**
  SMCS has failed and is attempting to clean up. SMCS may or may not restart, depending on the error.

**SMCS APPLICATION ID**
Indicates the APPLID defined for SMCS to use. If the value is different from the value for SMCS APPLICATION ID IN USE BY SYSTEM then a CONTROL
communications task

M command was used to request the SMCS APPLID to be changed. The next
time SMCS is recycled, the value in SMCS APPLICATION ID will be used.

**SMCS APPLICATION ID IN USE BY SYS**
Indicates the APPLID that is actually in use by SMCS.

**SMCS GENERIC ID IN USE BY SYSTEM**
Indicates the GENERIC resource name defined for SMCS to use. If the value is
different from the value for SMCS SYSPLEX WIDE GENERIC then a
CONTROL M command was used to request the SMCS GENERIC resource
name to be changed. The next time SMCS is recycled, the value in SMCS
SYSPLEX WIDE GENERIC resource name will be used.

**SMCS SYSPLEX WIDE GENERIC**
Indicates the SecureWay Security Server GENERIC resource name that SMCS is
defined to use via the CONTROL M command.

**SMCS ACB ADDRESS**
Indicates the address of the ACB that SMCS is using to communicate with
SecureWay Security Server.

**IEECVSMA TCB ADDRESS**
Indicates the address of the TCB for the SMCS main routine, IEECVSMA. This
TCB resides in CONSOLE address space.

**SMCS SETLOGON RPL ADDRESS**
Indicates the address of the SETLOGON RPL that is used by SMCS.

**SMCS NIB ADDRESS**
Indicates the address of the NIB that is used by SMCS.

**SMCS END OF TASK ECB ADDRESS**
Indicates the address of the end of task ECB for the IEECVSMA task.

**ROUTING CODES**
The routing codes of messages that are sent to the system log (SYSLOG) and
hard-copy log.

**COMCHECK UCME subcommand output**
The COMCHECK UCME subcommand gives the status of an MCS, SMCS, or a
subsystem console at the time of the dump. It formats the unit control module
individual device entries (UCME).

To obtain the status for an MCS or SMCS console, you must first find the address
of its associated UCME. Use COMCHECK UCME(LIST) to find the addresses of all
UCMEs in the dump. Choose an address from the list and use COMCHECK
UCME(address) to format the UCME at that address.

If you want to view the status of all MCS or SMCS consoles in the dump, use
COMCHECK UCME(ALL).

The following is an example of a report generated with COMCHECK
UCME(address):
In this example, X'00FD63D0' is the address of the UCME. COMCHECK UCME(00FD63D0) is the correct syntax used to obtain this report.

The following fields appear in the report:

**NAME**

The console name defined in the CONSOLxx parmlib member at system initialization. If no name was specified, the console identifier appears in this field.

**CONSOLE ID**

A 4-byte identifier that the system assigns to the console at system initialization.

**CONSOLE TYPE**

Indicates the type of console. Possible values include:

- **MCS** Indicates that this is an MCS console.
Communications task

SMCS  Indicates that this is an SMCS console.

MCS/PRT  Indicates that this is an MCS printer console.

SUBSYSTEM  Indicates that this is a subsystem console.

USERID IF LOGGED ON
If an operator has logged on to the console with a user ID, the user ID is displayed. If the console was not logged on or does not support the logon function, N/A is displayed.

CONSOLE LOGON SETTING
Indicates the LOGON attribute of the console if one was specified.

DEVICE NUMBER
The device number for the console; it is specified in the CONSOLxx parmlib member.

UCB ADDRESS
The address of the unit control block (UCB), a storage area that describes the characteristics of a device to the operating system. This is only shown for MCS, MCS/PRT, and Subsystem consoles.

UCME ADDRESS
The address of the unit control module entry (UCME), which contains console-related information.

CDU ADDRESS
The address of the console definition UCME, which contains console-related information.

SYSTEM NAME
The name of the system on which the console was active when the dump was written.

NUMBER OF MESSAGES QUEUED
The number of messages waiting to be displayed on the console at the time the dump was written.

STATUS
One of the following:

ACTIVE
The device is currently active on the system.

INACTIVE
The device is currently inactive on the system.

AUTHORITY
The command group assigned to the console, as follows:

INFO  Informational commands.

SYS  System control commands.

I/O  Input/output (I/O) control commands.

CONS  Console control commands.

ALL  All command authority. This includes SYS, I/O, and CONS authority.

MASTER
Master authority commands.
Communications task

MESSAGE FORMAT
The information that will accompany a message when it is displayed on this console, as follows:

TIMESTAMP
A time stamp, in the format hh.mm.ss

JOBNAME JOBID
The name or identifier of the job issuing the message.

SYSNAME
The name of the system issuing the message.

NOSYSJB
All information except the system and job names.

MESSAGE
Only the message text is displayed.

MESSAGE TYPE
Indicates the type of information that is continually displayed at this console, as follows:

JOBNAME
The job name or job identifier when the job starts and ends.

STATUS
Displays data set names and volume serial numbers when they are free, with dispositions of keep, catalog, and uncatalog.

SESSION
Displays the user identifier for each time sharing terminal when a Time Sharing Option Extensions (TSO/E) session starts and ends.

TIME
Displays the time along with the job name and session; the time is displayed in hh.mm.ss format.

NONE
Displays none of the above information.

MESSAGE LEVEL
Lists the message level options specified in the CONSOLxx parmlib member or in the CONTROL command, as follows:

WTOR
Console displays write to operator (WTOR) messages

IMMEDIATE ACTION
Console displays immediate action messages

CRITICAL EVENTUAL ACTION
Console displays critical eventual action messages

EVENTUAL ACTION
Console displays eventual action messages

INFORMATIONAL
Console displays informational messages

BROADCAST
Console displays broadcast messages

NONE
Console displays only messages specifically directed to the console and command responses.
CONSOLE USE
The mode in which the multiple console support (MCS) console is operating, which is one of the following:

FULL I/O CAPABILITY
The console can receive input, display output, accept commands, and receive status displays and messages.

STATUS DISPLAY ONLY
The console cannot accept commands; the system uses the screen to receive status displays.

MESSAGE STREAM ONLY
The console cannot accept commands; the system uses the screen to present general messages.

CONVERSATIONAL MODE
One of the following:

YES Conversational message deletion is in effect. The system allows you to verify a request to delete a message before deleting it from the screen.

NO Non-conversational message deletion is in effect. The system immediately deletes messages from the screen when you enter a deletion request.

MESSAGE DELETION MODE
One of the following:

AUTOMATIC The system deletes certain messages from the screen automatically whenever the message area is full and messages are waiting to be displayed.

MANUAL The system deletes messages from the screen when you issue a deletion request. All messages waiting to be displayed remain in a queue.

ROLL Roll mode is in effect. A specified number of messages (the value of RNUM in CONSOLxx) roll off the screen at a specified time interval (the value of RTME in CONSOLxx).

ROLL DELETABLE The same as roll mode, except that action messages accumulate at the top of the screen.

WRAP The same as roll mode, except that new messages overlay old messages at the top of the screen when the screen is full. An on-screen separator line identifies the oldest and newest messages.

MESSAGE ROLL TIME (SECONDS)
The time interval between message rolls. The value in this field can be 1/4, 1/2, or any decimal number from one to 999.

MESSAGE ROLL NUMBER (LINES)
The maximum number of lines included in one message roll.

MESSAGE SEGMENTATION (LINES)
The number of lines in the message area that will be deleted when the operator enters the CONTROL E, SEG command.
Communications task

**NUMBER OF ROWS ON SCREEN**
Indicates the number of rows on the screen. N/A may be displayed for an inactive console.

**NUMBER OF COLUMNS ON SCREEN**
Indicates the number of columns on the screen. N/A may be displayed for an inactive console.

**PFK SUFFIX IN PARMLIB**
The parmlib member that contains definitions for one or more program function key (PFK) tables.

**PFK TABLE NAME**
The name of the program function key (PFK) table that contains the PFK definitions assigned to this console.

**CMDSYS**
The name of the system that runs the commands entered from this console.

**DEV IN MIDDLE OF BRACKETS**
For an SMCS console, indicates that the console was in the middle of brackets. This is only displayed for SMCS consoles.

**SMCS CONSOLE ALLOCATED**
For an SMCS console, this indicates that the UCME was allocated by SMCS on any system in the sysplex. This is only displayed for SMCS consoles.

**SMCS CONSOLE ACTIVE ON THIS SYS**
For an SMCS console, this indicates that the UCME was allocated by SMCS on this system. This is only displayed for SMCS consoles.

**SMCS CONSOLE LU TYPE**
This is only displayed for SMCS consoles. For an SMCS console, possible values include:
- **LU0** Indicates that LU 0 protocol is being used for this console.
- **LU2** Indicates that LU 2 protocol is being used for this console.
- **N/A** Indicates that this console is not active.

**SMCS CLEAN-UP IN PROGRESS**
For an SMCS console, indicates if the SMCS console was being cleaned up at the time of the dump. This is only displayed for SMCS consoles.

**SMCS NIB ADDRESS**
For an SMCS console, indicates the address of the NIB control block that is used for this console. This is only displayed for SMCS consoles.

**SMCS LPAB ADDRESS**
For an SMCS console, indicates the address of the LPAB control block for this console. This is only displayed for SMCS consoles.

**SMCS SEND RPL ADDRESS**
For an SMCS console, indicates the address of the SEND RPL for this console. This is only displayed for SMCS consoles.

**SMCS RECEIVE RPL ADDRESS**
For an SMCS console, indicates the address of the RECEIVE RPL for this console. This is only displayed for SMCS consoles.
SMCS COMMUNICATION ID
For an SMCS console, indicates the communication ID (CID) that SecureWay Security Server assigned to this console session. This is only displayed for SMCS consoles.

SMCS CLSDST RPL ADDRESS
For an SMCS console, indicates the address of the CLSDST RPL for this console. This is only displayed for SMCS consoles.

SMCS BIND PARMS
For an SMCS console, indicates the BIND data that was provided for this console. This is only displayed for SMCS consoles.

SYSTEM FOR ACTIVATION
The default system on which this console will be activated when the VARY CN,ONLINE command is issued for this console. This field appears only for MCS consoles (not for extended MCS consoles).

MISC ROUTING INFORMATION
One of the following:

NONE
Indicates that this console does not receive INTIDS or UNKNIDS messages.

RECEIVING INTIDS
Indicates that this console receives INTIDS messages.

RECEIVING UNKNIDS
Indicates that this console receives UNKNIDS messages.

RECEIVING INTIDS AND UNKNIDS
Indicates that this console receives INTIDS and UNKNIDS messages.

INACTIVITY TIMEOUT (MINUTES)
The number of minutes of inactivity for this console after which the system logs the user off. If the console does not support TIMEOUT or no timeout value is specified, N/A is displayed.

ROUTING CODES
The set of routing codes for messages displayed at this console. They are specified in parmlib.

CONSOLE AREA
The portion of the console screen reserved for displaying system status messages.

The console area field contains a list of alphabetic identifiers, each representing an in-line area. The list always begins with Z, which represents the out-of-line area that is not assigned to a display area. This area is reserved for general messages. The remainder of the list consists of identifiers that the system assigns to message display areas, starting at the bottom and working in alphabetical order toward the top of the screen. For example Z, A, B, C indicates a screen with one general message (in-line) area and three out-of-line display areas.

MSCOE LIST
A list of the names of systems from which this console is receiving messages.

COMCHECK UPDATES subcommand output
The COMCHECK UPDATES subcommand displays information that IBM might request for problem determination.
Chapter 16. Data-in-Virtual

The data-in-virtual component provides diagnostic data in dumps. This topic contains the following information for data-in-virtual:

- “Tracing data-in-virtual events.”
- “Formatting data-in-virtual dump data.”
- “Checks for programming problems for data-in-virtual” on page 520.

Tracing data-in-virtual events

The trace for the data-in-virtual component runs whenever data-in-virtual is in control. No actions are needed to request it. The trace records are placed in buffers in the nucleus (NUC) and system queue area (SQA); data-in-virtual controls the size of the buffers. The trace entries format the following events:

- Error events
- Data-in-virtual entry and return
- Real storage manager (RSM)/virtual data access events
- I/O driver events

You obtain the trace records in an SVC dump, stand-alone dump, or SYSMDUMP ABEND dump when the dump contains the nucleus and SQA. Format the trace with an IPCS DIVDATA subcommand, as follows:

DIVDATA TRACE
   Formats trace entries selected through the ASIDLIST parameter.

DIVDATA FULLTRACE
   Formats all trace entries.

For example, to format 1000 of the most recent trace entries, enter the following DIVDATA subcommand:
DIVDATA FULLTRACE NEWEST(1000)

Formatting data-in-virtual dump data

Format an SVC dump, stand-alone dump, or SYSMDUMP with the IPCS DIVDATA subcommand to produce diagnostic reports about data-in-virtual. z/OS MVS IPCS Commands gives the syntax of the DIVDATA subcommand and z/OS MVS IPCS User’s Guide explains how to use the DIVDATA option of the IPCS dialog. Table 48 summarizes the report subcommand keywords for IPCS DIVDATA.

Table 48. Summary: report subcommand keywords for IPCS DIVDATA

<table>
<thead>
<tr>
<th>IPCS subcommand and parameter</th>
<th>When to use:</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIVDATA DETAIL</td>
<td>The system issues message ITV10008I or other messages, or the keys in the SDWAVRA are 228 through 230</td>
</tr>
<tr>
<td>DIVDATA EXCEPTION</td>
<td>Incorrect output occurs</td>
</tr>
<tr>
<td>DIVDATA FULLTRACE</td>
<td>Output from DIVDATA EXCEPTION or SUMMARY indicates trace records were created by data-in-virtual</td>
</tr>
<tr>
<td>DIVDATA SUMMARY</td>
<td>A performance problem, abend, or incorrect output occurs</td>
</tr>
<tr>
<td>DIVDATA TRACE</td>
<td>Output from DIVDATA EXCEPTION or SUMMARY indicates trace records were created by data-in-virtual for the requested address space(s)</td>
</tr>
</tbody>
</table>
In a DIVDATA subcommand, specify one of the following address space selection
keywords to specify processing of data-in-virtual control blocks based on their
associated address spaces:

- ALL for all address spaces
- CURRENT for active address spaces of the dump
- ERROR for error address spaces
- TCBERROR for address spaces with a task error indicator
- ASIDLIST for address spaces associated with ASID(s)
- JOBLIST or JOBNAME for address spaces associated with job names

A DIVDATA subcommand without a subcommand keyword specified produces an
EXCEPTION report. See “DIVDATA EXCEPTION subcommand output” on page
519.

**DIVDATA SUMMARY subcommand output**

The DIVDATA SUMMARY report (Figure 16) provides information about the
data-in-virtual control blocks and mapped data-in-virtual object ranges. Provide
this information when reporting a data-in-virtual problem to the IBM Support
Center. Note the data-in-virtual service requested by the macro, if the dump had
an active DIV macro request. Find the data-in-virtual service name under SERVICE
in the DOA section at the end of the report.

---

**FORMAT DUMP OF DATA-IN-VIRTUAL DATA**

*** ***

+ DIB: 01022E28
  +0000 ID....... DIB DIBX..... 011F5780 INDR..... 81022708
  +000C OUTDR.... 81022858 DIEAD.... 8102A658 ERRDA.... 81029F88
  +0018 TRMDA.... 8102A950 PRGDA.... 8102AC38 RCB...... 81023B98
  +0024 RVCB..... 810290D0 RTRC..... 81028E18 RSV...... 81024390

+ DIBX: 011F5780
  +0000 ID....... DIBX ZERO..... 01B09000 TOF1..... 80
  +0009 TTSZ..... 20 ASID..... 0000 JBNM......
  +0014 DOM..... GNCL..... C0C0 COCL..... 0000
  +0020 CTC...... 01B42290 TRF1..... 00 RSV...... 000000
  +0028 HUXL..... 7FFFE41F LUXL..... 7FFD1800 RSV...... 00000000
  +0034 RSV...... 00000000

TRACE TABLE INFORMATION:

- CTC ADDRESS = 01B42290
- TABLE ADDRESS = 01A83000
- TABLE SIZE = 32 (in units of 4K bytes)
- NUMBER OF WRAPS = 0

---

Figure 16. Example: DIVDATA SUMMARY subcommand output (Part 1)
DIVDATA DETAIL subcommand output
The DIVDATA DETAIL report gives the same information as the DIVDATA SUMMARY report, plus it shows the formatted DOAs and WCBs.

DIVDATA EXCEPTION subcommand output
The DIVDATA EXCEPTION subcommand provides information about exceptional conditions with data-in-virtual processing.
### Checks for programming problems for data-in-virtual

Table 49 summarizes problems that can result when application programs issue the DIV macro. Use the table to decide if a DIV macro problem is in the application program or in the data-in-virtual component. See [z/OS MVS Programming](https://publibz.boulder.ibm.com/ibmna4124/ps01/ps7700.htm) for information about using the DIV macro.

#### Table 49. Summary: Checks for programming problems for data-in-virtual

<table>
<thead>
<tr>
<th>For a Problem With:</th>
<th>Check the Following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application program that needs mapped virtual storage to retain values after issuing DIV macro UNMAP request</td>
<td>Specify RETAIN=YES on the DIV UNMAP request. If the default RETAIN=NO option is used, the storage appears as if it were freshly obtained with a GETMAIN and then referenced.</td>
</tr>
<tr>
<td>DDNAME and disposition used for the data object specified on a DIV macro IDENTIFY request</td>
<td>If the application uses several data objects and copies data from one object to another, ensure that DISP=OLD is on the JCL DD statement that defines the linear data set for any data object to be updated.</td>
</tr>
<tr>
<td>The linear data set for a DIV macro IDENTIFY request (TYPE=DA)</td>
<td>Ensure that the linear data set is a cataloged VSAM data set and defined as LINEAR. To list the catalog entry for data set characteristics, use the access method services LISTC command. See <a href="https://publibz.boulder.ibm.com/ibmna4124/ps01/ps7700.htm">z/OS DFSMS Access Method Services Commands</a>.</td>
</tr>
<tr>
<td>MAP, IDENTIFY, and ACCESS requests made by the same task</td>
<td>If the MAP request was made before an IDENTIFY and ACCESS, ensure that the ACCESS and MAP requests use the identifier (ID) returned from the IDENTIFY request.</td>
</tr>
<tr>
<td>Mapping the data object in a data space</td>
<td>Consider the following:</td>
</tr>
<tr>
<td></td>
<td>• If the invoker is in supervisor state or holds the system key, ensure that the data space is owned by a task in the primary address space; otherwise, ensure that the data space is owned by the task that issues the MAP request.</td>
</tr>
<tr>
<td></td>
<td>• If references to the data object resulted in an abend X'0C4', ensure that the data space remains created as long as the data object exists.</td>
</tr>
<tr>
<td></td>
<td>• Ensure that the data space is not a DREF data space.</td>
</tr>
<tr>
<td></td>
<td>• Ensure that the range of the data object to be mapped does not exceed the size of the data space.</td>
</tr>
<tr>
<td>Mapping the data object in an address space</td>
<td>If several tasks use the same data object, ensure that each task obtains a mapping of the data in one of the following ways:</td>
</tr>
<tr>
<td></td>
<td>• With a DIV macro MAP request for virtual storage owned by the task.</td>
</tr>
<tr>
<td></td>
<td>• With a DIV macro MAP request for virtual storage owned by a parent task. This way is allowed when the task using the data is running in an environment authorized by the authorized program facility (APF), has a program status word (PSW) with a system-level storage protection key (0 through 7), or a PSW in supervisor state.</td>
</tr>
<tr>
<td></td>
<td>• As previously mapped virtual storage belonging to the task that issued the MAP request.</td>
</tr>
<tr>
<td>Page fix for mapped virtual storage not removed after DIV macro request</td>
<td>When a DIV macro is issued, ensure that no pages are fixed in the range of virtual storage specified on a MAP, UNMAP, SAVE, or RESET request.</td>
</tr>
<tr>
<td></td>
<td>Remove any page fix before the program issues any other DIV macro requests for the mapped virtual storage and before the program ends. Implicit UNMAP requests are done at program ending.</td>
</tr>
</tbody>
</table>
### Table 49. Summary: Checks for programming problems for data-in-virtual (continued)

<table>
<thead>
<tr>
<th>For a Problem With:</th>
<th>Check the Following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Save area for the DIV macro</td>
<td>If a save area is missing for the DIV macro, a second invocation could fail because the storage value might have changed since the first invocation; the return address in register 14 might be incorrect.</td>
</tr>
<tr>
<td>Serializing updates to the data object</td>
<td>Consider the following:</td>
</tr>
<tr>
<td></td>
<td>• If multiple users can concurrently update the data object, use LOCVIEW=MAP on the DIV macro and serialization protocol, ENQ/DEQ for example, external to data-in-virtual.</td>
</tr>
<tr>
<td></td>
<td>• If the data object is updated, ensure that the linear data set is allocated with DISP=OLD on the JCL DD statement.</td>
</tr>
<tr>
<td>SHAREOPTIONS values for the virtual storage access method (VSAM) data set</td>
<td>If a DIV macro ACCESS request is to map the data object in a data space or address space and specifies LOCVIEW=NONE (either explicitly or by default), the recommended SHAREOPTIONS value is SHAREOPTIONS(1,3). Otherwise, specify a SHAREOPTIONS value that accurately reflects how the data set is shared at the installation.</td>
</tr>
</tbody>
</table>
Data-in-Virtual
Chapter 17. Global resource serialization

This topic contains the following diagnosis information for global resource serialization:

- "Formatting global resource serialization dump data."
- "Combining trace data from multiple systems" on page 537.

Formatting global resource serialization dump data

Obtain an SVC or stand-alone dump. If you suspect that the problem might involve more than one system in the global resource serialization complex, obtain a dump for each system. Make sure dumps include the global resource serialization and XCFAS address spaces and any necessary data spaces. If you suspect a problem with a user of GRS ENQ services, then SDATA=GRS should be specified on the dump. This causes GRS to collect complex-wide information related to outstanding ENQs. If you suspect a problem with GRS itself, then you should dump both the GRS and XCF address spaces. Note that dumps taken by GRS when in Star mode for GRS problems might be multi-systems.

There are several ways to use IPCS subcommands with dumps to diagnose global resource serialization problems:

- To format the dump or dumps for the diagnosis data of global resource serialization, see VERBEXIT GRSTRACE or GRSDATA in z/OS MVS IPCS Commands. See “VERBEXIT GRSTRACE subcommand output” on page 524 for a sample report of VERBEXIT GRSTRACE. You can find a sample GRSDATA report in z/OS MVS IPCS Commands.
- To combine trace data from multiple dumps, see “Combining trace data from multiple systems” on page 537.

GRSDATA and GRSTRACE reports can be used to view resources and requesters known to the local system.

The GRSDATA report uses SDATA=GRSQ records. The GRSTRACE report uses GRS internal control blocks from the GRS address space and includes diagnostic data and configuration information about GRS. Both reports support several filtering options to limit the amount of data returned. The GRSTRACE report also supports a DETAIL view.

When GRS is in STAR mode, GRSTRACE can only show requests from the local system. The GRSDATA report can be used to see information that includes global resources from other systems. The amount of data included depends on the GRSQ setting of the local system.

GRSDATA and GRSTRACE reports include GRS-managed Latch information at the bottom for all dumped address spaces with accessible Latch sets. See z/OS MVS IPCS Commands for more information on the GRSDATA and GRSTRACE commands.

The IPCS ANALYSIS, CONTENTION report produces GRS Latch and ENQ contention reports. In Star mode, the ENQ contention report does not report about Global ENQs. GRSTRACE and GRSDATA can provide information on all ENQ resources whether they are in contention or not. GRSDATA is the only report that
Global Resource Serialization

can process Star mode Global ENQ information. Latch contention is only provided through IPCS ANALYSIS, CONTENTION. No reporting is provided for latches that are held but not in contention.

VERBEXIT GRSTRACE subcommand output

The IPCS VERBEXIT GRSTRACE subcommand produces diagnostic reports about global resource serialization from dumps. z/OS MVS IPCS Commands gives the syntax of the VERBEXIT GRSTRACE subcommand and z/OS MVS IPCS User’s Guide explains how to use the GRSTRACE option of the IPCS dialog.

The dump may also contain component trace data for global resource serialization and latch contention statistics. See the component trace chapter of z/OS MVS Diagnosis: Tools and Service Aids for information on how to format global resource serialization component trace data.

The VERBEXIT GRSTRACE report displays local, global, and step queues with outstanding global resource serialization requests. An asterisk next to a minor name indicates resource contention for that minor name.

* * * * * GLOBAL RESOURCE SERIALIZATION CONTROL BLOCK PRINT * * * * *
Options list:
  Report................. GRSTRACE
  Level of detail......... SUMMARY
  Requested time format.. LOCAL
  Filter(s) in use:
    NONE
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
  * * * DIAGNOSTIC DATA * * * *
  GVT 00000000_000E1000
  GVTX 00000000_006E0000
  GQHT 00000000_00000000
  SQHT 00000000_00000000
  LQHT 00000000_00000000
  STHT 00000000_00000000
  RPT 00000000_00000000
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
  * * * CONFIGURATION INFORMATION * * * *
  GRS Mode     RING
  Current RESMIL Value 19
  Minimum RESMIL Value 15
  Maximum RESMIL Value 19
  RESMIL Self Tuning  On
  TOLINT Value 180
  ACCELSYS Value 99
  Synchres Setting Yes
  Active Exits None
  CTRACE Buffer size (K) 4096
  The EDDU monitor is Off
  ENQMAXA 250000
  ENQMAXD 16384
  ***************************************************
  ***************************************************
  ***** *****
  ***** STEP QUEUE (STHT) CONTROL BLOCK PRINT *****
  ***** *****
  ***************************************************
  ***************************************************
MAJOR NAME: SPFUSER
MINOR NAME: SPFUSER
  SCOPE: STEP  SYSTYPE: S4  STATUS: *EXCLUSIVE* /OWN
  ASID: 0000000A  TCB: 006F8650  JOBNAME: SPFUSER
  Critical ENQ Time(s):
    Grant: 07/09/2007 13:03:16.054019

MAJOR NAME: SYSBLSDI
MINOR NAME: 0005F610
  SCOPE: STEP  SYSTYPE: S4  STATUS: *SHARED* /OWN
Global Resource Serialization

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Global Resource Serialization

The following fields might appear in the report depending on the VERBEXIT GRSTRACE SUMMARY or DETAIL report type and GRS environment. See individual field descriptions more for information.

**DIAGNOSTIC DATA**

**GVT**
Starting address of the global vector table (GVT)

**GVTX**
Starting address of the global vector extension (GVTX)

**GQHT**
Starting address of the global hash table (GQHT)

**SGHT**
Starting address of the system global hash table in STAR mode. (SGHT)

**LQHT**
Starting address of the local hash table (LQHT)

**STHT**
Starting address of the step queue hash table (STHT).

**RPT**
Starting address of the resource pool table (RPT)
CONFIGURATION INFORMATION

GRS Mode
GRS mode at the time of the dump. The possible values are NONE, RING, and STAR.

Present RESMIL Value
Present value of RESMIL in milliseconds. This field is only displayed in RING mode.

Minimum RESMIL Value
Minimum value of RESMIL in milliseconds. This field is only displayed in RING mode.

Maximum RESMIL Value
Maximum value of RESMIL in milliseconds. This field is only displayed in RING mode.

RESMIL Self Tuning
Setting of RESMIL self tuning. Possible values are ON or OFF. This field is only displayed in RING mode.

TOLINT Value
Value of TOLINT displayed in seconds. This field is displayed in RING mode.

ACCELSYS Value
ACCELSYS value. This field is displayed in RING mode.

Synchres setting
Setting of the synchronous reserve processing. Possible values are Yes, No, and Disabled.

Active Exits
List of the current global resource serialization installation exits. For complete installation exit information, see z/OS MVS Installation Exits. Possible values of this field include:
- NONE - There were no active exits
- ISGNQXIT - The ENQ/DEQ installation exit was active.
- ISGNQXITBATCH - The ENQ/DEQ batch installation exit was active.
- ISGNQXITQUEUED1 - The ENQ/DEQ queued installation exit was active.
- ISGNQXITFAST - The fast ENQ/DEQ installation exit was active.
- ISGENDOFLQCB - The ENQ/DEQ end of local QCB installation exit was active.
- ISGNQXITPREBATCH - The ENQ/DEQ pre batch installation exit was active.
- ISGNQXITBATCHCND - The ENQ/DEQ batch conditional installation exit was active.
- ISGCNFXTSYSTEM - The contention notification filter installation exit for system-scope resources was active.
- ISGCNFXTSYSPLEX - The contention notification filter installation exit for sysplex-scope resources was active.

GRSQ Setting
The GRSQ setting. Possible values are LOCAL, CONTENTION, or ALL. Only displayed in STAR mode.
Global Resource Serialization

CNS
System name of the Contention Notification System. Only displayed in STAR
mode. A value of ‘Unavailable’ is displayed if the required information is not
present in the dump.

CTRACE Buffer size (k)
Value of the CTRACE buffer size in bytes.

The ENQ monitor is
Status of the ENQ/RESERVE/DEQ monitor. Possible values are ON or OFF.

ENQMAXA
Value of the system wide ENQMAXA.

ENQMAXU
Value of the system wide ENQMAXU.

Outstanding ENQ/RESERVE breakdown sections

MAJOR NAME
The major name of a resource

MINOR NAME
The minor name of a resource (with * if resource contention exists)

RESOURCE CREATION TIME
The Resource Creation Time is the time that global resource serialization last
acknowledged interest in the resource. The requester who caused the
acknowledgment might have dequeued. Global resource serialization removes
all knowledge of the resource when there are no interested parties. The Time is
displayed in the request Time(Local | GMT | UTC) format. This field is displayed
only when DETAIL is specified.

LAST MOVENAME TIME
The last time when this resource was affected by an ISGADMIN
MOVENAME request. See z/OS MVS Programming: Authorized Assembler
Services Guide and z/OS MVS Programming: Authorized Assembler Services
Reference EDT-IXG for information specific to the ISGADMIN service. The Time
is displayed in the request Time(Local | GMT | UTC) format. This field is
displayed only when DETAIL is specified.

SCOPE
Scope of the resource - SYSTEM, SYSTEMS, or STEP

SYSNAME
Name of the system requesting the resource

STATUS
Type of access to resource requested - SHARED or EXCLUSIVE

ASID
Address space identifier (ASID) for address space where request was issued

TCB
The address of the task control block (TCB) requesting the resource

JOBNAME
The name of the job requesting the resource

MASID
Address space identifier (ASID) for address space where the MASID target
request was issued. This field is displayed only for MASID ENQ users.
Global Resource Serialization

**MTCB**
The address of the task control block (TCB) targeted by the MASID ENQ request. This field is only displayed for MASID ENQ requests.

**Note:** A non-zero MTCB value with a zero MASID value indicates that the original ENQ request specified MASID= MTCB=, but GRS converted this request to a regular (non-MASID) ENQ.

**Reserve Device**
Displays the EBCDIC device number for this UCB. In GRS RING, if the request originated from a remote system message, Reserve from remote system, is displayed. If data is not available through the IOSVIEDN service, the UCB address is displayed in message, "Reserve UCB at xucbaddr unavailable."

**Volser**
Displays the Volser for this UCB. In GRS RING, if the request originated from a remote system, message, "Reserve from remote system" is displayed. If data is not available via the IOSVIEDN service, the UCB address is displayed in message, "Reserve UCB at xucbaddr unavailable."

**Synchronous Reserve status**
Displays the state of the GRS managed Reserve. This field is blank until the ENQ is owned by this requester. One of the following states can occur:

**SYNCHRES COMPLETE**
Either the device was already reserved by this system and GRS incremented the usage count or GRS completed the I/O necessary to reserve the device.

**NOT SYNCHRES**
The device was not already reserved by this system and GRS did not make any attempt to reserve the device. The system will reserve the device when I/O request by the requester is complete.

**WAITING FOR SYNCHRES TO COMPLETE**
The device was not already reserved by this system and GRS has started the I/O necessary to reserve the device; however, the I/O has not yet completed. The device might be reserved by another system.

**INCOMPLETE REQUEST: STATE UNKNOWN**
GRS has not finished determining whether to attempt a synchronous reserve for this request. The state is unknown.

**Critical ENQ Times**
ENQ request, contention, grant, and ISGADMIN movewaiter times. The outputs are formatted according to the Time(Local | GMT | UTC) specification. Local is the default time format.

*Request* - The time the ENQ request was issued. For GRS RING globals originating on a system where the current dump was not taken, it's the time the dumped system received this request. Other possible values include:

- 0, QEL BEING FREED - The QEL is in the act of being freed.

The following fields are presented only for requests originating on the dumped system. The requests include all local requests, all GRS=STAR global requests known to the dumped system, and GRS RING requests originating on the dumped system. For GRS RING requests originating from another system, the following message is issued:

Some ENQ information is unavailable for this remote request
Global Resource Serialization

- Contention - Time that GRS detected resource contention for the overall request originating on the dumped system. The Contention field is only displayed if contention was ever detected by GRS for this particular request. Other possible values include: 0, BUT IS WAITING - Small timing window where GRS has marked the requester as waiting but GRS has not yet set the wait time.

- Started I/O - Time that GRS either incremented the usage count for a RESERVE already held by this system or started the I/O to RESERVE the device because of the request.

- Grant - Time that the overall request was granted access to all resources. Other possible values include: 0, BUT NOT WAITING - Small timing window where GRS has granted access to all resources in the request, but the grant time has not yet been set.

- Delta Time Waiting - Amount of time that the requestor spent waiting for access to all resources. This field is set when the contention time and grant time are both non-zero. If the requestor is still waiting at the time of the dump, this field is not set.

- Movewaiter - Time that a waiting request was moved by the ISGADMIN MOVEWAITER function. See z/OS MVS Programming: Authorized Assembler Services Guide and z/OS MVS Programming: Authorized Assembler Services Reference EDT-IYG for information specific to the ISGADMIN service.

OWN

This indicates that the requester is an owner of this ENQ resource. However, for synchronous RESERVE requests, the I/O for the device RESERVE might not have completed, and the requester might still be waiting.

WAIT

This indicates that the requester is a waiter for the ENQ resource. If this is a reserve request, the hardware reserve is issued after the waiter becomes the owner of the ENQ resource.

USE

This indicates that the requester is a MASID owner of the resource. That is, another requester is the owner and this MASID requester is also allowed to use the resource in the requested state.

The following fields are only displayed when DETAIL is specified:

Caller PSW

Eight-byte Program Status Word (PSW) at the time of SVC or PC interruption on entry into ENQ. Caller PSW contains the return address back to the calling ENQ/ISGENQ/RESERVE program. The PSW address combined with the ASID and requesting TCB address can help identify which program issued this ENQ/ISGENQ/RESERVE request.

Caller TCB

Task control block (TCB) address of the ENQ/ISGENQ/RESERVE issuer, when different from the owning ENQ task. It directed ENQ where the owning task is different from the requesting task.

Request Type

The type of ENQ/ISGENQ/RESERVE linkage specified by the invoker of ENQ. Possible values are LINKAGE=ISGENQ, LINKAGE=SYSTEM, LINKAGE=SVC. For GRS RING mode, two other displays are possible: LINKAGE=SYSTEM (or ISGENQ) or Request created by queue merge processing.
Global Resource Serialization

RNL Processing Actions
Displays the RNL processing sequence with respect to this request. Possible values are INCL, INCL EXCL, EXCL, CON, or RNL = NO, where INCL=Promoted to SYSTEMS ENQ by RNL processing, EXCL=Demoted to SYSTEM ENQ by RNL processing, and CON=Converted to SYSTEMS ENQ without a hardware device RESERVE.

Affected by ISGNQXIT/FAST
This request was altered by an ISGNQXIT or ISGNQXITFAST exit routine. See z/OS MVS Installation Exits for specific information about these dynamic exit routines.

Affected by ISGNQXITBATCH/CND
This request was altered by an ISGNQXITBATCH or ISGNQXITBATCHCND exit routine. See z/OS MVS Installation Exits for specific information about these dynamic exit routines.

Managed by an Alternate Serialization Product
This request is managed outside the scope of GRS processing by an alternate serialization product.

ISGENQ Userdata
Displays printable hexadecimal digits and the actual EBCDIC text of the ISGENQ Userdata as specified on the ISGENQ REQUEST=OBTAIN macro invocation.

QEL
The address of the queue element (QEL) for the request

QXB
The address of the queue extent block (QXB) for the request

QCB
The address of the queue control block (QCB) for the request

ECB
The address of the event control block (ECB) as specified on an ENQ ECB= or ISGENQ WAITTYPE=ECB invocation

SVRB
The address of the supervisor control block (SVRB) created on entry to the SVC ENQ routine that is ENQ LINKAGE=SVC.

Note: The SVRB is only valid when this ENQ is actively being processed or waited on for contention resolution by GRS.

RB
The address of the request block (RB) that issued the ENQ LINKAGE=SYSTEM or ISGENQ request

The output from VERBEXIT GRSTRACE might also contain the information shown in Figure 18 on page 532
Latch Statistics

Latch Set Name: LS1.XMITDAT.LATCH.SET
Creator Jobname: MYJOB1
Creator ASID: 0024

<table>
<thead>
<tr>
<th>Latch Number</th>
<th>Fast Obtains</th>
<th>Slow Obtains</th>
<th>Ratio (slow/total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>320</td>
<td>1</td>
<td>00.31%</td>
</tr>
<tr>
<td>1</td>
<td>209,909</td>
<td>33</td>
<td>00.02%</td>
</tr>
<tr>
<td>2</td>
<td>5,530,998</td>
<td>3,294,036</td>
<td>37.33% *</td>
</tr>
<tr>
<td>3</td>
<td>611,721</td>
<td>24,967</td>
<td>03.92%</td>
</tr>
<tr>
<td>4</td>
<td>211,574</td>
<td>11,987</td>
<td>05.36% *</td>
</tr>
</tbody>
</table>

Summary: 6,564,602 3,341,024 33.73% *
Total number of latches in above latch set: 5
Number of latches with non-zero statistics: 5

Latch Set Name: LS2.TRANDAT.LATCH.SET
Creator Jobname: MYJOB2 Creator ASID: 001D

<table>
<thead>
<tr>
<th>Latch Number</th>
<th>Fast Obtains</th>
<th>Slow Obtains</th>
<th>Ratio (slow/total)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>4,357</td>
<td>376</td>
<td>07.94% *</td>
</tr>
<tr>
<td>3</td>
<td>79,551</td>
<td>3</td>
<td>00.00%</td>
</tr>
<tr>
<td>3</td>
<td>549,933</td>
<td>36</td>
<td>00.01%</td>
</tr>
</tbody>
</table>

Summary: 633,841 415 00.07%
Total number of latches in above latch set: 8
Number of latches with non-zero statistics: 3

Figure 18. Example: VERBEXIT GRSTRACE output - additional information

Latch Set Name
The name that the latch set creator assigned to the latch set displayed in the output.

Note: Latch set names are unique within any given address space. See the documentation provided by the latch creator for more information about the latch set.

Creator Jobname
The name of the job associated with the primary address space where the latch set was created.

ASID
The address space identifier (ASID) of the job that was running in the primary address space at the time the latch set was created.

Latch number
The number of the latch for which statistics are displayed. See the latch creator documentation as to what this latch is used for.

Fast Obtains
The number of times that tasks or SRB routines called the Latch_Obtain service to obtain a latch when the latch manager granted control of the latch to the requesting task or SRB routine immediately (no contention for the latch existed at the time of the call). The system might display one of the following letters with this number:
Global Resource Serialization

G (giga) - The actual number, when rounded down to a multiple of one billion, is one billion times the number displayed.

K (kilo) - The actual number, when rounded down to a multiple of one thousand, is one thousand times the number displayed.

M (mega) - The actual number, when rounded down to a multiple of one million, is one million times the number displayed.

Slow Obtains
The number of times that tasks or SRB routines called the Latch_Obtain service to obtain a latch when the latch manager could not grant control of the latch immediately (contention for the latch existed at the time of the call). The system may display the letter G, K, or M with this number, as described under “Fast Obtains” above.

Ratio
The percentage of the total number of Latch_Obtain requests that are slow obtains.
- The system rounds the percentage ratio to the nearest hundredth of a percent.
- The value 00.00 appears in this field if the contention ratio is less than 0.005%.
- An asterisk follows the contention ratio if it exceeds 5%.
- The system does not display latches for which the number of slow obtains and the number of fast obtains are both zero.

Summary
A line that displays:
- The total number of fast and slow obtains; if either of these numbers is too large for the system to display, the summary line contains a message indicating that the data is not available.
- The contention ratio for all latches in the latch set
- The total number of latches in the latch set
- The number of latches in the latch set that received at least one obtain request (the number of latches with non-zero statistics).

The system might display one of the following letters with the listed numbers:

G (giga) - The actual number, when rounded down to a multiple of one billion, is one billion times the number displayed.

K (kilo) - The actual number, when rounded down to a multiple of one thousand, is one thousand times the number displayed.

M (mega) - The actual number, when rounded down to a multiple of one million, is one million times the number displayed.

An asterisk follows the summary contention ratio if it exceeds 5%.

Note: If the counters in the display of latch statistics wrap, the statistics are not meaningful. When testing your application, you can obtain meaningful statistics by dumping the application’s address space periodically (before the latch statistics wrap).

Summary Report Example
Figure 19 on page 534 is an example of a summary report for GRSTRACE, using the command TP VERBX GRSTRACE "SUMMARY QNAME(‘TES?ENQ’)".
Figure 19. Example: GRSTRACE summary report

Detailed Report Example

Figure 20 on page 535 is an example of a detailed report for GRSTRACE using the command IP VERBX GRSTRACE 'DETAIL QNAME(''TES?ENQ'')':

MAJOR NAME: TESTENQ

* MINOR NAME: DUMMYENQ

SCOPE: SYSTEMS SYSTYPE: S1 STATUS: *SHARED* /OWN
ASID: 0000002C TCB: 006FF020 JOBNAME: GRSTOOL
Critical ENQ Time(s):
  Request: 06/04/2007 15:30:05.804018
  Grant: 06/04/2007 15:30:05.834250

SCOPE: SYSTEMS SYSTYPE: S1 STATUS: *SHARED* /OWN
ASID: 00000028 TCB: 006FF020 JOBNAME: GRSTOOL
Critical ENQ Time(s):
  Request: 06/04/2007 15:32:18.460284
  Contention: 06/04/2007 15:32:18.484524
  Grant: 06/04/2007 15:32:34.846436
  Delta Time Waiting: 00:00:16.361911

SCOPE: SYSTEMS SYSTYPE: S2 STATUS: *EXCLUSIVE* /WAIT
ASID: 0000002F TCB: 006FF020 JOBNAME: GRSTOOL
Critical ENQ Time(s):
  Request: 06/04/2007 15:33:18.738913
  Some ENQ information is unavailable for this remote request

SCOPE: SYSTEMS SYSTYPE: S1 STATUS: *SHARED* /USE
ASID: 00000029 TCB: 006FF020 JOBNAME: GRSTOOL
MASID: 0000002C MTCB: 006FF020
Critical ENQ Time(s):
  Request: 06/04/2007 16:03:39.740163
  Grant: 06/04/2007 16:03:39.782389
Detailed Report for RESERVE Status

Figure 21 on page 536 is an example of a detailed report for GRSTRACE using the command `IP VERBX GRSTRACE 'DETAIL RNAME(''SPOOL1*')'`.

Global Resource Serialization

MAJOR NAME: TESTENQ

* MINOR NAME: DUMMYENQ

  Resource Creation Time: 06/04/2007 15:30:05.834244
  SCOPE: SYSTEMS SYSNAME: S1 STATUS: *SHARED* /OWN
  ASID: 00000002C TCB: 006FF020 JOBNAME: GRSTOOL
  Critical ENQ Time(s):
    Request: 06/04/2007 15:30:05.804018
    Grant: 06/04/2007 15:30:05.834250
  Caller PSW: 078D0000_88302588
  Request Type: LINKAGE=SVC
  RNL Processing Actions: INCL
  QEL: 00000001_0000E75E0 QXB: 00000001_00117160
  QCB: 00000001_00009388 SVRB: 006FD608
  SCOPE: SYSTEMS SYSNAME: S1 STATUS: *SHARED* /OWN
  ASID: 00000002B TCB: 006FF020 JOBNAME: GRSTOOL
  Critical ENQ Time(s):
    Request: 06/04/2007 15:32:18.460284
    Contention: 06/04/2007 15:32:18.484524
    Grant: 06/04/2007 15:32:34.846436
    Delta Time Waiting: 00:00:16.361911
  Caller PSW: 078D0000_88302588
  Request Type: LINKAGE=SVC
  RNL Processing Actions: INCL
  QEL: 00000001_0000E84C0 QXB: 00000001_00117D30
  QCB: 00000001_00009388 SVRB: 006FD608
  SCOPE: SYSTEMS SYSNAME: S2 STATUS: *EXCLUSIVE* /WAIT
  ASID: 00000002F TCB: 006FF020 JOBNAME: GRSTOOL
  Critical ENQ Time(s):
    Request: 06/04/2007 16:03:39.740163
    Grant: 06/04/2007 16:03:39.782389
  Caller PSW: 078D0000_883025C8
  Request Type: LINKAGE=SYSTEM
  RNL Processing Actions: INCL
  QEL: 00000001_0000E820 QXB: 00000001_00117AF0
  QCB: 00000001_00009388 RB: 006E6F98

Figure 20. Example: GRSTRACE detail report
**Global Resource Serialization**

**MAJOR NAME: SYSZJES2**

**MINOR NAME: SPOOL1SYS1.CASE#1**
- SCOPE: SYSTEM SYSNAME: S1 STATUS: *EXCLUSIVE* /OWN
- ASID: 00000029 TCB: 004E6D90 JOBNAME: GRSTOOL
- Reserve Device: 027E Volser: TMPPAK - SYNCHRES COMPLETE
- Critical ENQ Time(s):
  - Request: 07/21/2010 12:56:50.099689
  - Started I/O: 07/21/2010 12:56:50.099716
  - Grant: 07/21/2010 12:56:50.100263

**MINOR NAME: SPOOL1SYS1.CASE#2**
- SCOPE: SYSTEM SYSNAME: S1 STATUS: *EXCLUSIVE* /OWN
- ASID: 0000002A TCB: 004E6D90 JOBNAME: GRSTOOL
- Reserve Device: 027E Volser: TMPPAK - SYNCHRES COMPLETE
- Critical ENQ Time(s):
  - Request: 07/21/2010 13:00:59.542883
  - Started I/O: 07/21/2010 13:00:59.542907
  - Grant: 07/21/2010 13:00:59.542909

**MINOR NAME: SPOOL1SYS1.CASE#3**
- SCOPE: SYSTEM SYSNAME: S1 STATUS: *EXCLUSIVE* /OWN
- ASID: 0000002A TCB: 004E6D90 JOBNAME: GRSTOOL
- Reserve Device: 027D Volser: TMPPK1 - NOT SYNCHRES
- Critical ENQ Time(s):
  - Request: 07/21/2010 13:02:03.623645
  - Grant: 07/21/2010 13:02:03.623672

**MINOR NAME: SPOOL1SYS1.CASE#4**
- SCOPE: SYSTEM SYSNAME: S1 STATUS: *EXCLUSIVE* /OWN
- ASID: 00000029 TCB: 004E6D90 JOBNAME: GRSTOOL
- Reserve Device: 0182 Volser: LOWDSD - WAITING FOR SYNCHRES TO COMPLETE
- Critical ENQ Time(s):
  - Contention: 0, BUT IS WAITING

**MINOR NAME: SPOOL1SYS1.CASE#5**
- SCOPE: SYSTEM SYSNAME: S1 STATUS: *EXCLUSIVE* /OWN
- ASID: 00000001E TCB: 004E6D90 JOBNAME: GRSTOOL
- Reserve Device: 027E Volser: TMPPAK - SYNCHRES COMPLETE
- Critical ENQ Time(s):
  - Request: 07/21/2010 13:55:44.087246
  - Contention: 0, BUT IS WAITING

**MINOR NAME: SPOOL1SYS1.CASE#6**
- SCOPE: SYSTEM SYSNAME: S1 STATUS: *EXCLUSIVE* /OWN
- ASID: 00000002A TCB: 004E6D90 JOBNAME: GRSTOOL
- Reserve Device: 0182 Volser: LOWDSD - INCOMPLETE REQUEST: STATE UNKNOWN
- Critical ENQ Time(s):
  - Contention: 0, BUT IS WAITING

**MAJOR NAME: MYGLOBAL**

**MINOR NAME: SPOOL1SYS1.CASE#5**
- SCOPE: SYSTEM SYSNAME: S1 STATUS: *EXCLUSIVE* /OWN
- ASID: 0000002A TCB: 004E6D90 JOBNAME: GRSTOOL
- Reserve Device: 0182 Volser: LOWDSD - INCOMPLETE REQUEST: STATE UNKNOWN
- Critical ENQ Time(s):
  - Request: 07/21/2010 13:55:44.087246
  - Contention: 0, BUT IS WAITING

*Figure 21. Example: Detailed Report for RESERVE Status*
Combining trace data from multiple systems

To diagnose global resource serialization problems, it is often useful to combine the GTF and component trace data from all the systems in the complex. First, obtain trace data in dumps or data sets from each system. You can combine the data in one of the following ways:

- **Use the IPCS MERGE subcommand** to merge GTF and component trace data from multiple systems into one chronological sequence. Obtain trace data in dumps or data sets and use option 2.7 of the IPCS dialog to select the MERGE subcommand. The IPCS dialog prompts you for the dumps or trace data sets and other parameters.

- **Use the IPCS COPYTRC subcommand** to combine component trace entries from multiple external writer data sets. Use option 5.3 of the IPCS dialog to select the COPYTRC subcommand. The IPCS dialog prompts you for desired type of tracing, input dump data sets or files, output data set, and other parameters.

  You can format the COPYTRC output data set using IPCS. Use the GTFTRACE subcommand to format GTF tracing, or the CTRACE subcommand to format component trace data.

See [z/OS MVS Diagnosis: Tools and Service Aids](#) for more information about:

- Requesting GTF tracing
- Component tracing for global resource serialization.

See [z/OS MVS IPCS User’s Guide](#) and [z/OS MVS IPCS Commands](#) for general information on the IPCS subcommands.
Chapter 18. Input/Output Supervisor (IOS)

The input/output supervisor (IOS) component provides diagnostic data in dumps.

Formatting IOS dump data

Format an SVC, stand-alone, or SYSMDUMP dump with the IOSCHECK subcommand to produce diagnostic reports about IOS. Appendix C, z/OS MVS IPCS Commands gives the syntax of the IOSCHECK subcommand and describes the contents of each report. Appendix A, z/OS MVS IPCS User's Guide explains how to use the IOSCHECK option of the IPCS dialog.

The UCB parameter on the IOSCHECK subcommand, for example, formats the unit control blocks (UCB) for a list of device numbers.

IOSCHECK ACTVUCBS subcommand output

The IOSCHECK ACTVUCBS report shows the UCBs with active I/O at the time of the dump. This report is helpful for looking at multiple UCBs when you suspect either a problem with a device or a hang situation. The following output is an example of a report produced with the IOSCHECK ACTVUCBS subcommand.

***IOSCHECK DATA***

IOWA: 00FD0520
+0000 IOWA.... 00FD0520 0000 IOWA LENW.... 0044 PGCT..... 0000
+0008 SLIN.... 0102A000 HOTCT..... 00000000 MIHCA.... 0188E650
+0014 IOPTA.... 00000000 RSV...... 00 IOWA IOC.... 00
+001A SSCBT.... 0010 CDT...... 0225F400 CPAT..... 0229F3E0
+0024 CUIRQ.... 00000000 SLFCT..... 00000000 FLAG2.... F2
**Input/Output Supervisor**

```
+0020  FLAG3.... D0  RSV...... 0000  PURGQ.... 00000000
+0034  PAVE.... 01885310  IECAA.... 01885340  RSV...... 00000000
+0040  00000000

SYNC: 0188E2D0
+0000  GEN....... 00000000  PURGE.... 00000000  MGF....... 00000000
+0000C  SMRQE.... 00000000  SMLGB.... 00000000  EXLGB.... 00000000
+0018  CHPR...... 00000000  HOTIO.... 00000000  IOPRV.... 00000000
+0024  CDT...... 00000000  CUIRQ.... 00000000  MBIQ..... 00000000
+0030  ECB....... 00000000  CAPC..... 00000000  PAVS...... 00000000
+003C  RSV...... 00000000

IODF information:
  data set name: HCDSUP.IODFA5
  configuration ID: GENTS
  EDT ID: 00
  processor name: PR90H
  creation date: 94-02-28
  creation time: 11:14:32
  configuration description: HCDSUP IODFA5

IOS LEVEL DEFINITIONS:
  01=NORMAL
  02=QUIESC
  03=IOCMD
  04=DAVV
  05=DSTF
  06=IOPM
  07=SELFDESC
  08=DOR
  09=DYNPATH
  10=DPSVAL
  11=UNCRSV
  12=RSETEV
  13=CHPRCVY
  14=FDEV
  15=SCVRCVY
  16=RSVD
  17=FDEV
  18-32=RSVD

* * * ACTVUCBS PROCESSING * * *

_______________________________________

SUBCHANNEL SET 0 DEVICES:

UCB AT 00F1AF80: DEVICE 00415; SUBCHANNEL 0052
UCBPRFIX: 00F1AF80
  -0008  LOCK..... 00000000  IOQ...... 02375F00

UCBOB: 00F1AF80
  +0000  JBNR..... 00  FL5...... 88  ID....... FF
  +0003  STAT...... 84  CHAN..... 0415  FL1...... 08
  +0007  FLB...... 00  NXUCB.... 00000000  WGT...... 08
  +0008  NAME...... 415  TBYT1.... 30  TBYT2.... 30
  +0012  DVCLSV.... 20  UNTYP..... 0E  FLG...... 00
  +0015  EXTP...... F1AF88  VTOC..... 00010000  VOLI..... VL0415
  +0022  STAB...... 10  DMCT..... 00  SQC...... 00
  +0025  FL4...... AA  USER..... 0000  BASE..... 00F1ADB0
  +002C  NEXP...... 02100168

UCBCMXT: 00F1AF88
  +0000  ETI...... 00  STI...... 00  FL6...... 09
  +0003  ATI...... 40  SNSCT...... 20  FLPI...... 2A
  +0006  STL1...... 00  FL7...... 08  IEVT...... 02133080
  +000C  CHPRM...... 00  SATI...... 00  ASID...... 0000
```
Input/Output Supervisor

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Input/Output Supervisor

+007D XTIME.... 00 XASPR.... 0000 XIOTX.... 00000000
+0084 XIOD..... 00000000 XMSC..... 00000000 00000000
+0090 XBASE..... 00000000 XRSVF.... 00000000 00000000

IQ: 02375400
+0000 ID....... IQQ CHAIN.... 00000000 IOSB..... 00FCC22C
+000C START.... 8103F300 FLA....... 90 PRFXO.... 00
+0012 PRI....... FF TYPE..... 00 AIOQ..... 00000000
+0018 UCB..... 00F1AFB0 ASID..... 001E CSSPR.... 00
+001F RSV...... 00 EPTR..... 023763A0
+0024 DDTWT.... 00000000 00000000 00000000 00000000 00000000
+0038 00000000 00000000 00000000 00000000 00000000
+004C 00000000 00000000 00000000 00000000 00000000
+0060 00000000 00000000 00000000 00000000 00000000
+0074 00000000 00000000 00000000 00000000 00000000
+0082 DDTWA.... 00000000 00000000 00000000 00000000 00000000
+009C 00000000 00000000 00000000 00000000 00000000
+00B0 DDTW2.... 00000000

IOQE: 023763A0
+0000 EID...... IOQE SMGFP.... 02375480 SMGBP.... 02375380
+000C SMGSO.... 01802EC SMGFP.... 00000000 SMRV1.... 0000
+0016 SMRV2.... 00 SMGAL.... 00 IOTCT.... 0010
+001A MIHCT.... 0010 MIHSF.... 00 RSV...... 000000
+0020 ENCLV.... 00000000 00000000 ORBUA.... 02100368

IOSB: 00FCC22C
+0000 FLA..... 00 FLB..... 00 FLC..... 00
+0003 PROC..... 00 DVRID.... 00 FLB..... 01
+0006 ASID..... 001E PGAD..... 07 F00940 PKEY..... 01
+000C COD.... 07F OPT..... 10 OPT2..... 00
+0010 UCB..... 00F1AFB0 CCWAD.... 00000000 DSTAT.... 00
+0019 SSTAT.... 00 CWRRC.... 0000 SRB..... 00000000
+0020 USE...... 07F01AF0 IOPID.... 00000000 SCHC.... 0000
+002A SNS..... 0000 IPIB..... 00000000 PCHN..... 00000000
+0034 ERP..... 00000000 PCI..... 00000000 NRM..... 87F009E
+0040 ABN..... 87F0909A DIE..... 87F0A74 RST..... 0A3F7DD8
+0044 VST..... 07F01DB8 DSID..... 00000000 LEVEL.... 00
+0055 GPMK..... 00 DCTI..... 0000 FMSK..... 00
+0059 CKEY..... 00 MD...... 00 MD...... 00
+005C RSV...... 00000000 CTC..... 00000000 SMK..... 0000
+0065 SKBB..... 0000 sKCC..... 0000 SKH1..... 00
+006A SKH2..... 00 SKR..... 00 XID..... IOSB
+0070 XLEN..... 0030 XFLG1..... 00 XFLG2..... 00
+0074 XSSAX.... 00000000 XIOBE.... 00000000 XRCOD.... 00
+0077 XTME..... 00 XASPR.... 0000 XIOTX.... 00000000
+0084 XIOD..... 00000000 XMSC..... 00000000 00000000
+0090 XBASE..... 00000000 XRSVF.... 00000000 00000000

UCB AT 02100368: DEVICE 0041F; SUBCHANNEL 0084
UCBPREFIX: 02100360

-0008 LOCK..... 00000000 IQQ..... 02375400

UCB08: 02100368
+0000 JBNR..... 00 FL5..... 88 ID....... FF
+0003 STAT..... 4 CHAN..... 041F FLI..... 08
+0016 UCB..... 00 NXUCB..... 00000000 WGT..... 08
+000D NAME..... 41F TB1T1.... 30 TB2T2.... 10
+001F DVCLS.... 20 UNTYP.... 0E FLA..... 00
+0015 E4X..... 100341 VTOC..... 00000000 VLI..... 00000000 0000
+0022 STAB..... 00 DMCT..... 00 SQC..... 00
+0025 FLA..... 10 USER..... 0000 BASE..... 00F1ADB0
+002C NEXP..... 02100168
Input/Output Supervisor

UBCMXT: 02100340
+0000 ETI...... 00 STI...... 00 FL6...... 09
+0003 ATI...... 00 SNST..... 18 FLPI...... 2A
+0006 STL1..... 00 FL7...... 08 IEXT..... 02133760
+000C CHPRM..... 00 SATI..... 00 ASID..... 0000
+0010 RSV....... 00 WTOID.... 000000 DDT...... 00FCE7B8
+0018 CLEXT.... 00F1AF48 DCTOF.... 0000 CSFLG.... 00
+001F RSV....... 00

UCBXPX: 02133760
+0000 RSTEM.... 00 MIHKY.... 04 MIHTI.... 00
+0003 HOTIO.... 40 IOQF..... 00000000 IOQL..... 00000000

SUBCHANNEL-IDENTIFICATION:
+000C CSS ID 00
+000D IID/SSID 01
+000E NUMBER 0084
+0010 PMCW1.... 289C MBI...... 010F LPM...... F0
+0015 RSV....... 00 LPUM...... 80 PIM...... F0
+0018 CHPID..... 60700000 00000000 LEVEL..... 01
+0021 IOSF1.... 08 IOTKY.... 00 MIHFG..... 00
+0024 LVMK...... 00000000

ACTUAL UCB COMMON SEGMENT ADDRESS 02100368
DEVICE IS DYNAMIC
BOUND PAV-ALIAS UCB
BASE UCB 00415 IS AT ADDRESS 00F1AFB0

ACTVUCBS SUMMARY:
COUNT OF CONTROL BLOCKS CHECKED
CONTROL BLOCK COUNT
---------------------
UCB 3589
TAPE 253
COMM 231
DASD 1019
DISP 981
UREC 65
CHAR 0
CTC 1040
IOQ 2
IOSB 2

UBCMXT: 00F11C98
+0000 ETI...... 00 STI...... 00 FL6...... 09
+0003 ATI...... 40 SNST..... 20 FLPI...... A2
+0006 STL1..... 00 FL7...... 40 IEXT..... 02310968
+000C CHPRM..... 00 SATI..... 00 ASID..... 0000
+0010 RSV....... 00 WTOID.... 000000 DDT...... 00FCD2BC
+0018 CLEXT.... 00F11CE8 DCTOF.... 0000 RSV....... 0000

UCBXPX: 02310968
+0000 RSTEM.... 00 MIHKY.... 04 MIHTI.... 00
+0003 HOTIO.... 40 IOQF..... 00F62F00 IOQL..... 00F62F00
+000C SIDA..... 0001 SCHNO.... 0121 PMCW1.... 189C
+0012 MBI...... 0118 LPM...... 80 RSV....... 00
+0016 LPUM...... 80 PIM...... 00 CHPID..... 36B6FFFF
+001C FFLEVEL.... 01 IOSF1..... 08
+0022 IOTKY.... 00 MIHFG..... 00 LVMSK..... 00000001

Device is installation-static

IOQ: 00F62F00
+0000 IOQ...... 00 CHAIN..... 00000000 IOSB..... 00FCD2BC
+000C START..... 8188300 FLA...... 80 RESV1..... 00
+0012 PRI...... FF TYPE..... 00 AIQ..... 00000000
+0018 UCB...... 00F11CC0 ASID..... 0001 MIHSF..... 00

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Input/Output Supervisor

+001F RSV...... 00 SMGFQ.... 00000000 SMRV1.... 0000
+0026 SMRV2.... 00 SMGAL.... 3C IOTCT.... 0000
+002A MIHCT.... 0000 RSV...... 00000000 DDTWA.... 00000000
+0034 00000000 00000000 00000000 00000000 00000000
+003C 00000000 00000000 00000000 00000000 00000000
+005C RSV...... 00000000 SMGFQ.... 00F62F80 SMGBP.... 00F62E00
+0070 RSV...... 00000000 SMGFP.... 00F62F80 SMGBP.... 00F62E00
+007C SMGSQL.... 014674D0

IOSB: 07C6CC80
+0000 FLA...... C0 FLB...... A0 FLC...... 00
+0003 PROC..... 00 DVRID.... 0E FLD...... 20
+0006 ASID..... 0001 PGAD.... 8133B7F8 PKEY..... 05
+000D COD..... 7F OPT..... 10 OPT2..... 80
+0010 UCB...... 00F11C0 CWWAD.... 32D08560 DSTAT.... 00
+0019 SSTAT.... 00 CSWRC.... 1000 SRB...... 07C6CCF0
+0020 USE...... 07C6CC0 IOPID.... 00000000 SCHC.... 4029
+002A SNS..... 0000 IPIB.... 00000000 PCHN.... 00000000
+0034 ERP..... 00000000 PCI.... 8133B98 NRM..... 8133C356
+0040 ABN..... 8133C564 DIE.... 8133BFC0 RST.... 32D0855B
+0044 VST..... 07C35550 DSID.... 00000000 LEVEL.... 01
+0055 GPMSK.... 00 DCTI.... 0001 FMSK..... 88
+0059 CKEY..... 08 MDB...... 00 MDM...... 00
+005C RSV...... 00000000 CTC..... 00000000 SKM...... 00
+0065 SKBB...... 0000 SKCC.... 02DD SKH1.... 00
+006A SKH2.... 03 SKR...... 08

UCB AT 00F2E178: DEVICE 0080A; SUBCHANNEL 0698

UCBPREFIX: 00F2E170
-0008 LOCK..... 00000000 IOQ...... 00F63280

UCB00: 00F2E178
+0000 JBNR..... 00 FL5...... 8A ID...... FF
+0003 STAT..... 8C CHAN..... 008A FL1...... 08
+0007 FLB...... 00 MXUCB.... 00F2E1F8 WGT..... 00
+000D NAME..... 80A TBY1.... 30 TBY2.... 30
+0012 DVCLP.... 20 UNTYP.... 0F FLC..... 00
+0015 EXTP..... F2E150 VTOC..... 001E0100 VOLI..... FGT80A
+0022 STAB..... 50 DMCT..... 00 SQC..... 00
+0025 FL4...... 00 USER..... 0001

UCBDMX: 00F2E150
+0000 ETI..... 00 STI..... 00 FL6...... 09
+0003 ATI..... 40 SNSTC.... 20 FLP1..... A2
+0006 STI..... 00 FL7...... 40 IEXT.... 02325FC8
+000C CHPRM.... 00 SATI..... 00 ASID..... 00B4
+0010 RSV...... 00 WTOID.... 000000 DDT..... 00FCD2BC
+0018 CLEXT.... 00F2E1A0 DCTOF.... 0000 RSV...... 0000

UCBFX: 02325FC8
+0000 RSTEM..... 00 MIH1..... 04 MIH1..... 01
+0003 HOTIO..... 40 IQFO.... 00F63280 IOQL.... 00F63280
+000C SIDA..... 0001 SCHN.... 0690 PMCI..... 0000890C
+0012 MB1..... 0467 LPM..... 00 RSV...... 00
+0016 LPMU..... 40 PM..... 00 CHPID..... 1EBFFFF
+001C FFFFFFFFFFF LEVEL.... 01 IOSFL..... 08
+0022 IOTKY..... 00 MHF.... 00 LMASK.... 00000001

Device is installation-static

IOQ: 00F63280
+0000 ID........ IOQ CHAIN..... 00000000 I0SB..... 07C56C80
+000C START.... 0102B300 FLA...... 80 RESV1.... 00
+0012 PR1..... FF TYPE..... 00 AIQ........ 00000000
+0018 UCB...... 00F2E178 ASID..... 0001 MIHSF.... 00
+001F RSV...... 00 SMGFQ.... 00000000 SMRV1.... 0000
Input/Output Supervisor

+0026 SMRV2.... 00  SMGAL.... 3C  IOTCT.... 0000
+002A MIHCT.... 0000  RSV...... 00000000  DDTWA.... 00000000
+0034 00000000 00000000 00000000 00000000 00000000 00000000
+004B 00000000 00000000 00000000 00000000 00000000 00000000
+005C 00000000 00000000 00000000 00000000 00000000 00000000
+0070 RSV...... 00000000  SMGFP.... 00F63300  SMGBP.... 00F63F80
+007C SMGSQ.... 01467450

IOSB: 07C56C80
+0000 FLA...... C0  FLB...... A0  FLC...... 00
+0003 PROC..... 00  DVRID.... 0E  FLD...... 20
+0006 ASID..... 0001  PAGAD.... 813387F8  PKY...... 05
+000D COD...... 7F  OPT...... 10  OPT2.... 80
+0010 UCB...... 00F2E178  CCWAD.... 33698260  DSTAT.... 00
+0019 SSTAT.... 00  CSWRC.... 0000  SRB...... 07C56CF0
+0020 USE...... 07C56C00  IOPID.... 00000000  SCHC..... 4029
+002A SNS...... 0000  IPIB.... 00000000  PCHN..... 00000000
+0034 ERP...... 00000000  PCI...... 8133B898  NRM...... 8133C356
+0040 ABN...... 8133C564  DIE...... 8133BF0C  RST...... 33698258
+004C VST...... 07C6C25B  DSID.... 00000000  LEVEL.... 01
+0055 GPMSK.... 00  DCTI..... 0000  FMSK..... 88
+0059 CKEY.... 00  MOD...... 00  MDM...... 00
+005C RSV...... 00000000  CTC...... 00000000  SKM...... 00
+0065 SKBB.... 0000  SKCC..... 02AB  SKH1..... 00
+006A SKH2.... 0C  SKR...... 04

ACTVUCBS SUMMARY:

Count of control blocks checked

<table>
<thead>
<tr>
<th>Control block</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>UCB</td>
<td>2192</td>
</tr>
<tr>
<td>TAPE</td>
<td>47</td>
</tr>
<tr>
<td>COMM</td>
<td>5</td>
</tr>
<tr>
<td>DASD</td>
<td>1918</td>
</tr>
<tr>
<td>DISP</td>
<td>32</td>
</tr>
<tr>
<td>UREC</td>
<td>14</td>
</tr>
<tr>
<td>CHAR</td>
<td>0</td>
</tr>
<tr>
<td>CTC</td>
<td>176</td>
</tr>
<tr>
<td>IOQ</td>
<td>2</td>
</tr>
<tr>
<td>IOS8</td>
<td>2</td>
</tr>
</tbody>
</table>

Messages issued: 0

* * * I O S C H E C K C O M P L E T E * * *
Input/Output Supervisor
Chapter 19. MVS Message Service (MMS)

The MVS message service (MMS) provides MMS diagnostic data in dumps.

Formatting MMS dump data

Format the MMS dump to obtain MMS diagnostic data as follows:
1. Start an IPCS session.
2. Do one of the following:
   a. Select the COMMAND option on the IPCS Primary Option Menu panel. Enter the VERBEXIT MMSDATA subcommand on the IPCS Subcommand Entry panel.
   b. Select the ANALYSIS option on the IPCS Primary Option Menu panel. Select the COMPONENT option on the IPCS Analysis of Dump Contents panel. Enter S next to MMSDATA on the IPCS Dump Component Data Analysis panel.

Use the IPCS VERBEXIT MMSDATA subcommand to display data from the dump in the form of the MVS Message Service Diagnostic Report. The VERBEXIT MMSDATA subcommand has no parameters.
MVS Message Service

VERBEXIT MMSDATA subcommand output

COMPN=MMS,COMPID=SCMMS,ABEND=0C1,MODULE=CNLUXLAT,RPLP=00000C60,CNLUXLAT FAILS - UNEXPECTED ERROR

VERBEXIT MMSDATA OUTPUT

MVS Message Service Diagnostic Report

Status at the Time of Error

CNL00970I Internal control block error 019 - refer to IBM

The default output language used by MMS: ENU
The MVS message service was available
The input (base) language used by MMS: ENU

Message File Control Information

Number of languages referencing this message file: 0001
Data set name of run-time message file: SYS1.ENUMF
DD name of run-time message file: SYS000001
Data-in-virtual ID of run-time message file: FFFFD328 00000000
Number of languages referencing this message file: 0001
Data set name of run-time message file: SYS1.ESPMF
DD name of run-time message file: SYS00002
Data-in-virtual ID of run-time message file: FFFFD180 00000000
Number of languages referencing this message file: 0001
Data set name of run-time message file: SYS1.FRBMF
DD name of run-time message file: SYS00003
Data-in-virtual ID of run-time message file: FFFDD09B 00000000
Number of languages referencing this message file: 0001
Data set name of run-time message file: SYS1.CHTRMFA
DD name of run-time message file: SYS00004
Data-in-virtual ID of run-time message file: FFFD07BD 00000000

The CRB cell pool structure is all valid
The general cell pool structures are all valid

Parmlib Information

Configuration information for this parmlib environment is contained in the SYS1.PARMLIB member: MMSLST00
Refresh date for this parmlib environment: 00000000
Refresh time for this parmlib environment: 00000000
Size of this parmlib environment: 00000000

Figure 22. Example: VERBEXIT MMSDATA subcommand output (1 of 2)
Language Availability Information for this Parmlib

**COMP=MMS,COMPID=SCMMS,ABEND=0C1,MODULE=CNLXLAT,RPLP=00000C60,CNLXLAT F- UNEXPECTED ERROR** 2 19:56:11 04/04/90

Language code: ENU  
Configuration member name: CNLENU01  
Language data set name: SYS1.ENURMF  
Alternate names for this language:  
  CSDSE4 | ENU |

Language code: ESP  
Configuration member name: CNLESP01  
Language data set name: SYS1.ESPRMF  
Alternate names for this language:  
  CSE207  
    | ESP  
    | SPANISH |

Language code: FRB  
Configuration member name: CNLFRB01  
Language data set name: SYS1.FRBRMF  
Alternate names for this language:  
  C600C2 | FRB |

Language code: CHT  
Configuration member name: CNLCHT01  
Language data set name: SYS1.CHTRMFA  
Alternate names for this language:  
  C3C8E3 | CHT |

Installation Exit Information

Installation exits available for this Parmlib: 02  
Pre-processing exit data follows:  
Installation exit name: MMSEXIT1  
Installation exit address: 0261EFD0  
Installation exit length: 0030  
No errors were detected for this exit  
Post-processing exit data follows:  
Installation exit name: MMSEXIT2  
Installation exit address: 0261EF68  
Installation exit length: 0068  
No errors were detected for this exit

End of MVS Message Service Diagnostic Report  
VERBEXIT MMSDATA processing completed successfully

---

**Figure 23. Example: VERBEXIT MMSDATA subcommand output (2 of 2)**

---

**MVS message service diagnostic report overview**

A complete report contains the following sections:

- Status at the Time of Error
- Message File Control Information
- Operator Command Information
- Parmlib Information
- Language Availability Information for this Parmlib
- Installation Exit Information
Failing Function Information

If MMS data is not valid, error messages appear in the report and the report might include only some of these sections.

Error messages: The following error messages can appear in the report:

• Bad acronym found in control block
  This message appears in the Diagnostic Data section of the report. Hexadecimal data follows this message. Message CNL00970I accompanies this message to identify the control block in error.

• CNL00970I Internal control block error nnn - refer to IBM
  This message may appear anywhere in the report. See z/OS MVS Dump Output Messages for more information.

• VERBEXIT MMSDATA processing completed with internal errors
  If an unknown return code is received from an IPCS exit service, this message concludes the report. If this message appears, the failure of the IPCS exit probably caused the other error messages in the report.

Provide the hexadecimal output in the Diagnostic Data section and any error message(s) to the IBM Support Center.

Variable data in the report: Data in the Failing Function Information section varies, depending on which MMS function failed. Diagnostic information associated with the failing function appears in this section.

A description of each section of the report follows.

Status at the time of error
This section contains the following information about the status of MMS at the time of the failure:

• The failing function in MMS, as follows:

  FUNCTION
  INVOKED BY

  Language query
  QRYLANG macro

  Message translate
  TRANMSG macro

  Start MMS
  SET MMS=xx command or the INIT MMS(xx) statement of the CONSOLxx parmlib member

  Refresh MMS
  SET MMS=xx command

  Stop MMS
  SET MMS=NO command

  Display MMS status
  DISPLAY MMS command

  If the failing function cannot be identified, the report shows MMS as the failing function.

• The system completion code and reason code of the failure. For an explanation of these codes, see z/OS MVS System Codes.
MVS Message Service

- The name of the failing module.
  - If the module prefix is CNL, the failing module is in MMS.
  - If the module prefix is not CNL, see the module prefix table in Chapter 1, “Identifying modules, components, and products,” on page 3 to determine which component failed. If the module prefix is not in the table, the failing module is an installation-provided program. Continue diagnosis with that program.
- The failing module diagnostic string. Provide this information if you report the problem to the IBM Support Center.
- The default output language used by MMS.
- A statement indicating that MMS was available.
- The input (base) language used by MMS.

Message file control information
This section contains information about the runtime message files that you should provide if you report a problem to the IBM Support Center.

Operator command information
This section shows the successful operator commands in the order they were entered.

If an operator command failed and caused the abnormal end of MMS, the Status at the Time of Error section states which command failed. The operator commands used for message processing are:

SET MMS=xx
    Starts or refreshes MMS, where xx indicates the MMSLSTxx parmlib member containing the parameters to be used by MMS

SET MMS=NO
    Stops MMS

DISPLAY MMS
    Displays MMS status as a report on the console

IPCS checks the structure of cell pools associated with MMS processing and reports on the structure.

Parmlib information
This section contains configuration information for the parmlib environment as follows:

- The CNLcccxxx parmlib member that contains the information specified by your installation for an available language. Check this member to ensure that it contains correct information.
- The refresh date for this parmlib environment (yyddd) in packed decimal. Check this field for data that is not valid.
- The refresh time for this parmlib environment (hhmmss) in packed decimal. Check this field for data that is not valid.
- The size of the parmlib member, in hexadecimal bytes.

Language availability information for this parmlib
This section contains information about the languages into which MMS can translate messages. For each available language, this section contains:

- The language code.
- The configuration member name associated with the language.
MVS Message Service

- The language data set name. This data set is the runtime message file.
- Alternate names for this language, in hexadecimal and EBCDIC. The EBCDIC version of the name should be the actual language name. For example, if the language code is JPN, this field should read Japanese.

**Installation exit information**
This section contains information about the exits established by your installation. MMS provides a pre-processing installation exit and a post-processing installation exit. This section contains the following information for each exit:

- The name of the exit.
- The address of the exit.
- The error count for the exit, or a statement saying that no errors were detected. If the error count for the exit is 1, the exit failed once. This flag was set so that the exit will not be invoked again. If the error count is 1, this does not mean that the current failure is caused by the exit, but that this exit failed in a previous abend.
- The length of the installation exit load module.

For an explanation of MMS installation exits or return and reason codes returned from the installation exits, see [z/OS MVS Installation Exits](#).

**Failing function information**
This section appears in the report if one of the following functions caused the failure:

**FUNCTION**

<table>
<thead>
<tr>
<th>INVOKED BY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language query</td>
<td>QRYLANG macro</td>
</tr>
<tr>
<td>Message translate</td>
<td>TRANMSG macro</td>
</tr>
<tr>
<td>Start MMS</td>
<td>SET MMS=xx command or the INIT MMS(xx) statement of the CONSOLxx parmlib member</td>
</tr>
<tr>
<td>Refresh MMS</td>
<td>SET MMS=xx command</td>
</tr>
<tr>
<td>Stop MMS</td>
<td>SET MMS=NO command</td>
</tr>
<tr>
<td>Display MMS status</td>
<td>DISPLAY MMS command</td>
</tr>
</tbody>
</table>

The first sentence in the **Status at the Time of Error** section indicates which function failed, along with the system completion code and reason code. If the system cannot identify the MMS function that caused the failure, the first sentence states that MMS abnormally ended, and includes the system completion code and reason code. Diagnostic information for the failing function appears in the **Failing Function Information** section.

If the failing function was invoked by a macro, see [z/OS MVS Programming: Assembler Services Reference ABE-HSP](#) to check the macro for correct syntax and parameters.
If the failing function was invoked by a command, see z/OS MVS System Commands to check the command for correct syntax and parameters.

If the syntax and parameters for the failing command or macro are correct, provide the diagnostic data in this section to the IBM Support Center when you report the problem.
Chapter 20. z/OS UNIX System Services

This topic contains the following diagnosis information for z/OS UNIX System Services (z/OS UNIX). z/OS UNIX provides the base control program support.

- "Getting the right z/OS UNIX data in a dump."
- "Formatting z/OS UNIX dump data" on page 557.
- "z/OS UNIX CBSTAT subcommand" on page 558.
- "OMVSMDATA subcommand" on page 559.
- "Problem diagnosis for shared file system" on page 587.
- "Understanding z/OS UNIX System Services latch contention" on page 593.

Getting the right z/OS UNIX data in a dump

If you have a loop, hang, or wait condition in a z/OS UNIX process and need a dump for diagnosis, the following sections describe how to get the right z/OS UNIX data in a dump:

- "Obtaining address space and data space identifiers" to use in obtaining a z/OS UNIX dump.
- "Allocating a sufficient dump data set size" on page 556.
- "Using the dump command to dump z/OS UNIX data" on page 557.

Obtaining address space and data space identifiers

You will need to dump the following areas to get complete z/OS UNIX data in a dump:

- The kernel address space
- The kernel data space for kernel data
- Any other kernel data spaces that may be associated with the problem
- Any colony address spaces and associated data spaces that may be associated with the problem.
- Any process address spaces that may be associated with the problem.
- Appropriate storage data areas containing system control blocks and other information

Use the following DISPLAY commands to find the correct areas to dump:

- Display system activity to find the kernel address space and its associated data spaces.
  
  D A,OMVS

  The display output shows the kernel address space identifier (ASID) as A=nnnn, where nnnn is the hexadecimal ASID value.

  The display output shows the data space names that are associated with the kernel address space as DSPNAME=BPX...... or DSPNAME=SYS...... The system uses these data spaces as follows:
  - BPXSMBITS—for shared memory, memory map, and large message queue buffers. BPXSMBITS should be dumped when you dump BPXD data spaces for these components.
  - BPXDQxxx—for message queues (where xxx can be the number 1 through 9)
  - BPXDSxxx—for shared memory
- BPXDOxxx—for Outboard Communications Server (OCS)
- BPXDMxxx—for memory map
- BPXFSCDS—for couple data set (CDS)
- SYSZBPX1—for kernel data (including CTRACE buffers)
- SYSZBPX2—for file system data
- SYSZBPX3—for pipes
- SYSIGWB1—for byte-range locking
- SYSGFU01—for DFSMS file system
- SYSZBPXC—for Converged INET sockets
- SYSZBPXL—for local INET sockets
- SYSZBPXU—for AF_UNIX sockets

The kernel data space, SYSZBPX1, is always needed. You should dump other data spaces if there is reason to believe that they contain data that could be useful in analyzing the problem.

- To display system activity to find the colony address spaces and their associated data spaces, use:
  
  D A, name

  The name is the name that is specified in the ASNAME parameter of the FILESYSTYPE statement in BPXPRMxx.

  The display output shows the colony address space identifier (ASID) as A=nnnn, where nnnn is the hexadecimal ASID value.

  The display output shows the data space names that are associated with the colony address space as DSPNAME=SYS.....

- To display status to see the process information for address spaces or file system information.
  
  D OMVS,A=ALL

  The display output shows all of the active processes, their ASIDs, process IDs, parent process IDs, and states. Use this information to find the ASIDs for the processes to be included in the dump request.

- To display global resource serialization information to see possible latch contention.
  
  D GRS,C

  This display may show latch contention, which could be the cause of the problem. You should dump the address space of the process holding the latch. If the latch is a file system latch, dump the file system data space SYSZBPX2 also. You may want to repeat the command several times to see if any contention shown in one display is relieved.

- To display all open files in the system to determine what address spaces to include in the dump.
  
  zlsof

  The display output shows all open files, the associated command, process ID, user ID, and file system name for each open file. You can then use the D OMVS,U= and D OMVS,PID= commands. zlsof is a z/OS UNIX System Services REXX exec that can be executed as a shell command (/bin/zlsof), TSO/E REXX exec, or System REXX exec.

**Allocating a sufficient dump data set size**

Because you are dumping multiple address spaces, multiple data spaces, and multiple storage data areas, you may need a much larger dump data set defined than is normally used for system dumps of a single address space. You should
preallocate a very large SYS1.DUMPnn data set. For more information on SYS1.DUMPnn data sets, see the DUMPDS command in \textit{z/OS MVS System Commands}.

\textbf{Using the dump command to dump z/OS UNIX data}

Enter the following command to start the dump:

\texttt{DUMP COMM=('Descriptive name for this OMVS dump')}

You can specify up to 100 characters for the name of the dump.

The system responds and gives you a prompt ID to which you reply, specifying the data to be included in the dump. If you specify the CONT option, the system prompts you for more input.

In the following examples, \textit{rn} is the REPLY number to the prompt.

- Enter the first reply:
  \texttt{R rn,SDATA=(CSA,SQA,RGN,TRT,GRSQ),CONT}
  These data areas contain system control blocks and data areas that are generally necessary for investigating z/OS UNIX problems.

- Enter the next reply:
  \texttt{R rn,ASID=(1B,2A,47,52),CONT}
  In this example, X'1B' is the OMVS address space. The other address spaces specified are those believed to be part of the problem. You can specify up to 15 ASID.

- Enter the last reply:
  \texttt{R rn,DSPNAME=(1B.SYSZBPX1,1B.SYSZBPX2),END}
  This example specifies two data spaces:
  - The kernel data space, which is always needed because it contains kernel data and CTRACE data
  - The file system data space, which is useful if the hang condition appears to be due to a file system latch, for example.

  Note that the kernel address space must be associated with the data space name; in this case, by specifying ASID X'1B'.

For more information on the DUMP command, particularly on specifying a large number of operands, see \textit{z/OS MVS System Commands}.

\textbf{Reviewing dump completion information}

After the dump completes, you will receive an IEA911E message indicating whether the dump was complete or partial. If it is partial, check the SDRSN value. If insufficient disk space is the reason for the problem, delete the dump, allocate a larger dump data set, and request the dump again. For more details on message IEA911E, see \textit{z/OS MVS System Messages, Vol 6 (GOS-IEA)}.

\textbf{Formatting z/OS UNIX dump data}

Format an SVC or stand-alone dump with the IPCS OMVSDATA or CBSTAT subcommand to produce diagnostic reports about z/OS UNIX. The \textit{z/OS MVS IPCS Commands} gives the syntax of the OMVSDATA subcommand and \textit{z/OS MVS IPCS User's Guide} explains how to use the OMVSDATA option of the IPCS dialog.
The dump may also contain component trace data for z/OS UNIX. The component trace chapter in z/OS MVS Diagnosis: Tools and Service Aids explains how to format this trace data.

**z/OS UNIX CBSTAT subcommand**

z/OS UNIX provides a CBSTAT exit routine to provide control block status information. The CBSTAT exit routine displays control block status information at the ASCB or TCB level. The CBSTAT exit routine is invoked when a user enters the IPCS CBSTAT subcommand with a keyword of STRUCTURE(ASCB) or STRUCTURE(TCB). If the ASCB or TCB belongs to a z/OS UNIX user, then control block status will be given for the address space or task, respectively. Refer to z/OS MVS IPCS Commands and z/OS MVS IPCS User’s Guide for information on the CBSTAT subcommand.

**ASCB level**

At the address space level, the CBSTAT exit displays one or more of the following messages:

- Address space contains residual z/OS UNIX data
- Forking was used to create this address space for user userid
- Address space is being debugged using PTRACE

**TCB level**

At the task level, the CBSTAT exit will display one or more of the following messages:

- Waiting on events: <list of events>
- Task is waiting on an internal z/OS UNIX event: event
- Task is processing a callable service to z/OS UNIX <mod name>
- Task is processing a callable service to z/OS UNIX using a code that is undefined.
- Task is processing a z/OS UNIX callable service that is not valid
- Initial pthread_create task is waiting for the last thread to end
- Pthread_create is in progress
- Task is waiting for a pthread_create request
- Task is waiting to complete pthread_cancel processing
- Task is scheduled for termination
- Task was created by pthread_create

**CBSTAT subcommand output**

Figure 24 is an example of output from the CBSTAT subcommand.

```
STATUS FOR STRUCTURE(TCB) at 008EF788 ASID('001E')
BPXG2006I Task is processing a SYSCALL to z/OS UNIX BPX1PTJ
BPXG2014I Task was created by pthread_create
```

*Figure 24. Example: CBSTAT subcommand output*
OMVS DATA subcommand

The IPCS OMVS DATA subcommand formats dump information about z/OS UNIX. To request a particular report, specify the report type, a level of detail, and if desired, a filtering keyword. If you do not specify parameters, you will see the process summary report.

OMVS DATA divides the information about z/OS UNIX into six reports. Each report corresponds to the OMVS DATA keywords listed in Table 50.

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Report Displays</th>
<th>See topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMUNICATIONS</td>
<td>Information about pseudo terminal user connections and OCS remote terminal connections.</td>
<td>OMVS DATA COMMUNICATIONS SUMMARY subcommand output on page 563</td>
</tr>
<tr>
<td>FILE</td>
<td>Information about each z/OS UNIX file system type and its mounted file systems.</td>
<td>OMVS DATA FILE SUMMARY subcommand output on page 569</td>
</tr>
<tr>
<td>IPC</td>
<td>Information about interprocess communication activity for shared memory, message queues and semaphores.</td>
<td>OMVS DATA IPC SUMMARY subcommand output on page 575</td>
</tr>
<tr>
<td>NETSTAT</td>
<td>Information about High Speed Access Services (HSAS). The NETSTAT report type has six subtypes: SOCKETS (the default), ROUTE, INTERFACE, PERFORMANCE, STATISTICS, and MEMORY.</td>
<td>OMVS DATA PROCESS SUMMARY subcommand output on page 580</td>
</tr>
<tr>
<td>PROCESS</td>
<td>Information about kernel processes. PROCESS is the default.</td>
<td>OMVS DATA PROCESS SUMMARY subcommand output on page 580</td>
</tr>
<tr>
<td>STORAGE</td>
<td>Information about the storage manager cell pools.</td>
<td>OMVS DATA STORAGE SUMMARY subcommand output on page 580</td>
</tr>
</tbody>
</table>

For each report type, you can select one or more of the following levels:

**SUMMARY**
Displays summary information for each requested report type. SUMMARY is the default if no level is specified.

**EXCEPTION**
Displays diagnostic information for error or exceptional conditions for each requested report type.

**DETAIL**
Displays detailed information for each requested report type.

For each report, you can select one or more of the following filtering keywords to limit the amount of data in the report:

**ASIDLIST(asidlist)**
Requests that information be provided for the asids specified in asidlist. ASIDLIST(asidlist) can be specified either as a single ASID or as a range of ASIDs. When a range is specified, the two ASIDs (first and last in the range) must be separated by a colon. The ASID can range from 1 through 65 535. An ASID can be expressed using the notation X'nnn', F'nnn', or B'nnn'. An unqualified number is assumed to be fixed. The alias is ASID.
**USERLIST(userlist)**
Requests that information displayed be restricted to that associated with the user IDs specified in userlist. The contents of userlist may contain one or more user IDs, separated by commas. USERLIST (userlist) can be specified as a 1-to-8-character name. The alias is USER.

**PROCESSID**
For the NETSTAT Sockets and NETSTAT Detail report types only. Requests that information be provided for a single PID. PROCESSID may contain up to 8 hexadecimal characters.

**OMVSDATA report header**
The OMVSDATA header information prefixes all the reports that are provided by the OMVSDATA command. It appears regardless of the OMVSDATA options that are selected. The selected OMVSDATA options are displayed, followed by system information pertinent to all reports. The following report is an example that shows the OMVSDATA report header.

```
*** OPENMVS REPORT ***
Report(s): PROCESS
Level(s): SUMMARY
Filter(s): NONE
Kernel status: Active
Kernel address space name: OMVS
Kernel address space ID: X'0014'
Kernel stoken: 000000000002

Startup options
Parmlib member: BPXPRMTS
CTRACE parmlib member: CTIBPXTS
Maximum processes on system: 256
Maximum users on system: 32
Maximum processes per user id: 16
Maximum thread tasks per process: 50
Maximum threads per process: 200
Maximum allocated files per process: 1,000
Maximum pseudo-terminal sessions: 256

Stack Information
Stack Address: 02FCEF28 in ASID X'0014'
Stack End Address: 02FD8F28
Stack Data: 00000000 00000000 00000000 00000000
Stack Entry 0
```
### Stack Entry 1

- **Stack Entry Address:** 02FCFA00
- **Previous Entry Address:** 02FCF028
- **Next Entry Address:** 02FD03F0
- **Entry Point ID:** 0D0D
- **Csect:** BPXNSKIL at 02F38638
- **Entry Point:** BPXNSKIL at 02F38638
- **Footprints:** E000

#### General Purpose Registers:

<table>
<thead>
<tr>
<th>Register</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Value 3</th>
<th>Value 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>02FCFFB8</td>
<td>82F6509C</td>
<td>8294C7D0</td>
<td>00000000</td>
</tr>
<tr>
<td>4-7</td>
<td>02FCFFB8</td>
<td>02FCFF18</td>
<td>82DBDDF8</td>
<td>00000000</td>
</tr>
<tr>
<td>8-11</td>
<td>02FCFF44</td>
<td>0000000C</td>
<td>012F3720</td>
<td>02F64770</td>
</tr>
</tbody>
</table>

#### Access Registers:

<table>
<thead>
<tr>
<th>Register</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Value 3</th>
<th>Value 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>00000000</td>
<td>00000000</td>
<td>00000000</td>
<td>00000000</td>
</tr>
<tr>
<td>4-7</td>
<td>00000002</td>
<td>0101001C</td>
<td>00000002</td>
<td>00000000</td>
</tr>
<tr>
<td>8-11</td>
<td>0101001C</td>
<td>00000002</td>
<td>00000000</td>
<td>00000002</td>
</tr>
<tr>
<td>12-15</td>
<td>00000000</td>
<td>00000000</td>
<td>00000000</td>
<td>00000001</td>
</tr>
</tbody>
</table>

### Stack Entry 2

*Active*

- **Stack Entry Address:** 02FD03F0
- **Previous Entry Address:** 02FCF028
- **Next Entry Address:** 02FD0A20
- **Entry Point ID:** 0904
- **Csect:** BPXMIPCE at 01CD3C28
- **Entry Point:** BPXMIARR at 01CD3EB0
- **Footprints:** 0000

#### General Purpose Registers:

<table>
<thead>
<tr>
<th>Register</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Value 3</th>
<th>Value 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>000000FC</td>
<td>81CD55AC</td>
<td>80FEBC66</td>
<td>00B8000A</td>
</tr>
<tr>
<td>4-7</td>
<td>02F9A2BB</td>
<td>00F04EDE</td>
<td>820D0D08</td>
<td>7F0EFEAC</td>
</tr>
<tr>
<td>8-11</td>
<td>7F0E9338</td>
<td>02F9A2BB</td>
<td>00000C60</td>
<td>02F9A2BB</td>
</tr>
<tr>
<td>12-15</td>
<td>00000C00</td>
<td>02FD0780</td>
<td>01CD4C27</td>
<td>01CD3C28</td>
</tr>
</tbody>
</table>

#### Access Registers:

<table>
<thead>
<tr>
<th>Register</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Value 3</th>
<th>Value 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3</td>
<td>00000000</td>
<td>00000000</td>
<td>00000000</td>
<td>00000000</td>
</tr>
</tbody>
</table>
Report(s)
The type or types of OMVSDATA reports selected. The selected reports and/or defaults are displayed. Each selected report type will be processed at each of the selected levels of detail. The report type can be any one or more of the following:
- COMMUNICATIONS
- FILE
- IPC
- NETSTAT
- PROCESS
- STORAGE

Level(s) of Detail
The level of the selected OMVSDATA reports. The selected levels of detail and defaults are displayed. The report level can be any one or more of the following:
- SUMMARY
- EXCEPTION
- DETAIL

Filter(s)
The selected levels of filtering are displayed. If no filtering was specified, NONE is displayed. The filters can be any one or more of the following:
- ASIDLIST
- USERLIST
- PROCESSID (for NETSTAT only)

Kernel Status
The current state of the kernel. The possible states are:
- Not active
- Not active and terminating
- Active
- Active and processing /etc/init startup

Kernel Address Space Name
The name of the kernel address space. This is the procedure name that is used to start the kernel.

Kernel Address Space ASID
The ASID of the kernel address space.

Kernel Stoken
The address space stoken of the kernel address space.

Startup Options
The options that are specified when the kernel address space was started. The options that are displayed are:
- The parmlib member that is used to start the kernel address space
- The CTRACE parmlib member
- The maximum processes on system
- The maximum users on system
- The maximum processes per user ID
- The maximum threads per process
- The maximum thread tasks per process
• The maximum allocated files per process
• The maximum pseudo-terminal sessions

**Stack Information**
IBM might request this information for problem determination. This information is displayed when the dump is taken by the system.

**OMVSDATA COMMUNICATIONS SUMMARY subcommand output**
This report displays information about pseudo terminal user connections and OCS remote terminal connections. Fields displayed in the pseudo terminal section of the report include:

- **Dev Minor**
  The device minor number assigned to the terminal file.

- **State**
  The open or closed status of the master and subordinate pseudo terminals.

- **FG PGID**
  The foreground process group ID.

- **Session ID**
  The session ID of the controlling terminal.

- **Slv Opn Cnt**
  The number of opens for the subordinate file.

- **Input Queue Size**
  The number of characters on the input queue.

- **Output Queue Size**
  The number of characters on the output queue.

- **Mst Rd**
  The number of master read requests in progress.

- **Mst Wrt**
  The number of master write requests in progress.

- **Mst Drn**
  The number of master drain requests in progress.

- **Mst Sel**
  The number of master select requests in progress.

- **Slv Rd**
  The number of subordinate read requests in progress.

- **Slv Wrt**
  The number of subordinate write requests in progress.

- **Slv Drn**
  The number of subordinate drain requests in progress.

- **Slv Sel**
  The number of subordinate select requests in progress.

If the OCS is active, then additional fields in the report include:

- **TBM Host Name**
  The name of the terminal buffer manager (TBM) connection.
**TBM Flags**
IBM may request this information for diagnostic purposes.

**Dev Minor**
The device minor number of the terminal file.

**State**
The open or closed status of the remote terminal.

**FG PGID**
The foreground process group ID.

**Session ID**
The session ID of the controlling terminal.

**Reply/Wait Queue Size**
The number of syscall requests that have been sent to the OCS, and are waiting for a reply.

**Background Read/Write Queue Size**
The number of syscalls that have issued a background read or write and are stopped, waiting to be placed in the foreground.

**Select Queue Size**
The number of selects in progress.

**OMVSDATA COMMUNICATIONS EXCEPTION subcommand output**
This report displays exception information about the pseudo terminal internal control blocks. IBM might request this information for problem determination.

**OMVSDATA COMMUNICATIONS DETAIL subcommand output**
This report displays information about pseudo terminal user connections and OCS remote terminals. Fields displayed in the pseudo terminal section of the report include:

**Pseudo Terminal Main Token**
The main token for the pseudo terminal support. IBM might request this token.

**Dev Minor**
The device minor number assigned to the terminal file.

**Connection Token**
A token associated with this connection. IBM might request this token.

**State**
The open or closed status of the master and subordinate pseudo terminals.

**Foreground PGID**
The foreground process group ID.

**Line Discipline**
Active line discipline number.

**Session ID**
The session ID of the controlling terminal.

**Slave File Token**
A unique identifier associated with the subordinate character-special file; or identifies the controlling terminal.

**Slave Open Count**
The number of opens for the subordinate file.
Input Queue
The number of bytes in the input queue. The threshold information that follows applies to the input queue.

Threshold
Input queue threshold information. Included are the lower threshold, upper threshold, and whether the upper threshold has been reached. Once the upper threshold has been reached, the "reached" indicator remains on until the lower threshold is reached. If the upper threshold has been reached, subsequent master writes are blocked or rejected until the lower threshold is reached.

Output Queue
The number of bytes in the output queue. The threshold information that follows applies to the output queue.

Threshold
Output queue threshold information. Included are the lower threshold, upper threshold, and whether the upper threshold has been reached. Once the upper threshold has been reached, the "reached" indicator remains on until the lower threshold is reached. If the upper threshold has been reached, subsequent subordinate writes are blocked or rejected until the lower threshold is reached.

Pending Packet Flags
Packet flags that have not yet been reported to a master read. If the connection is not in packet or extended packet mode, these flags should be zero.

Non-canonical Data Available
An indicator whether non-canonical data is available. Unless the connection is in non-canonical mode (ICANON off) or 3270 Passthru mode (PTU3270 on), this indicator should be "NO". Note that, in non-canonical mode, data can be available with an empty input queue if MIN=0 and TIME=0.

Non-canonical TIME Timer Active
An indicator whether a timer is active for non-canonical reads. The timer is used when in non-canonical mode (ICANON off) and TIME is greater than zero.

xxDSY Timer Active
An indicator whether a timer is active for delays after certain special characters have been read from the master pseudoterminal. These delays are used when delays are requested by setting the xxDSY fields in the termios, and OFILL is off.

Canonical Lines
The number of canonical lines on the input queue.

Slave Closed with HUPCL Set
YES indicates the HUPCL flag was set on when the final subordinate close occurred.

Inoperative
YES indicates that the PTY connection is unusable due to a catastrophic failure.

Termios Flags
The flags for control, input, local, and output.

Special Characters (c_cc array)
The special characters used for interrupt, quit, erase, line kill, end-of-file, end-of-line, start, stop, suspend, and the MIN and TIME values used in non-canonical mode.
**Code Page Support Not Activated**

A message indicating that the code page change notification (CPCN) capability was never activated for the connection. If CPCN has been activated for the connection, `termcp` information (below) will be presented instead.

**Termcp**

The `termcp` structure used for code page support. The next three fields show the data from the `termcp`.

**Flags**

The flags from the `termcp`.

**Source Code Page**

The source code page name. The name is a character string delimited with a NUL character (X'00').

**Target Code Page**

The target code page name. The name is a character string delimited with a NUL character (X'00').

**Winsize**

The `winsize` structure. The next four fields show the data from the `winsize`. If all four fields are zero, the master application probably never initialized the `winsize` structure.

**Ws_row**

The number of rows in the window.

**Ws_col**

The number of columns in the window.

**Ws_xpixel**

The width of the window in pixels.

**Ws_ypixel**

The height of the window in pixels.

The following information is presented for each request on the master read, write and drain queues and for each subordinate read, write, and drain queue.

**Request**

A heading line identifying the request. A token associated with this request is also shown.

**Token**

Unique identifier of this request.

**Userid**

The login name of the user making the request.

**Process ID**

The identifier assigned to the process.

**Bytes to Process**

Total number of bytes to process.

**PGID**

The process group identifier.

**Bytes Processed**

Number of characters processed on the current write.

**SID**

The session identifier.
ASID
   The address space identifier.

Scheduled
   Yes indicates that the request has been posted ready.

TOSTOP in Effect
   Yes indicates that a background write for this session is stopped.

I/O Control Command
   The control command in effect for this request.

The following information is presented for each request on the master and
subordinate select queues.

Request Token
   The unique identifier of this request.

Criteria
   Select Criteria, as follows:

   Read
      YES indicates that a select for Read criteria was requested.

   Write
      YES indicates that a select for Write criteria was requested.

   Xcept
      YES indicates that a select for Exception criteria was requested.

   Posted
      YES indicates that one or more criteria have been satisfied and that the
      waiting process was posted.

If the OCS is active, then additional fields in the report include:

OCS Token
   IBM may request this information for diagnostic purposes.

TBM Daemon Status (one of the following lines is displayed)
   • TBM Daemon is not currently ATTACHed.
   • TBM Daemon is creating the accept socket.
   • TBM Daemon is binding the accept socket.
   • TBM Daemon is creating the connection request queue.
   • TBM Daemon is in accept wait.
   • TBM Daemon is shutting down.
   • TBM Daemon is in timer wait.
   • TBM Daemon is creating tasks for a new connection.

Last Issued Configuration Command
   Information about the last ocsconfig command that was issued.

Audit Trail Information
   IBM may request this information for diagnostic purposes.

TBM Host Name
   The name of the terminal buffer manager connection.

Terminal Buffer Manager Token
   IBM may request this information for diagnostic purposes.
TBM Flags
   IBM may request this information for diagnostic purposes.

TBM Status (one of the following lines is displayed)
   • TBM is connected.
   • TBM is configured.
   • TBM is not configured.

Port Number
   The INET port address.

INET Address
   The INET address or NETID.

The following information is presented for each configured terminal device:

Dev Minor
   The device minor number assigned to the terminal file.

Token
   IBM may request this information for diagnostic purposes.

Foreground PGID
   The foreground process group ID.

Session ID
   The session ID of the controlling terminal.

Open Count
   The number of open() requests processed.

Syscall Count
   The number of syscalls sent to OCS for this device.

Pending Syscall Count
   The number of syscalls sent to OCS for this device that are still pending, that is, in reply-wait.

MVS File Name
   The z/OS UNIX terminal device name.

OCS File Name
   The OCS terminal device name.

User Login Name
   The name of the user that logged in to this device.

UID
   The user ID of the user that logged in to this device.

Termios Flags
   The flags for control, input, local, and output.

The following information is presented for each request on the select queue:

Criteria
   Select Criteria, as follows:

   Read
      YES indicates that a select for Read criteria was requested.

   Write
      YES indicates that a select for Write criteria was requested.
Xcept
YES indicates that a select for Exception criteria was requested.

Asynchronous Request Information
IBM may request this information for diagnostic purposes.

The following information is presented for each request on the reply/wait queue and the background read/write queue:

Request Token
IBM may request this information for diagnostic purposes.

Process ID
The identifier assigned to the process.

Thread ID
The identifier assigned to the thread.

Sequence Number
The identifier assigned to this syscall request.

OMVSDATA FILE SUMMARY subcommand output
This report displays information about each z/OS UNIX file system type and its mounted file systems.

File System Type Specific Information

Type
IBM supplies the following types of PFSs:

BPXFCSIN
The character special file system

BPXFPINT
The FIFO file system

BPXFTCLN
The z/OS UNIX file system

BPXFTSYN
The z/OS UNIX file system

Status
Status of the file system, which is Active or Failed/Waiting Restart. Inactive file system types are not displayed.

Token
IBM may request this information for diagnostic purposes.

PathConf Data

Pipe_Buf
Maximum number of bytes that can be written atomically when writing to a pipe. This value applies only if the file system type is BPXFPINT.

Posix_Chown_restricted?
Y Use of the chown() function is restricted for all files of this file system type.

N Use of chown() is not restricted.

The POSIX standard fully describes_POSIX_CHOWN_RESTRICTED.
Max_canon
Maximum number of bytes in an input line from a workstation. This field is only displayed if the file system type is BPXFSIN.

Colony Address Space Information

Address Space Name
Name specified on the ASNAME argument of the FILESYSTYPE statement in the BPXPRMxx parmlib member.

Token
IBM may request this information for diagnostic purposes.

Extension
IBM may request this information for diagnostic purposes.

Restart Token
IBM may request this information for diagnostic purposes.

Message QID
IBM may request this information for diagnostic purposes.

Recovery Token
IBM may request this information for diagnostic purposes.

Colony Status (as many lines as apply are displayed)
- Colony initialization in progress.
- Colony initialization failed.
- Colony is marked for termination.
- A PFS in this colony requested thread support.
- The colony has been posted to terminate.
- Thread support has been built for this colony.

Number of PFSs in this Colony
Maximum number of PFSs which may start in this colony. This number matches the number of FILESYSTYPE statements in the BPXPRMxx parmlib member on which the address space name specified by the ASNAME matches the preceding address space name.

Started Colony File Systems

Type
Name specified on the TYPE argument of the FILESYSTYPE statement in the BPXPRMxx parmlib member.

Token
IBM may request this information for diagnostic purposes.

Extension
IBM may request this information for diagnostic purposes.

Restart (option set by the PFS in the byte addressed by pfsi_restart)
- Prompt the operator.
- Automatic restart.
- No restart.
- Bring down the LFS and the kernel.
- Restart the colony and prompt the operator for the PFS.
- Restart the colony and PFS.
- Bring down the colony but do not restart the PFS.
PFS status I (as many lines as apply are displayed).
- PFS initialization in progress.
- PFS has been started.
- PFS initialization failed.
- PFS is dead.
- The colony has been posted to terminate.
- Colony PFS initialization has completed.

PFS status II (as many lines as apply are displayed).
- The PFS will run alone in this colony.
- The PFS will use colony thread support.
- The PFS is written in C.
- The PFS supports DATOFF moves for page read operations.

Mounted File System Specific Information

Mounted File System Name
Name specified on the FILESYSTEM argument of the mount() system call, TSO/E MOUNT command or the MOUNT statement in the BPXPRMxx parmlib member.

Mount Point
PathName (at time of MOUNT)
Name specified on the PATH argument of the mount() system call, or on the MOUNTPOINT parameter of either the TSO/E MOUNT command or the MOUNT statement in the BPXPRMxx parmlib member. If the pathname is greater than 64 characters, it is preceded by a plus sign to indicate truncation.

File Serial Number
The file ID of the mount point. This value will match st_ino returned from stat() for the mount point.

Device Number
The unique ID for this mounted file system. For files in this file system, this value will match the st_dev returned from stat().

DD Name
The ddname corresponding to the MVS data set name that contains the mounted file system. This name is either specified on the DDNAME parameter of the MOUNT statement in the BPXPRMxx parmlib member or is returned by the system when the mount for the file system is complete.

Token
IBM may request this information for diagnostic purposes.

Number of Active Files for this Mounted File System
Number of files that are either open or recently referenced.

Number of Files Pending Inactive
Number of pending inactive files that are no longer being referenced and whose meta data is about to be removed from the in-storage cache.

PathConf Data
The following 4 fields apply only if the file system type is not an IBM reserved type, which have names starting with the characters BPX.

Link_max
Maximum value of a file's link count.
**Name_max**
Maximum number of bytes in a filename. The number is not a string length; it excludes the terminating null.

**Posix_No_trunc?**
If the value is Y, pathname components longer than NAME_MAX generate an error. If N, only the first NAME_MAX bytes are used. Valid values are Y for yes and N for no.

**Posix_Chown_restricted?**
If the value is Y, the use of the chown() function is restricted for files in this mounted file system. A value of N indicates the use of chown() is not restricted. Valid values are Y for yes and N for no. The POSIX standard fully describes _POSIX_CHOWN_RESTRICTED.

**File System was Mounted Read-Only**
Displayed when applicable. If the file system was mounted Read-Write, no message is displayed.

**type Unmount is in Progress**
If an unmount is in progress, this line is displayed and type indicates the type of unmount. The possible values for type are:
- Drain
- Force
- Immediate
- Normal
- Reset

**This File System has been Quiesced**
Displayed when the file system has been quiesced.

**This is the System Root File System**
Displayed when applicable.

**Root File Serial Number**
If this is not the system root file system, this line displays the file serial number for the root of the mounted file system.

**Max_input**
Minimum number of bytes for which space will be available in a workstation input queue; therefore, the maximum number of bytes a portable application may require to be typed as input before reading them. This field is only displayed if the file system type is BPXFSIN.

**_Posix_VDisable**
This character value can be used to disable workstation special characters. This field is only displayed if the file system type is BPXFSIN.

**OMVSDATA FILE EXCEPTION subcommand output**
This report displays exception information about the z/OS UNIX internal file system control blocks. IBM might request this information for problem determination.

**OMVSDATA FILE DETAIL subcommand output**
This report displays information for each active file in the system. An active file is one that is either open or recently referenced. Each file is uniquely identified by
the first two fields. These fields can be used to correlate the information in this report with the file system information in the PROCESS DETAIL REPORT and the FILE SUMMARY REPORT.

**File Serial Number**
A file ID that is unique within a file system. This value will match \texttt{st\_ino} returned from \texttt{stat()} for files in this file system.

**Device Number**
The unique ID for this mounted file system. For files in this file system, this value will match the \texttt{st\_dev} returned from \texttt{stat()}.

**Device Major Number**
Major number for this file. This field is only displayed if it is a character special file.

**Device Minor Number**
Minor number for this file. This field is only displayed if it is a character special file.

**File Status**
Status of the file, which is \textbf{Active} or \textbf{Pending Inactive}. Inactive files are not displayed. A pending inactive file is one that is no longer being referred to and whose meta data is about to be removed from the in-storage cache.

**Token**
IBM may request this information for diagnostic purposes.

**File Type**
One of the following is displayed:

- **DIR**
  Directory file

- **CHARSPEC**
  Character special file

- **REGFILE**
  Regular file

- **FIFO**
  Pipe or FIFO special file

- **SYMLINK**
  Symbolic link

- **UNKNOWN**
  Unrecognized file type

**File System Type**
IBM supplies the following types of PFSs:

- **BPXFC SIN**
  For character special file systems

- **BPXF PINT**
  For FIFO file systems

- **BPXF TCLN**
  The z/OS UNIX file system

- **BPXF TSYN**
  The z/OS UNIX file system
Total Number of Opens for this File
The total number of outstanding opens for this file.

Number of Processes that Use this File as Working Directory
The number of processes that are currently using this file as a working directory.

Name of File System Mounted Here
Name specified on the file system argument of the `mount()` function or the `FILESYSTEM` parameter of the TSO/E MOUNT command or the MOUNT statement in the BPXPRMxx parmlib member. Displayed when applicable.

This File is the System Root
Displayed when applicable.

If the Common INET file system is active, then additional fields in the report include:

Common INET Token
IBM may request this information for diagnostic purposes.

Pre-Router Work Head
IBM may request this information for diagnostic purposes.

Event Token
IBM may request this information for diagnostic purposes.

Pre-Router Status (one of the following is displayed):
• Pre-Router is up.
• Pre-Router is down.

Transport Driver Status Array
IBM may request this information for diagnostic purposes.

The following information is presented for each routing table entry:

Entry Token
IBM may request this information for diagnostic purposes.

Next Entry
IBM may request this information for diagnostic purposes.

Network Destination Mask
The specified network mask for the destination address.

Hop Count Metric
In a gateway, an indication that the next string represents the number of bridges through which a frame passes on the way to its destination host or network.

Destination IP Address
Destination IP address for this route entry.

Route Status
The status for this route.

Gateway IP Address
The gateway IP address for the first hop.

Network Status
Indicates that this route may need special handling. IBM may request this information for diagnostic purposes.
OMVSDATA IPC SUMMARY subcommand output

This report displays summary information about z/OS UNIX interprocess communication services. The report includes the following sections:

- **Mem Map Files.** Fields displayed in the mem map files section of the IPC summary report includes summary information on mem mapped files. IBM might request this information for problem determination.

- **Message Queues.** Fields displayed in the message queues section of the IPC summary report include:
  - **Key**
    - The key of the message queue.
  - **ID**
    - The ID of the message queue.
  - **Msgsnd Waiters**
    - The number of processes in a msgsnd wait on the message queue.
  - **Msgrcv Waiters**
    - The number of processes in a msgrcv wait on the message queue.
  - **Last Msgsnd PID**
    - The Process ID of the last process that completed a msgsnd on the message queue.
  - **Last Msgrcv PID**
    - The Process ID of the last process that completed a msgrcv on the message queue.
  - **Bytes on Queue**
    - The number of bytes on the message queue.
  - **Messages on Queue**
    - The number of messages on the message queue.

- **Semaphores.** Fields displayed in the semaphores section of the IPC summary report include:
  - **Key**
    - The key of the semaphore.
  - **ID**
    - The ID of the semaphore.
  - **Semaphore Number**
    - The number of semaphores in the semaphore set.
  - **Waiters**
    - The number of processes in a wait on the semaphore.
  - **Last PID**
    - The Process ID of the last process that completed an operation on the semaphore.
  - **Processes with Adjustments**
    - The number of processes that contain adjustments for the semaphore.
- **Shared Memory.** Fields displayed in the shared memory section of the IPC summary report include:
  - **Key**
    - The key of the shared memory segment.
  - **ID**
    - The ID of the shared memory segment.
  - **Size**
    - The size of the shared memory segment.
  - **Creators PID**
    - The Process ID of the process that created the shared memory segment.
  - **Last Operation PID**
    - The Process ID of the process that performed the last operation on the shared memory segment.
  - **Last shmat Time**
    - The time of the last shmat operation for this shared memory segment.

**OMVSDATA IPC EXCEPTION subcommand output**

This report displays exception information about z/OS UNIX interprocess communication services. IBM might request this information for problem determination.

**OMVSDATA IPC DETAIL subcommand output**

This report displays detail information about z/OS UNIX interprocess communication services. The report includes the following sections:

- **Mem Map Files.** Fields displayed in the mem map files section of the IPC detail report give detailed information mem mapped files. IBM might request this information for problem determination.
- **Message Queues.** Fields displayed in the message queues section of the IPC detail report include:
  - **Key**
    - The key of the message queue.
  - **ID**
    - The ID of the message queue.
  - **Owner UID**
    - The UID of the process that owns the message queue.
  - **Owner GID**
    - The GID of the process that owns the message queue.
  - **Creator UID**
    - The UID of the process that created the message queue.
  - **Creator GID**
    - The GID of the process that created the message queue.
  - **Mode**
    - The mode of the message queue.
  - **Last Mgsnd Time**
    - The time of the last completed msgsnd on the message queue.
  - **Last Msgrcv Time**
    - The time of the last completed msgrcv on the message queue.
Last Msgget/Msgctl Time
The time of the either the last msgget or msgctl on the message queue.

Messages Allowed
The number of messages allowed on the message queue.

Bytes Allowed
The number of bytes allowed on the message queue.

Messages on Queue
The number of messages on the message queue.

Bytes on Queue
The number of bytes on the message queue.

Last Msgsnd PID
The Process ID of the last process that completed a msgsnd on the message queue.

Msgsnd Waiters
The number of processes in a msgsnd wait on the message queue.

Last Msgrcv PID
The Process ID of the last process that completed a msgrcv on the message queue.

Msgrcv Waiters
The number of processes in a msgrcv wait on the message queue.

Waiters
Detailed information about the processes in either a msgsnd or msgrcv wait on the message queue.

History
Historical information about the msgsnd and msgrcv operations on the message queue.

Messages on Queue
Detailed information about the messages on the message queue.

• Semaphores. Fields displayed in the semaphores section of the IPC detail report include:

Key
The key of the semaphore.

ID
The ID of the semaphore.

Owner UID
The UID of the process that owns the semaphore.

Owner GID
The GID of the process that owns the semaphore.

Creator UID
The UID of the process that created the semaphore.

Creator GID
The GID of the process that created the semaphore.

Mode
The mode of the semaphore.

Last Semop Time
The time of the last completed semop.
**Last Semctl Time**
The time of the last completed semctl.

**Number of Semaphores in Set**
The number of semaphores in the semaphore set.

**Waiters**
Detailed information about the processes in a semaphore wait on the semaphore.

**Adjustments**
Detailed information about the processes with adjustments on the semaphore.

**Shared Memory.** Fields displayed in the shared memory section of the IPC detail report include:

- **Key**
  The key of the shared memory segment.

- **ID**
  The ID of the shared memory segment.

- **Owner UID**
  The UID of the process that owns the shared memory segment.

- **Owner GID**
  The GID of the process that owns the shared memory segment.

- **Creator UID**
  The UID of the process that created the shared memory segment.

- **Creator GID**
  The GID of the process that created the shared memory segment.

- **Mode**
  The mode of the shared memory segment.

- **Last shmat Time**
  The time of the last shmat operation.

- **Last shmdt Time**
  The time of the last shmdt operation.

- **Last shmctl Time**
  The time of the last shmctl operation.

- **Creators PID**
  The Process ID of the process that created the shared memory segment.

- **Last Operation PID**
  The Process ID of the process that performed the last operation on the shared memory segment.

- **Shared memory attaches**
  Detailed information about the shared memory attaches on the shared memory segment.

**OMVSDATA NETSTAT SUMMARY subcommand output**
This report is displayed when you specify OMVSDATA NETSTAT SOCKETS. It is similar to the HSAS oenetstat default display, and displays active sockets information. In addition to internal diagnostic information, fields displayed in this report include:

- **PID**
  A unique identifier that represents a process.
**OMVS DATA NETSTAT EXCEPTION subcommand output**

This report displays exception information about HSAS for all reports. It reports information about storage that is not available in the dump, and attempts to detect internal errors. IBM might request this information for problem determination.

**OMVS DATA NETSTAT DETAIL subcommand output**

This report displays internal diagnostic information about processes waiting for TCP/IP HSAS services.

**OMVS DATA NETSTAT ROUTE subcommand output**

This report is similar to the HSAS routing table display (oenetstat-r). The routing table display format indicates the available routes and their status. In addition to internal diagnostic information, the following fields are displayed:

- **Subnetmask**: Destination subnetmask of the route.
- **DestAddr**: IP address of the destination host or network.
- **FirstHop**: The gateway address of the outgoing interface.
- **DgramSnt**: A count of packets sent using this route.
- **DUnReach**: The number of destinations found unreachable.

**OMVS DATA NETSTAT INTERFACE subcommand output**

This report is similar to the HSAS statistics display (oenetstat-i). In addition to internal diagnostic information, the following fields are displayed:

- **Name**: Interface name.
- **IP Address**: IP address of the interface.
- **Subnetmask**: Subnetmask of the interface.
- **Dest_IP**: IP address of the interface destination.
- **MTU**: Maximum transmission unit (mtu) size.
- **Ipackets**: Number of incoming packets received.
OmVSDATA NETSTAT PERFORMANCE Subcommand Output

This report is similar to the HSAS oenetstat performance display (oenetstat-w), and displays performance statistics for each interface. This is internal diagnostic information for HSAS.

OmVSDATA NETSTAT STATISTICS subcommand output

This report is similar to the HSAS statistics display (oenetstat-s), and displays protocol usage statistical data. The values are stored internally in fullword or doubleword fields, depending on their intended usage. Note that wrapping of the values is possible, although this should be an uncommon event in most normal situations. Detaching an interface resets the statistical counts for that interface to 0. Statistics are displayed for IP, ICMP, UDP, and TCP protocols for each interface. Accumulated statistics totals for all interfaces are also displayed.

OmVSDATA NETSTAT MEMORY subcommand output

This report is similar to the HSAS memory display (oenetstat-m), and displays memory-related statistics. In addition to internal diagnostic information, the following fields are displayed:

WrBufMax
Current maximum I/O write buffers.

RdBufCur
Current I/O read buffers in use.

WrBufHi
High water mark for I/O write buffers.

WrBufCur
Current I/O write buffers in use.

RdBufHi
High water mark for I/O read buffers.

RdCurMax
Current maximum I/O read buffers.

OmVSDATA PROCESS SUMMARY subcommand output

This report displays summary information about z/OS UNIX processes. A dash (-) in any field indicates that the information is not available.
Fields displayed in the process summary report include:

**Process ID**  
A unique identifier representing a process.

**Userid**  
Identifier for the user associated with the process.

**Asid**  
Address space identifier of the process. Specify the kernel ASID to display kernel worker tasks.

**Parent PID**  
Process ID of the parent of the process.

**Process Group ID**  
Process ID of the leader of the process group in which the process is a member.

**Session ID**  
Process ID of the leader of the session in which the process is a member.

**Status**  
Status of the process. Status can be Stopped, Zombie, LZombie, a dash (-), or seven periods (.......) for Active.

**OMVSDATA PROCESS EXCEPTION subcommand output**  
This report displays exception information about z/OS UNIX internal process control blocks. IBM might request this information for problem determination.

**OMVSDATA PROCESS DETAIL subcommand output**  
This report displays detailed information about the z/OS UNIX process(es).

**Process Header**

**Process ID**  
A unique identifier representing a process.

**Status**  
The status of the process. Status can be Stopped, Zombie, or Active.

**Last exec() Program Name**  
The fully-qualified pathname of the last program run by the process with an exec().

**ID Data**

**Userid**  
A string that is used to identify the user associated with the process.

**Asid**  
Address space identifier of the process. Specify the kernel ASID to display kernel worker tasks.

**Parent PID**  
Process ID of the process’s parent.

**Ptrace Parent PID**  
Process ID of the debugger process.

**Process Group ID**  
Process ID of the leader of a process group in which the process is a member.
Session ID
Process ID of the leader of the session in which the process is a member.

Real UID
The real user ID of the process.

Real GID
The real group ID of the process.

Effective UID
The effective user ID of the process.

Effective GID
The effective group ID of the process.

Saved Set UID
The saved set user ID of the process.

Saved Set GID
The saved set group ID of the process.

Foreground PGID
The process ID of the foreground process group.

Process Group Member IDs
The process IDs of the members of the process group.

Session Member IDs
The process IDs of the members of the session.

Children IDs
The process IDs of all active child processes forked by the process.

Debug IDs
The process IDs of all processes that are being debugged by the process.

Limits

RLIMIT_CORE hard
The hard limit for the RLIMIT_CORE resource.

RLIMIT_CORE soft
The soft limit for the RLIMIT_CORE resource.

RLIMIT_CPU hard
The hard limit for the RLIMIT_CPU resource.

RLIMIT_CPU soft
The soft limit for the RLIMIT_CPU resource.

RLIMIT_AS hard
The hard limit for the RLIMIT_AS resource.

RLIMIT_AS soft
The soft limit for the RLIMIT_AS resource.

Process Pthread Data

Thread ID of Initial Pthread_create Thread (IPT)
Thread ID of the first thread to issue pthread_create.

IPT is Waiting for the Last Thread Task to End
All pthread_created tasks for this process must be terminated before the IPT may be terminated. The IPT will be terminated when the last thread task has ended.
**Pthread_create in Progress**

At least one pthread_create is in progress for this process.

**Thread Init Routine Address**

Address of the initialization routine.

**Number of MVS Tasks**

Number of tasks that have been pthread_created. This does not include any pthread_create requests that are currently being processed.

**Number of Undetached Terminated Threads**

Number of threads that have been terminated but not yet detached.

### Signal Data (Process Level)

**Signals Currently Pending**

Names of all the signals that have been generated for this process but have not yet been delivered.

**Signal**

Signal name defined via `sigaction()`.

**Sa_Action**

Action defined for this signal.

**Sa_Flags**

Flags defined for this signal.

**Sa_Mask**

Blocking mask defined for this signal.

**Shared memory attaches**

Shared memory attachment information for this process.

**Semaphore Adjustments**

Semaphore Adjustment information for this process.

**Memory Map Files**

Memory Map File information for this process.

### File System Data

**Working Directory Name (at time of last chdir())**

The name of the working directory. If the name is greater than 64 characters, it is preceded by a plus sign to indicate truncation.

**Working Directory File Serial Number**

File serial number for the file being used as the working directory.

**Working Directing Device Number**

Unique ID for the file system containing the working directory file.

**Number of Open Files for this Process**

Number of open file descriptors for this process.

**Token**

IBM may request this information for diagnostic purposes.

**FD**

File descriptor.

**PathName**

Pathname of opened file at time of `open()`. If the pathname is greater than 64 characters, it is preceded by a plus sign to indicate truncation.
**File Serial Number**
File serial number of opened file. This value matches st_ino returned from stat().

**Device Number**
Unique ID for this file system.

**Device Major Number**
Major number for this file. This field is displayed only if it is a character special file.

**Device Minor Number**
Minor number for this file. This field is displayed only if it is a character special file.

**Open Flags**
Flags specified when the file was opened. This field is mapped by the BPXYOPNF mapping macro.

**Tokens**
IBM may request this information for diagnostic purposes.

**File Type**
File type of opened file. One of the following values will be displayed:

- **DIR**
  Directory file

- **CHARSPEC**
  Character special file

- **REGFILE**
  Regular file

- **FIFO**
  Pipe or FIFO special file

- **SYMLINK**
  Symbolic link

- **UNKNOWN**
  File type not valid

**File Cursor**
Offset in the file of the next read or write operation.

**Number of File Descriptors Sharing this Open**
Number of file descriptors sharing this open.

**This File was Opened Using opendir()**
Displayed when applicable.

**This File will be Closed on Exec**
Displayed when applicable.

**This File will be Closed on fork()**
Displayed when applicable.

**A Byte Range Lock Request is in Progress for this File**
Displayed when applicable. Byte range locks are advisory locks.

**Thread Information is Displayed Under Three Headings: thread data, signalling data, and serialization data.**

**Thread Data (Active Threads)**
Thread ID
Thread ID for this thread.

TCB Address
The address of the task control block (TCB) associated with this thread.

pthread_create in Progress
pthread_create is currently in progress for this thread. No TCB is associated with this thread yet.

In Kernel Call
This thread is currently processing a Kernel call. The name of the system call module is supplied with this message.

Program Name
The information about the program the thread is currently running, in the format returned by the IPCS WHERE service.

Interruptibility State
Interruptibility state of the thread. The valid states are: Disabled, Controlled, or Asynchronous.

Thread Task is Waiting to Complete pthread_cancel Processing
A pthread_cancel was issued for this thread task.

This Thread Issued pthread_join for Thread ID
This thread issued a pthread_join request for the thread identified by the thread ID displayed with this message.

pthread_join Issued for this Thread by Thread ID
A pthread_join was issued for this thread by the thread which owns the thread ID supplied with this message.

Thread Attributes
The thread attributes as supplied by the pthread_create system call. The following values may be displayed: undetached, detached, medium, heavy, and pthread_created.

Exec System Call in Progress
An Exec system call is currently being processed. This process contains no thread data.

Next Active Thread is not Available
IPCS was unable to retrieve the next thread from the dump.

Thread Data (inactive threads)
Thread data for threads that have been terminated but have not yet been detached.

Thread ID
Thread ID for this thread.

Exit Status
Thread exit status.

Signal Data (Thread Level)

Signals Currently Pending
Names of all the signals that have been generated for this thread but have not yet been delivered.

Signals Currently Blocked
Names of all the signals for this thread that have been blocked from being delivered.
In Sigwait for the Following Signals
This thread is waiting for the following asynchronous signals.

Signal Setup Data
The data passed to the kernel by the mvssigsetup system call.

Signal Interrupt Routine
Signal interrupt routine supplied on the mvssigsetup system call.

User Data
User data supplied on the mvssigsetup system call.

Delivery PSW Key
Signal delivery key. The signal will be delivered only if the signal delivery key is equal to the current PSW key.

Mask 1
Signal mask (Default_override_signal_set)

Mask 2
Signal mask (Default_terminate_signal_set)

RB Sequence Number
The sequence number of the RB currently running on the thread.

Serialization Data

Stop In Progress
Displayed when applicable.

Waiting on Events
Names of the events being waited on.

Waiting on Internal Event
IBM may request this information for diagnostic purposes.

OMVSDATA STORAGE SUMMARY subcommand output
This report displays summary information about the z/OS UNIX storage manager cell pools. The report includes the following subreports:

• Common Storage and DataSpace Resident Cell Pools. Displays summary information about cell pools that are either in common storage or that reside in a dataspace.

• Private Storage Resident Cell Pools. Displays summary information about cell pools that reside in the z/OS UNIX address space.

Fields displayed in the storage manager subreports include:

Cell Pool Name
Name assigned to this cell pool by the create cell pool requester.

Active Extents
Number of cell pool extents that are active. Cells are either in use or available for use.

Inact Extents
Number of cell pool extents that are not currently active. Cells are not available for use.

Expand Extents
Number of cell pool extents that have been allocated beyond the original.

Minimum Extents
Number of extents initially allocated and which must stay active.
Cells Per Extent
Number of cells contained in an extent.

Cell Size
Size, in bytes, of a cell.

OMVSDATA STORAGE EXCEPTION subcommand output
This report displays exception information about the z/OS UNIX manager cell pool internal control blocks. IBM might request this information for problem determination.

OMVSDATA STORAGE DETAIL subcommand output
This report displays detailed information about the z/OS UNIX storage manager cell pools. This report is generated from the callable cell pool services control block format routine. It includes information about cell and extent allocation.

Problem diagnosis for shared file system
If you are using zFS and need to determine the file system owner, see the topic on zFS ownership versus z/OS UNIX ownership of file systems in z/OS Distributed File Service zFS Administration.

This section provides additional diagnosis and repair procedures to use when there appears to be a problem relating to the z/OS UNIX System Services function for shared file system. The types of problems that this section addresses relate to file system availability on one or more systems in a parallel sysplex environment where the root cause of the problem is probably in shared file system processing, rather than, for example, a hardware failure or configuration problem. The two goals of the procedures described here are:
1. To prevent a sysplex-wide restart by either correcting the problem or limiting the scope of the restart to a single system or a subset of systems
2. To provide enough information about the problem to enable the IBM Support Center to identify and resolve the root cause of the problem as expeditiously as possible

This section includes example recovery scenarios for the following problems:
1. One or more file systems are mounted in the shared file system but are not accessible (locally mounted) on all systems in the sysplex.
2. A file system appears to be mounted in the shared file system but is not accessible on any system in the sysplex. The file system cannot be mounted or unmounted from any system.
3. A file system appears to be delayed in an UNMOUNT state.
4. Mounting, unmounting, or quiescing of file systems on one or more systems seems to be hung.
5. File system initialization on a restarting system is delayed indefinitely. The delayed system issues message BP XF076I.
6. For whatever reason, you need to reinitialize the file system on all systems without performing a sysplex-wide IPL. (You can perform this reinitialization without any system outage.)

The diagnostic and repair procedures use the following system commands:
- D OMVS,F displays the file system state on any single system in the sysplex.
  This command displays file system information from the perspective of the
system on which the command runs. In a sysplex environment, the file system state may not be consistent on all systems, which is an unusual condition for an active file system.

- **D GRS,C** and **D GRS,LATCH,C** display global resource serialization resource contention. Of particular interest for the shared file system is any latch contention for a latch in the SYS.BPX.A000.FSLIT.FILESYS.LSN latch set.

- **MODIFY BPXOINIT,FILESYS=[DISPLAY, DUMP, FIX, RESYNC, REINIT, UNMOUNT, UNMOUNTALL]** provides diagnostic information about the shared file system, analyzes and repairs certain problems, unmounts one or all file systems, and reinitializes the shared file system. **Use this command with caution, only as suggested in the scenarios or under the direction of an IBM Service representative.**

**Scenario 1: File system not accessible by all systems**

A file system in the ACTIVE state is not accessible by all systems. Normally, a file system in the ACTIVE state is locally mounted and accessible on each system in the sysplex. If a file system is not in the ACTIVE state, such as the UNOWNED state, the file system might not be mounted on all systems in the sysplex. When a file system becomes ACTIVE, the file system is mounted on all systems.

**Indicators**

- **D OMVS,F** output on the file system server (owner) system indicates that the file system state is ACTIVE, but **D OMVS,F** output on one or more (non-owner) systems indicates that the file system is not mounted on that system. (That is, there is no display output for the file system.)

- **MODIFY BPXOINIT,FILESYS=DISPLAY,FILESYSTEM=** output indicates that the file system is mounted and ACTIVE on the file system server system, but **MODIFY BPXOINIT,FILESYS=DISPLAY,GLOBAL** does not show any systems associated with a shared file system serialization category.

**Corrective action**

Try the following procedures in the listed sequence until all systems can access the file system. After each procedure, use the **D OMVS,F** system command to check the file system status.

**Procedure 1:** Issue the **MODIFY BPXOINIT,FILESYS=RESYNC** system command on any system.

**Procedure 2:** Issue the **MODIFY BPXOINIT,FILESYS=FIX** system command. Resolve any problems that FIX processing identifies. If FIX processing unmounts the file system, mount the file system again.

**Procedure 3:** Issue the TSO **UNMOUNT** command (or equivalent shell `/usr/sbin/unmount` command) to unmount the file system. If the UNMOUNT fails, even when you specify the FORCE parameter, continue with the next recovery procedure. Otherwise, after the command unmounts the file system, mount the file system again.

**Procedure 4:** Issue the **MODIFY BPXOINIT,FILESYS=UNMOUNT,FILESYSTEM=** command to unmount the file system. Once the unmount completes, mount the file system again.
Scenario 2: Cannot mount, unmount, or access a "mounted" file system

The file system does not appear to exist in the shared file system. Any attempt to mount the file system, however, fails with EINVAL (X'79'), JrIsMounted (X'055B005B'), and any attempt to unmount the file system fails with EINVAL (X'79'), JrFilesysNotThere (X'0588002E').

Indicators
- D OMVS,F output on all systems indicates that the file system is not mounted, but MODIFY BPXOINIT,FILESYS=DISPLAY,FILESYSTEM=file system name output indicates that the file system exists in the shared file system. (The state of the file system is not significant.)
- MODIFY BPXOINIT,FILESYS=DISPLAY,GLOBAL does not show any systems associated with a shared file system serialization category.

Corrective action
Issue the MODIFY BPXOINIT,FILESYS=UNMOUNT,FILESYSTEM=file system name system command to unmount the file system. Once the unmount completes, mount the file system again.

Scenario 3: Unmount processing delayed

The system accepts the unmount command for a shared file system, but the system does not complete the command. The file system might be unmounted on some of the systems in the sysplex and mounted on other systems, but it is mounted on the server (owner) system. Here, the root cause of the problem is a latch deadlock or latch contention on one or more systems in the sysplex. This procedure describes how to detect this condition; to fix the condition, you will need to restart any system involved in the error.

Indicators
- D OMVS,F output on the file system server (owner) system indicates that the file system is in a NORMAL UNMOUNT (or equivalent UNMOUNT) state.
- MODIFY BPXOINIT, FILESYS=DISPLAY,GLOBAL output lists the file system server system in the SYSTEMS PERFORMING UNMOUNT serialization category, and the MODIFY command indicates no other categories of serialization. If the MODIFY command does indicate other serialization categories, see "Scenario 4: Mount, unmount, or quiesce processing seems to be delayed" on page 590.

Corrective action
1. Take an SVC dump of all systems in the sysplex. Include the OMVS address space and all OMVS data spaces in the dump. See "Getting the right z/OS UNIX data in a dump" on page 555 to determine what DUMP parameters to use. To initiate the dump on all systems, use the REMOTE=(SYSLIST=(system1,system2,...),SDATA,DSPNAME) parameter. For more information on the DUMP system command, see z/OS MVS System Commands.

Note that FIX processing performed in the next step also initiates an SVC dump, but the dump includes different data, capturing critical global file system resources.
Retain all dumps in case you need to provide them to the IBM Service Center for analysis.
2. Issue the `MODIFY BPXOINIT,FILESYS=FIX` system command. The system should return message BPXF049; it lists the systems that are causing unmount processing delay. Message BPXF042I also appears for each system that has contention for the file system MOUNT latch. Contention for the MOUNT latch delays high-level functions, such as mount and unmount processing. Finally, message BPXF057I appears for each file system that has latch contention.

3. On each system for which FIX has reported latch contention, issue the `D GRS,LATCH,C` system command to determine if latch contention still exists on the system. If latch contention still exists, restart the system. After partition recovery has completed on the restarted system, repeat Step 3 on the next identified system.

4. If unmount processing delay continues, return to Step 2, then repeat step 3 for any systems identified as having possible latch contention. Repeat Step 2 and Step 3 to verify that no latch contention exists.

5. If unmount processing delay continues, and FIX, in message BPXF049I, identified systems that owe responses, restart the identified systems.

6. If FIX does not identify any other systems as owing responses, then issue the `MODIFY BPXOINIT,FILESYS=UNMOUNT,FILESYSTEM=file system name` system command to unmount the file system.

Scenario 4: Mount, unmount, or quiesce processing seems to be delayed

Mount, unmount, or quiesce processing is delayed on one or more systems in the sysplex. The root cause of the delay is a file system serialization problem, involving either:

- A GRS latch in the file system latch set (SYS.BPX.A000.FSLIT.FILESYS.LSN)
- The serialization data that is maintained in the type BPXMCDS couple data set.

Indicators

One or more of the following:

- Users or applications hung when attempting to access an automount file system.
- Users or applications hung when attempting to mount, unmount, move, or quiesce a file system.
- `D OMVS,F` output on the file system server (owner) system indicates that one or more file systems are in a persistent NORMAL UNMOUNT (or equivalent UNMOUNT) state.
- `MODIFY BPXOINIT,FILESYS=DISPLAY,GLOBAL` output (in message BPXF041I) indicates that one or more systems are persistently performing a serialized event, as indicated by one of the following serialization categories:
  - SYSTEM PERFORMING INITIALIZATION
  - SYSTEM PERFORMING MOVE
  - SYSTEM PERFORMING QUIESCE
  - SYSTEMS PERFORMING UNMOUNT
  - SYSTEMS PERFORMING MOUNT RESYNC
  - SYSTEMS PERFORMING LOCAL FILE SYSTEM RECOVERY
  - SYSTEMS PERFORMING FILE SYSTEM TAKEOVER RECOVERY
  - SYSTEMS RECOVERING UNOWNED FILE SYSTEMS
  - SYSTEMS PERFORMING REPAIR UNMOUNT

Corrective action

1. Take an SVC dump of all systems in the sysplex. Include the OMVS address space and all OMVS data spaces in the dump. See "Getting the right z/OS UNIX data in a dump" on page 555 to determine what DUMP parameters to
use. To initiate the dump on all systems, use the
REMOTE=(SYSLIST=(system1,system2,...),SDATA,DSPNAME) parameter. For
more information on the DUMP system command, see
z/OS MVS System Commands.

Note that FIX processing performed in the next step also initiates an SVC
dump, but the dump includes different data, capturing critical global file
system resources.
Retain all dumps in case you need to provide them to the IBM Service Center
for analysis.

2. Issue the MODIFY BPXOINIT,FILESYS=FIX system command. In response:
   a. The system issues message BPXF049I for each file system that is delayed
during unmount or quiesce processing. The message also lists the systems
   that are causing the delay.
   b. The system issues message BPXF042I for each system that has contention
   for the file system MOUNT latch. Contention for the MOUNT latch delays
   high-level functions, such as mount and unmount processing.
   c. The system issues message BPXF057I for each file system that has latch
   contention. The message identifies the file system and the system where the
   latch contention is occurring.
   d. The system issues hardcopy message BPXF048I for each correction it makes
to the file system global data structures (in the type BPXMCD5 couple data
set).

3. On each system for which FIX has identified latch contention, issue the D
GRS,LATCH,C system command to determine if latch contention still exists on
the system. If contention still exists, restart the system. Repeat this step on the
next identified system.

4. For delayed QUIESCE or UNMOUNT processing, as identified by message
BPXF049I, issue the MODIFY BPXOINIT,FILESYS=FIX system command
again. Repeat Step 3 for any systems identified as having possible latch
contention. Repeat Step 4 to verify that no latch contention exists.

5. If QUIESCE or UNMOUNT processing delay continues and FIX identified
systems as owing responses (via message BPXF049I), restart the identified
systems.

**Scenario 5: File system initialization is delayed**

File system initialization, which occurs when a system is being restarted, has been
delayed indefinitely. The system issues message BPXF076I to indicate the delay.
The delay occurs for one of the following reasons:

- File system processing in the sysplex is serialized on some event, such as
  unmount processing.
- The file system recovery from the previous instance of this system either failed
  or is delayed.

**Indicators**

- Message BPXF076I is issued from the initializing system.
- MODIFY BPXOINIT, FILESYS=DISPLAY,GLOBAL output indicates one of the
  following:
  - The status for the initializing system indicates an error exists, and the
    recommended action is FIX.
  - One or more systems are persistently performing a serialized event, as
    indicated by one of the following serialization categories:
Corrective action

1. Take an SVC dump of all systems in the sysplex. Include the OMVS address space and all OMVS data spaces in the dump. See "Getting the right z/OS UNIX data in a dump" on page 553 to determine what DUMP parameters to use. To initiate the dump on all systems, use the
   REMOTE=(SYSLIST=(system1,system2,...),SDATA,DSPNAME) parameter. For more information on the DUMP system command, see z/OS MVS System Commands.

   Note that FIX processing performed in the next step also initiates an SVC dump, but the dump includes different data, capturing critical global file system resources.

   Retain all dumps in case you need to provide them to the IBM Service Center for analysis.

2. If the MODIFY BPXOINIT, FILESYS=DISPLAY,GLOBAL output indicates a recommended action of FIX, issue the MODIFY BPXOINIT,FILESYS=FIX system command. In response, the system should issue message BPXF052I, indicating that the system has an inconsistent XCF representation. FIX starts z/OS UNIX System Services partition cleanup processing for the named system. This processing should clear the original delay condition.

3. If the MODIFY BPXOINIT, FILESYS=DISPLAY,GLOBAL output indicates that another serialized file system activity is in progress, use the time stamp in the output to determine if the serialized category of processing has been ongoing for a significant period of time. To determine if there is a problem, issue the MODIFY BPXOINIT,FILESYS=FIX system command, then follow the corrective procedures described in "Scenario 4: Mount, unmount, or quiesce processing seems to be delayed" on page 590.

Scenario 6: Dynamically reinitialize the file system

Use the following procedure to reinitialize the file system in the sysplex without restarting any system. The procedure completely unmounts the file system; a new hierarchy is established based on the MOUNT statements in the BPXPRMxx parmlib members used by each system during initialization.

Presumably, this procedure is part of an "emergency recovery" procedure. Before reinitializing the file system, stop all z/OS UNIX System Service applications, if possible, and tell all z/OS UNIX System Services login users to log out. Otherwise, applications and users will terminate abnormally.

Procedure

1. To minimize the amount of error processing that occurs during the disruptive unmount of the file system, stop all applications and login users of z/OS UNIX System Services.
2. Issue the `MODIFY BPXOINIT,FILESYS=FIX` system command to diagnose and repair existing file system problems.

3. Issue the `MODIFY BPXOINIT,FILESYS=UNMOUNTALL` system command to unmount the complete file system hierarchy.

4. Issue the `MODIFY BPXOINIT,FILESYS=REINIT` system command to reinitialize the file system hierarchy.

5. Restart applications and allow users to login again.

Understanding z/OS UNIX System Services latch contention

This section is designed to help you understand the global resource serialization latches that the z/OS UNIX System Services logical file system (LFS) uses to provide serialization for file systems. It also contains procedure to help you diagnose and resolve mount latch contention and file system latch contention in this section. See "Procedure: Diagnosing and resolving latch contention" on page 594.

The z/OS UNIX System Services LFS uses three levels of global resource serialization latches to provide serialization for file systems:

- **Mount latch**: The mount latch provides serialization for operations involving the LFS and is the latch number two in the SYS.BPX.A000.FSLIT.FILESYS.LSN latch set. The mount latch is obtained exclusively:
  - When a file system is mounted or unmounted.
  - In a sysplex configuration, for operations such as file system moves, lost system recovery, system initialization, and reading from or writing to a couple data set.

  Obtaining the mount latch exclusively ensures that only one of these activities is going on at the same time.

  Use the `DISPLAY GRS,LATCH,CONTENTION` command to look for mount latch contention.

- **File system latch**: There is a latch for each file system mounted. These latches are within the SYS.BPX.A000.FSLIT.FILESYS.LSN latch set. The file system latch is:
  - Obtained exclusively every time that file system is unmounted, synchronized, exported or unexported by the server message block (SMB) server, moved or recovered within a sysplex.
  - Obtained in shared mode for the duration of any operation **within** the file system, such as reads from or writes to a file. This prevents the file system from being unmounted or moved, for example, while there is an operation in progress on a file within the file system.

  Use the `DISPLAY GRS,LATCH,CONTENTION` command to look for file system latch contention.

- **File latch**: There is file latch associated with each active file or directory. A file latch can be obtained in either exclusive or shared mode, depending on the operation involved. For example, the file latch for a directory would be obtained in shared mode to read a name from the directory. But it would be obtained exclusively to write a name to the directory during a file create operation.

  File latches are not used with the z/OS File System (zFS) physical file system because the zFS has its own file level serialization mechanisms. File latches are used with shared file system, TFS, pipes, character special, and NFS client physical file systems.
File latches are in a special group of latches with names in the form of SYS.BPX.A000.FSLIT.LSN.nn, where nn is a hexadecimal number.

Use the DISPLAY GRS, LATCH, CONTENTION command to look for file latch contention.

In addition to these three levels, the LFS also uses a quiesce latch, which is assigned to any file system that is:
- Quiesced by the BPX1QSE callable service, which is used by HSM and other utilities to backup or dump file systems.
- For sysplex operations that operate against the file system as a whole, such as moving and recovering.

When a file system is quiesced, normal operations are suspended, and threads wait suspended for the file system's quiesce latch. The system may hold the quiesce latch for longer than the duration of a system call. Note that HSM does not use the quiesce latch for zFS file systems.

Use the DISPLAY OMVS, FILE command to look for quiesce latch contention on your system.

**Diagnosing latch contention:** You will know that you have a case of latch contention by symptoms such as the following:
- One or more systems issue message **BPXM056E** z/OS UNIX SYSTEM SERVICES LATCH CONTENTION DETECTED
- z/OS UNIX System Services users are hung
- z/OS UNIX System Services itself seems to be hung

In general, the key to resolving latch contention lies in finding the latch holder. There are two kinds of z/OS UNIX System Services tasks that can hold a latch, potentially causing contention:
- **User programs:** When a user program invokes a file operation, the system obtains the file system latch and possibly the file latch, and holds the latches for the duration of the operation.
- **z/OS UNIX System services (OMVS task):** z/OS UNIX System Services may hold the mount latch or a file system latch for more extended periods of time for operations such as system recovery and file system moves.

**Procedure: Diagnosing and resolving latch contention**
The following topics help you diagnosis and resolve the latch contention problem:

1. "View latch contention activity output"
2. "Analyze the mount latch contention" on page 595
3. "Analyze the file system latch contention" on page 596
4. "Analyze the file latch contention" on page 597
5. "Analyze the output for outstanding sysplex messages" on page 598
6. "Analyze the output for other waiting threads" on page 599
7. "Resolve latch contention within the PFS" on page 600
8. "Terminate or cancel the latch holder" on page 601

**View latch contention activity output**
To identify the source of the latch contention and format the contention activity output, take the following steps:
1. If your suspected contention situation involves a system hang, take an SVC dump on all systems in the sysplex before you do anything else. If you have to contact the IBM Support Center, you might be asked to provide this information. See the SVC dump topic in z/OS MVS Diagnosis: Tools and Service Aids.

2. To verify that your problem is really latch contention, issue `DISPLAY GRS,LATCH,CONTENTION` on each system to see if message ISG343I displays any latches in contention.

3. If ISG343I does display latches in contention, issue command `DISPLAY OMVS,WAITERS`. Read the `DISPLAY OMVS,WAITERS` output displayed in message BPX0063I for latch contention activity information. The message BPX0063I can provide the following output tables: MOUNT LATCH ACTIVITY, OUTSTANDING CROSS SYSTEM MESSAGES, RECEIVED SYSTEM MESSAGES, FILE SYSTEM LATCH ACTIVITY, and OTHER WAITING THREADS.

4. If you see MOUNT LATCH ACTIVITY displayed in the message BPX0063I, you have mount latch contention. See “Analyze the mount latch contention” for more diagnosis information.

5. If you see FILE SYSTEM LATCH ACTIVITY displayed in the message, you have file system latch contention. See “Analyze the file system latch contention” on page 596 for more diagnosis information.

6. If you see FILE LATCH ACTIVITY displayed in the message, you have file system latch contention. See “Analyze the file latch contention” on page 597 for more diagnosis information.

**Analyze the mount latch contention**

The MOUNT LATCH ACTIVITY table shows what user or product is holding the mount latch and what users are waiting for the latch. For example, refer to Figure 25.

```
SY1 D OMVS,W
SY1 BPX0063I 12.39.07 DISPLAY OMVS 426
OMVS 000E ACTIVE OMVS=(QY)
MOUNT LATCH ACTIVITY:

<table>
<thead>
<tr>
<th>USER</th>
<th>ASID</th>
<th>TCB</th>
<th>REASON</th>
<th>AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOLDER:</td>
<td>OMVS 000E 008E9828</td>
<td>Inact Cycle</td>
<td>00.01.18</td>
<td></td>
</tr>
<tr>
<td>IS DOING:</td>
<td>XFS VfsInactCall / XSYS Message To: SY2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FILE SYSTEM:</td>
<td>filesystemname.HFS</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

WAITER(S):

| OMVS | 000E 008E9878 | FileSys Quiesce | 00.00.05 |
| OMVS | 000E 008E9858 | FileSys Sync | 00.01.10 |
```

Figure 25. Example: MOUNT LATCH ACTIVITY table

The key to resolving mount latch contention is in the HOLDER: and IS DOING: fields highlighted in Figure 25:

- The HOLDER: field tells you what program is holding the mount latch.
- The IS DOING: field tells you where, in what element or product, the program holding the mount latch is running, and what the program is doing. IS DOING is displayed as IS DOING: `activity / [pfs_qualifier]`:

  **activity**
  
  Description of what the holding task is doing. activity is displayed as one of the following:
  
  - A wait, such as a latch wait, indicating that the latch holder is waiting for another latch.
The type of physical file system (PFS) and the operation that the task was called to do, such as READ, WRITE, MOUNT, or FSYNCH.

**pfs_qualifier**

If the *activity* field shows a PFS, the *pfs_qualifier* field shows what the PFS is doing. For example, *pfs_qualifier* might show:

- **Running** - The thread is probably in a PFS wait that cannot be detected by DISPLAY OMVS. In rare cases, the thread might be looping in the PFS. Go to “Resolve latch contention within the PFS” on page 600 for further diagnosis steps.
- **Osi Wait** - The thread is in a standard wait from within the PFS. Go to step “Resolve latch contention within the PFS” on page 600 for further diagnosis steps.
- **XSYS Message to: sysname** - The operation causing the wait is happening on another system in the sysplex indicated by *sysname*. Go to “Analyze the output for outstanding sysplex messages” on page 598 for further diagnosis steps.

### Analyze the file system latch contention

The FILE SYSTEM LATCH ACTIVITY table shows what user or product is holding the file system latch and what users are waiting for the latch. For example, refer to Figure 26.

<table>
<thead>
<tr>
<th>FILE SYSTEM LATCH ACTIVITY:</th>
<th>USER</th>
<th>ASID</th>
<th>TCB</th>
<th>SHR/EXCL</th>
<th>AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latch 432 FILE SYSTEM: THE.FILESYS.NAME</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HOLDER(S):</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User10</td>
<td>0044</td>
<td>00880460</td>
<td>SHR</td>
<td>00:12:08</td>
<td></td>
</tr>
<tr>
<td><strong>IS DOING:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NFS ReadCall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FILE: somefilename</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User11</td>
<td>0045</td>
<td>00880460</td>
<td>SHR</td>
<td>00:15:58</td>
<td></td>
</tr>
<tr>
<td><strong>IS DOING:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NFS ReadCall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FILE: somefilename</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>WAITER(S):</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OMVS</td>
<td>000E</td>
<td>008E9B58</td>
<td>EXCL</td>
<td>00.01.10</td>
<td></td>
</tr>
<tr>
<td>Latch 678 FILE SYSTEM: ANOTHER.FILESYS.NAME</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HOLDER(S):</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OMVS</td>
<td>000E</td>
<td>00820420</td>
<td>EXCL</td>
<td>00:12:08</td>
<td></td>
</tr>
<tr>
<td><strong>IS DOING:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZFS SyncCall / Osi_Wait</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>WAITER(S):</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User12</td>
<td>0022</td>
<td>008D97C8</td>
<td>SHR</td>
<td>00.00.05</td>
<td></td>
</tr>
<tr>
<td>User15</td>
<td>0072</td>
<td>008E9B58</td>
<td>SHR</td>
<td>00.01.10</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 26. Example: FILE SYSTEM LATCH ACTIVITY table*

The key to resolving file system latch contention is in the **HOLDER:** and **IS DOING:** fields highlighted in Figure 26.

- **HOLDER:** field tells you what program is holding the file system latch.
- **IS DOING:** field tells you where, in what element or product, the program holding the file system latch is running, and what the program is doing. First, we’ll decode field **IS DOING.** **IS DOING** is displayed as **IS DOING: activity /[pfs_qualifier]:**

**activity**

Description of what the holding task is doing, *activity* is displayed as either:

- A wait, such as a file system latch wait, indicating that the latch holder is waiting for another latch.
The type of physical file system (PFS) and the operation that the task was called to do, such as READ, WRITE, MOUNT, or FSYNCH

**pfs_qualifier**
If the activity field shows a PFS, the pfs_qualifier field shows what the PFS is doing. For example, pfs_qualifier might show:

- **Running** - The thread is probably in a PFS wait that cannot be detected by DISPLAY OMVS. In rare cases, the thread might be looping in the PFS. Go to “Resolve latch contention within the PFS” on page 600 for further diagnosis steps.

- **Osi Wait** - The thread is in a standard wait from within the PFS. Go to step “Resolve latch contention within the PFS” on page 600 for further diagnosis steps.

- **XSYS Message to: sysname** - The operation causing the wait is happening on another system in the sysplex indicated by sysname. Go to “Analyze the output for outstanding sysplex messages” on page 598 for further diagnosis steps.

### Analyze the file latch contention
The FILE LATCH ACTIVITY table shows what user or product is holding the file latch and what users are waiting for the latch. For example, refer to Figure 27.

**FILE LATCH ACTIVITY:**

<table>
<thead>
<tr>
<th>USER</th>
<th>ASID</th>
<th>TCB</th>
<th>SHR/EXCL</th>
<th>AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LATCH 14 LSET 01 TYPE REGFILE</td>
<td>DEVNO 2 INO 204</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FILE: myfile</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FILE SYSTEM: ZOS112.ETC.ZFS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HOLDER(S):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TCO 0026 008E6D90 EXCL 00.00.56</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIME: 2010/10/08 16.21.36</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IS DOING: ZFS MKDirCall</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WAITER(S):</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TCO 0027 008E6D90 SHR 00.06.51</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIME: 2010/10/08 16.21.38</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>. . .</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Figure 27. Example: FILE LATCH ACTIVITY table*

The key to resolving file latch contention is in the HOLDER: and IS DOING: fields highlighted in Figure 27.

- The **HOLDER:** field tells you what program is holding the file latch.
- The **IS DOING:** field tells you where, in what element or product, the program holding the file latch is running, and what the program is doing. First, we’ll decode field **IS DOING.** **IS DOING** is displayed as IS DOING: activity / [pfs_qualifier]:

**activity**
Description of what the holding task is doing. activity is displayed as either:

- A wait, such as a file Latch Wait, indicating that the latch holder is waiting for another latch.

- The type of physical file system (PFS) and the operation that the task was called to do, such as READ, WRITE, MOUNT, or FSYNCH.
If the `activity` field shows a PFS, the `pfs_qualifier` field shows what the PFS is doing. For example, `pfs_qualifier` might show:

- **Running** - The thread is probably in a PFS wait that cannot be detected by DISPLAY OMVS. In rare cases, the thread might be looping in the PFS. Go to ["Resolve latch contention within the PFS" on page 600](#) for further diagnosis steps.

- **Osi Wait** - The thread is in a standard wait from within the PFS. Go to the ["Resolve latch contention within the PFS" on page 600](#) for further diagnosis steps.

- **XSYS Message to: `sysname`** - The operation causing the wait is happening on another system in the sysplex indicated by `sysname`. Go to ["Analyze the output for outstanding sysplex messages"](#) for further diagnosis steps.

### Analyze the output for outstanding sysplex messages

If the `pfs_qualifier` field displayed in the MOUNT LATCH ACTIVITY, FILE SYSTEM LATCH ACTIVITY, or FILE LATCH ACTIVITY table shows XSYS Message to: `sysname`, the operation causing the wait is happening on another system in the sysplex indicated by `sysname`. Do the following steps:

1. The information displayed under the OUTSTANDING CROSS SYSTEM MESSAGES heading in message BPXO063I shows more information about the message sent to the other system (see Figure 28). You can identify the message sent by the task holding the latch by the matching ASID and TCB values from the holding task and the task under the OUTSTANDING CROSS SYSTEM MESSAGES: heading. Note and retain the TCB and ASID value of the message for the next step in this procedure:

```
OUTSTANDING CROSS SYSTEM MESSAGES:
SENT SYSPLEX MESSAGES:
  USER  ASID  TCB  FCODE  MEMBER  REQID  MSG  TYPE  AGE
  MEGA  0025  008000021B  0008  SY2   01000038  LookupCall   00.03.08
  TCO   0026  008000000B  1011  SY1   0100003A  Quiesce   00.00.05
  OMVS  000E  0080009828  0804  SY2   01000039  VfsInactCall  00.01.18
RECEIVED SYSPLEX MESSAGES:
  FROM  FROM  FROM
  ON TCB  ASID  TCB  FCODE  MEMBER  REQID  MSG  TYPE  AGE
  008009C8  0026  008000000B  1011  SY1   0100003A  Quiesce   00.00.05
IS DOING: Mount Latch Wait
```

**Figure 28. Example: OUTSTANDING CROSS SYSTEM MESSAGES section**

If pipes are used, the output from sysplex messages might not have a corresponding sent sysplex messages. The system that received the request replied to the user so that resources are released and continued processing. On the sender side, once the reply has been received, the task goes into an OSI wait where it will wait to be posted. Because this is a pipes task, the waiter is not shown in the other waiters table, which makes it difficult to correlate between the systems that received the message and the system where it originated. In these cases, the ReqID will be blank. In that situation, using the SPECIAL filtering option (D OMVS,W,S) might result in the corresponding waiter.

2. On the remote system where the message is sent, issue `D OMVS,WAITERS` and look in the RECEIVED SYSPLEX MESSAGES section for a message with the matching TCB and ASID. The ASID and TCB fields should also match those of
the sending thread. Use the value of the IS DOING: field on the remote system to continue contention analysis and resolve the contention.

**Analyze the output for other waiting threads**

The threads that are waiting but not involved in any mount latch or file latch contention are listed last in the message BPXO063I under the OTHER WAITING THREADS heading. In case of resolving latch contention, it might be helpful to know why these threads are waiting and how to release them from the wait status. For example, refer to Figure 29.

<table>
<thead>
<tr>
<th>USER</th>
<th>ASID</th>
<th>TCB</th>
<th>PID</th>
<th>AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>USER01</td>
<td>0021</td>
<td>00908070</td>
<td>1234</td>
<td>00:12:41</td>
</tr>
<tr>
<td>USER03</td>
<td>0061</td>
<td>00908070</td>
<td>786534</td>
<td>00:12:41</td>
</tr>
<tr>
<td>USER04</td>
<td>0051</td>
<td>00908070</td>
<td>378992</td>
<td>00:08:51</td>
</tr>
</tbody>
</table>

**Figure 29. Example: OTHER WAITING THREADS section**

The IS DOING field as highlighted in Figure 29 tells what the waiting task (USER) is doing at the time of display. In addition to the waiting type discussed in previous sections, other possible types include:

**File Share Wait**

The thread is suspended during the open() of a file because the NFS server has placed a share reservation on the file. Issue the MODIFY mvsnfs,listlock= command to show the share reservation that NFS server has on the file, and the MODIFY mvsnfs,release= to break the reservations if necessary. For more information on the commands, see z/OS Network File System Guide and Reference.

**BRLM Wait**

The thread is waiting to obtain a byte range lock on a file. Take the following steps for diagnosis:

1. Issue the DISPLAY OMVS,A=ALL command to get the PID or PIDs corresponding to the address space ID of the thread.
2. Issue the DISPLAY OMVS,PID=www,BRL command to show the threads in the byte-range lock wait. (In this case, the PID obtained in step 1 for the waiting process is www.) The BRLWAIT line in the message shows the PID of the process that is blocking this waiting process from obtaining the lock.
3. If the blocking process also appears in other part of the waiters display, continue the diagnosis procedure there.
4. If the blocking process resides on another system within the sysplex, use the system name in the BRLWAIT line and continue the diagnosis procedure there.
5. On the system where the blocking process resides, issue the DISPLAY OMVS, PID=bbb, BRL command to show the name of the program or command that is running. (In this case, the PID obtained in step 2 for the blocking process is bbb.)

Note that the blocking process might not be hung, or at least not hung for z/OS UNIX Services reasons. Programs can obtain byte range locks and hold them indefinitely.

6. If the blocking process is the NFS server, the command shown is GFSAMAIN. In this case the lock was obtained by some NFS client. You can use MODIFY mvsnfslistlock= and MODIFY mvsnfstranslock= commands to solve the problem.

Quiesce Wait

A file system has been quiesced by the BPX1QSE callable service because some backup products are reading the underlying data sets. You can do the following steps to find more information about the file system in problem:

- Issue the DISPLAY OMVS, FILE command to show the job name and PID of the process that has used BPX1QSE. And if a file system is quiesced for too long, the message BPXF034I THE FOLLOWING FILE SYSTEM HAS BEEN QUIESCED FOR MORE THAN 10 MINUTES: filesystem is issued.
- A file system can be quiesced while it is being moved or recovered.
  - In a shared file system configuration, issue the MODIFY BPSXINIT, FILESYS=d, exception and MODIFY BPSXINIT, FILESYS=d, FILESYSTEM=filesystemname to show more information of the file systems in moved or recovery state.
  - In either a single system or a shared file system configuration, issue the DISPLAY OMVS, f, exception command.
- You can forcibly unquiesce a quiesced file system through the File system menu in the Ishell dialog under ISPF.

zFS xxxxx/ OSI Wait

The thread waiting within in the zFS file system has been quiesced by the zfsadm quiesce shell command, or by a backup product that is reading underlying data sets. Use the zfsadm aggrinfo shell command to show the state of zFS aggregate. Use the DISPLAY OMVS, FILE command to find the aggregate name if it is not the same with the file system name.

File Latch Wait

The thread is waiting for a file latch. The latch number is shown and you can also use the DISPLAY GRS, LATCH, CONTENTION command for the holders. File latches are usually obtained just before it goes into the PFS that supports the file, so the holders information might also be shown in other parts of the waiters display if they are hung up in the PFS.

See “Problem diagnosis for shared file system” on page 587 for more information on analysis in a shared file system configuration. Also see the MODIFY BPSXINIT, FILESYS=DISPLAY command in z/OS MVS System Commands for information related to discussions here.

Resolve latch contention within the PFS

If the pfs_qualifier field displayed in the MOUNT LATCH ACTIVITY or FILE SYSTEM LATCH ACTIVITY table shows either Running or Osi Wait, do the following steps depending on the type of file system in question:

For a zFS file system, do the following (see z/OS Distributed File Service zFS Administration for more information):
1. Issue the `DISPLAY ZFS,QUERY,THREADS` to get details about the state of threads within zFS.
2. Issue `modify zfs,hangbreak` to have zFS post any requests in zFS that are waiting, with a failure. This can allow the hang condition to be broken and resolved.
3. Issue the `modify zfs,query,threads` command to determine if one or more requester threads remain in the same wait over several queries.
4. If you cannot successfully break or resolve the hang, go to "Terminate or cancel the latch holder"

For an NFS client, most problems relate to the socket sessions that NFS has with its servers. Do the following:

1. Issue the `DISPLAY OMVS,FILE` command to show the MOUNT PARM= value specified when the file system was mounted. This value contains the name of the remote server and the remote directory path name for the file system where the file is.
2. Find out whether the delay is in the remove server or the NFS client. To find out, issue the `DISPLAY TCPIP,,NETSTAT,CONN` command to display the state of the socket sessions between NFS and the remote server (which is always port number 2049). If the output shows that there are no socket sessions between the NFS client and the remote server, either the remote system or the remote server might be down. However, note that NFS does not always have persistent socket sessions for its servers, so the absence of sessions may just mean that socket sessions are not needed at this exact time.

For the DFS Glue module, IOEGLUE, the wait usually means that the file system is exported by the SMB or DFS server and that the file being accessed is being shared with some remote client. Issue the `DISPLAY OMVS,A=ALL` command to display the SERVER= line that can help to find the address space and process id of the server involved. See [ z/OS Distributed File Service SMB Administration ] for diagnosing SMB problems like hangs.

If you can not free the latch holder with these methods, you might need to force the process to terminate, or cancel the latch holder. See "Terminate or cancel the latch holder" for more instructions.

Terminate or cancel the latch holder

If you were not able to resolve the latch contention using methods in "Resolve latch contention within the PFS" on page 600 and the contention persists, you may need to terminate or cancel the latch holder. The options are listed in order of possible disruption to the system:

To terminate the task holding the latch, do the following steps:

1. Issue a `MODIFY BPX0INIT,RECOVER=LATCHES` console command to resolve the contention. This command can take several minutes to resolve the latch contention, but if the system cannot resolve the latch contention within a
If a system task encounters a problem with a latch and is unable to proceed, it generates a message BPXM057E. If necessary, see that message for further action.

Note that if successful, the MODIFY BPXOINIT,RECOVER=LATCHES command causes the abend of user tasks or non-critical system tasks that hold latches, generates one or more address space dumps, and can result in the termination of an entire process. Refer to z/OS MVS System Commands before issuing this command.

2. Issue command MODIFY BPXOINIT,FORCE=pid[,tid] to terminate individual threads in a process. In the command, pid is the decimal form of the process id to be terminated and tid is the hexadecimal form of the thread id to be terminated. See Controlling z/OS UNIX System Services (z/OS UNIX) in z/OS MVS System Commands.

3. Cancel the latch holder.

4. Log off or force off the latch holder.

5. Use the STOP command to stop the product address space. For example, stop the colony address space that an NFS file system is running in.

6. If absolutely necessary, cancel the product address space. For example:
   - Cancel the colony address space that an NFS file system is running in.
   - If you think zFS is in an infinite loop, cancel zFS.

See also “Problem diagnosis for shared file system” on page 587.

Sometimes it might be helpful to know about other waiting threads, even if these threads are not holders or waiters of any latch contention. See “Analyze the output for other waiting threads” on page 599 for more information.

If you cannot resolve the mount latch contention after using this procedure, search problem reporting data bases for a fix. If no fix exists, contact the IBM Support Center and supply the SVC dumps if appropriate.

### z/OS UNIX System Services latch identities

This section describes the latch identity strings for z/OS UNIX System Services latches that can be displayed by using the D GRS,ANALYZE,LATCH command.

z/OS UNIX System Services uses GRS latches to serialize resources and operations. GRS console commands display information about the identities of the latches, waiters, blockers and so on. For more information, see z/OS MVS System Commands.

The following example is the output of the D GRS,ANALYZE,LATCH,WAITER command. In Figure 30 on page 603, the latch set name (LSETNAME) is SYS.BPX.A000.FSLIT.FILESYS.LSN, the latch identity string (LATCHID) is FS:HOST12.AJAX.DIRECTORY, and the latch number is “20”.
Table 51 lists the latch identity strings for the latches used by z/OS UNIX System Services.

<table>
<thead>
<tr>
<th>Latch Identity String (LATCHID)</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logical File System</td>
<td>This latch is used to serialize PFS termination and restart.</td>
</tr>
<tr>
<td>MOUNT</td>
<td>This latch is used by the file system to serialize operations such as file system mount, unmount, move, and automount and others.</td>
</tr>
<tr>
<td>PIPE Global</td>
<td>This latch is used when the system is traversing or modifying structures that are related to PIPES.</td>
</tr>
<tr>
<td>OSI Sleep and Wakeup</td>
<td>This latch is used when the system is traversing or modifying structures that are related to the osi_sleep() and osi_wakeup() services.</td>
</tr>
<tr>
<td>Byte Range Lock Manager Global</td>
<td>This latch is used when the system is traversing or modifying structures that are related to the byte range lock management.</td>
</tr>
<tr>
<td>Register File Interest Global</td>
<td>This latch is used when the system is traversing or modifying structures that are dealing with files, for which an interest has been registered through w_ioctl().</td>
</tr>
<tr>
<td>Mount/Move Failure Data Block</td>
<td>This latch is used when the system is traversing or modifying structures that are related to the data when the system is reporting a mount or move failure.</td>
</tr>
<tr>
<td>FS: &lt;fs name&gt;</td>
<td>If the LSETNAME is SYS.BPX.A000.FSLIT.FILESYS.LSN, the latch is used to serialize operations on the file system named in the latch identity string. If the LSETNAME is SYS.BPX.A000.FSLIT.QUIESCES.LSN, the latch is used to quiesce the file system named in the latch identity string.</td>
</tr>
<tr>
<td>NW: &lt;domain_name&gt;</td>
<td>This latch is used for operations on the local or network socket domain whose name is shown in the latch identity string.</td>
</tr>
<tr>
<td>Automount Global</td>
<td>This latch is used to serialize pfcntl() calls during automount processing.</td>
</tr>
<tr>
<td>AM: &lt;fs name&gt;</td>
<td>This latch is used for any automount operations on the file system named in the latch identity string.</td>
</tr>
<tr>
<td>LFS Process ID=&lt;pid in decimal&gt;</td>
<td>This latch is used to serialize searches and updates to the file system structures associated with the process whose PID is shown in the latch identity string.</td>
</tr>
<tr>
<td>Name=&lt;resource name&gt;,Dev=&lt;dev# in decimal&gt;,INO=&lt;inode# in decimal&gt;</td>
<td>This latch is used for operations on a file system resource such as file, directory and FIFO. The resource name, device number and inode number are listed in the latch identity string. The resource name will be truncated to the first 15 characters if it has more than 16 characters. Note that the &lt;resource name&gt; can be a dot (.) which indicates the current directory in a relative path name or a dot dot (..) which indicates the parent directory in a relative path name.</td>
</tr>
<tr>
<td>Dev=&lt;dev# in decimal&gt;,INO=&lt;inode# in decimal&gt;</td>
<td>This latch is used for operations on a file system resource such as file, directory and FIFO. The name of the resource is not available, but the device number and inode number are listed in the latch identity string.</td>
</tr>
</tbody>
</table>
### Table 51. Latch identity strings for the latches used by z/OS UNIX System Services (continued)

<table>
<thead>
<tr>
<th>Latch Identity String (LATCHID)</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>MessageQ ID=&lt;msg-ID in decimal&gt;</td>
<td>This latch is used when the system is traversing or modifying structures related to the message queue whose identifier is shown in the latch identity string.</td>
</tr>
<tr>
<td>Shared Memory ID=&lt;shm-ID in decimal&gt;</td>
<td>This latch is used when the system is traversing or modifying structures related to the shared memory segment whose identifier is shown in the latch identity string.</td>
</tr>
<tr>
<td>Semaphore ID=&lt;sem-ID in decimal&gt;</td>
<td>This latch is used when the system is traversing or modifying structures related to the semaphore whose identifier is shown in the latch identity string.</td>
</tr>
<tr>
<td>Process ID=&lt;pid in decimal&gt;</td>
<td>If the LSETNAME is SYS.BPX.AP00.PRTB1.PPRA.LSN, the latch is used when the system is traversing or modifying structures related to managing the process whose PID is shown in the latch identity string. If the LSETNAME is SYS.BPX.AP00.PRTB1.SIGNALS.LSN, the latch is used when the system is traversing or modifying structures related to signal processing for the process whose PID is shown in the latch identity string.</td>
</tr>
<tr>
<td>MessageQ Global</td>
<td>This latch is used to search and add elements to the message queue mechanism.</td>
</tr>
<tr>
<td>Shared Memory Global</td>
<td>This latch is used to search and add elements to the shared memory mechanism.</td>
</tr>
<tr>
<td>Semaphore Global</td>
<td>This latch is used to search and add elements to the semaphore mechanism.</td>
</tr>
<tr>
<td>Process Global</td>
<td>This latch is used for process management operations that are not limited to a single process.</td>
</tr>
</tbody>
</table>
Chapter 21. Real Storage Manager (RSM)

This topic contains information on formatting real storage manager (RSM) dump data for diagnosis.

Formatting RSM dump data

An SVC, stand-alone, or SYSMDUMP dump for RSM contains diagnostic data. Format the diagnostic data using the IPCS RSMDATA subcommand. RSMDATA produces diagnostic reports that are helpful for analyzing storage shortages and investigating address spaces for real frame usage.

Table 52 summarizes the RSMDATA reports that are available. z/OS MVS IPCS Commands gives the syntax of the RSMDATA subcommand and z/OS MVS IPCS User’s Guide explains how to use the RSMDATA option of the IPCS dialog.

Table 52. Summary: RSM Reports

<table>
<thead>
<tr>
<th>RSMDATA Subcommand Parameter</th>
<th>Report Description</th>
<th>See topic:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDRSPACE</td>
<td>RSM address space report</td>
<td>RSMDATA ADDRSPACE subcommand output on page 606</td>
</tr>
<tr>
<td>DIVMAP</td>
<td>DIV mapped range report</td>
<td>RSMDATA DIVMAP subcommand output on page 611</td>
</tr>
<tr>
<td>DSPACE</td>
<td>Data space report</td>
<td>RSMDATA DSPACE subcommand output on page 613</td>
</tr>
<tr>
<td>EXCEPTION</td>
<td>RSM diagnostics and exception report</td>
<td>RSMDATA EXCEPTION subcommand output on page 615</td>
</tr>
<tr>
<td>EXECUTION</td>
<td>RSM execution status report</td>
<td>RSMDATA EXECUTION subcommand output on page 616</td>
</tr>
<tr>
<td>HIGHVIRTUAL</td>
<td>RSM high virtual page report</td>
<td>RSMDATA HIGHVIRTUAL subcommand output on page 617</td>
</tr>
<tr>
<td>HVCOMMON</td>
<td>RSM high virtual common report</td>
<td>RSMDATA HVCOMMON subcommand output on page 621</td>
</tr>
<tr>
<td>HVSHRDATA</td>
<td>RSM high virtual shared</td>
<td>RSMDATA HVSHRDATA subcommand output on page 623</td>
</tr>
</tbody>
</table>
### Table 52. Summary: RSM Reports (continued)

<table>
<thead>
<tr>
<th>RSMDATA Subcommand Parameter</th>
<th>Report Description</th>
<th>Report Contains</th>
<th>See topic:</th>
</tr>
</thead>
<tbody>
<tr>
<td>REALFRAME</td>
<td>RSM real storage frame report</td>
<td>Information about real frames in the system, including the status, location, and current (or most recent) owner of each real frame.</td>
<td>“RSMDATA REALFRAME subcommand output” on page 624</td>
</tr>
<tr>
<td>RSMREQ</td>
<td>RSM requests report</td>
<td>Information about the status of asynchronous requests, including the requester, the RSM function fulfilling the request, the status of the request, and the requested pages for each request.</td>
<td>“RSMDATA RSMREQ subcommand output” on page 634</td>
</tr>
<tr>
<td>SHRDATA</td>
<td>Shared data report</td>
<td>Information about how storage is being shared through the use of the IARVSERV macro.</td>
<td>“RSMDATA SHRDATA subcommand output” on page 638</td>
</tr>
<tr>
<td>SUBSPACE</td>
<td>Subspace report</td>
<td>Information about subspaces</td>
<td>“RSMDATA SUBSPACE subcommand output” on page 641</td>
</tr>
<tr>
<td>SUMMARY</td>
<td>RSM summary report</td>
<td>Information on central storage usage on a system-wide basis, and information about any unusual RSM conditions.</td>
<td>“RSMDATA SUMMARY subcommand output” on page 642</td>
</tr>
<tr>
<td>VIRTPAGE</td>
<td>RSM virtual page report</td>
<td>Information about virtual pages in the system, including page owner, location, and status.</td>
<td>“RSMDATA VIRTPAGE subcommand output” on page 644</td>
</tr>
</tbody>
</table>

The RSM summary report is the **default option** for the RSMDATA subcommand.

Examples of RSMDATA reports follow. In a report, a question mark (?) indicates that the RSMDATA subcommand could not obtain information for the field. A dash (–) indicates that the information does not apply to the field.

---

**RSMDATA ADDRSPACE subcommand output**

The RSM address space report provides information on the status of selected address spaces. The report summarizes central storage storage use for each address space. This data is sorted by address space identifier (ASID). Figure 31 on page 607 shows an example report. The numbers in the top section of the report are hexadecimal; the totals at the bottom of the report are decimal.
Figure 32 on page 608 shows a sample RSM short address space report (RSMDATA ADDRSP SHORT ALL). The report summarizes some central storage use for each address space. The short version of the report does not scan through the queues, but depends only on count values.
# Real Storage Manager

## RSM ADDRESS SPACE REPORT

<table>
<thead>
<tr>
<th>JOBNAME</th>
<th>ASID</th>
<th>STATUS</th>
<th>TOT R</th>
<th>DBL</th>
<th>QD</th>
<th>TOT F</th>
<th>B</th>
<th>F</th>
<th>A</th>
<th>P</th>
<th>DG</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>MASTER</em></td>
<td>0001</td>
<td>NONSWAP</td>
<td>00000E5C</td>
<td>000</td>
<td>07</td>
<td>00000562</td>
<td>000</td>
<td>08</td>
<td>09</td>
<td>05</td>
<td>LS 0217A000</td>
</tr>
<tr>
<td>PCAUTH</td>
<td>0002</td>
<td>NONSWAP</td>
<td>000004F</td>
<td>000</td>
<td>01</td>
<td>00000404</td>
<td>000</td>
<td>02</td>
<td>04</td>
<td>02</td>
<td>LS 020B5F5B</td>
</tr>
<tr>
<td>RASP</td>
<td>0003</td>
<td>NONSWAP</td>
<td>00000340</td>
<td>000</td>
<td>05</td>
<td>00000200</td>
<td>000</td>
<td>02</td>
<td>0A</td>
<td>06</td>
<td>LS 01979408</td>
</tr>
<tr>
<td>TRACE</td>
<td>0004</td>
<td>NONSWAP</td>
<td>00001443</td>
<td>000</td>
<td>01</td>
<td>00000433</td>
<td>000</td>
<td>3F</td>
<td>0D</td>
<td>05</td>
<td>LS 020482B0</td>
</tr>
<tr>
<td>DUMPSRV</td>
<td>0005</td>
<td>NONSWAP</td>
<td>000013E</td>
<td>000</td>
<td>02</td>
<td>000008B8</td>
<td>000</td>
<td>06</td>
<td>08</td>
<td>02</td>
<td>LS 020A5048</td>
</tr>
<tr>
<td>XCFAS</td>
<td>0006</td>
<td>NONSWAP</td>
<td>00008804</td>
<td>000</td>
<td>13</td>
<td>0000086A</td>
<td>000</td>
<td>54</td>
<td>0A</td>
<td>02</td>
<td>LS 02048060</td>
</tr>
<tr>
<td>GRS</td>
<td>0007</td>
<td>NONSWAP</td>
<td>00003D05</td>
<td>000</td>
<td>25</td>
<td>00000276</td>
<td>000</td>
<td>02</td>
<td>03</td>
<td>0C</td>
<td>LS 01D143A0</td>
</tr>
<tr>
<td>SMSPOSE</td>
<td>0008</td>
<td>NONSWAP</td>
<td>0000061C</td>
<td>000</td>
<td>03</td>
<td>0000016F</td>
<td>000</td>
<td>03</td>
<td>0A</td>
<td>06</td>
<td>LS 02CD30B0</td>
</tr>
<tr>
<td>SMSPOSE1</td>
<td>0009</td>
<td>NONSWAP</td>
<td>000000AA</td>
<td>000</td>
<td>03</td>
<td>00000379</td>
<td>000</td>
<td>03</td>
<td>0A</td>
<td>06</td>
<td>LS 01FB60B0</td>
</tr>
<tr>
<td>SMSVSM</td>
<td>000A</td>
<td>NONSWAP</td>
<td>00001633</td>
<td>000</td>
<td>15</td>
<td>0000018C</td>
<td>000</td>
<td>0C</td>
<td>07</td>
<td>02</td>
<td>LS 01CE25B0</td>
</tr>
<tr>
<td>CONSOLE</td>
<td>000B</td>
<td>NONSWAP</td>
<td>000006E2</td>
<td>000</td>
<td>01</td>
<td>0000088</td>
<td>000</td>
<td>01</td>
<td>00</td>
<td>0B</td>
<td>LS 02005330</td>
</tr>
<tr>
<td>WLM</td>
<td>000C</td>
<td>NONSWAP</td>
<td>00002CAD</td>
<td>000</td>
<td>01</td>
<td>0000068</td>
<td>000</td>
<td>06</td>
<td>0F</td>
<td>02</td>
<td>LS 028FADD</td>
</tr>
</tbody>
</table>

Totals for this address space report (in decimal):

- SWIN: 1,690
- SWAUX: 0
- TERM: 0
- CREATE: 0
- RESWPIP: 0

- SWINIP: 0
- SWAUXIP: 0
- NONSWAP: 67
- LSWAP: 253

TOTAL: 2,010

- TOT R: 2,290
- DBL: 0
- QD: 4

- TOT F: 69
- B: 0
- F: 53
- A: 0
- P: 0
- TOT F2G: 2,097,152

---

**Figure 32. Example: RSM short address space report**

**JOBNAME**
The name of the job associated with the address space.

**ASID**
The address space identifier (ASID) of the job.

**STATUS**
The state of the address space:

- **CREATE**
  Creation in progress

- **LSWAP**
  Logically swapped

- **NONSWAP**
  Non-swappable

- **RESWPIP**
  In real swap in progress

- **SWAUX**
  Swapped to auxiliary storage

- **SWAUXIP**
  Swap to auxiliary storage in progress

- **SWIN**
  Swapped in (currently in central storage)

- **SWINIP**
  Swap-in in progress
Real Storage Manager

TERM  Abend in progress

TOT R  The total number of real frames in use by the address space. For swapped-out address spaces, which have a status of SWAUX, SWEXP, or SWINIP, this column represents the total working set of the address space.

PRF R  The number of preferred real frames in use by the address space.

B R  The number of real frames below 16 megabytes in use by the address space.

A R  The number of real frames above 16 megabytes but below 2 gigabytes in use by the address space.

DBL  The number of double-frame pairs in use by the address space. For swapped-out address spaces, which have a status of SWAUX, SWEXP, or SWINIP, this column represents the number of double-frame pairs required by this address space when it is swapped in.

QD  The number of quad groups in use by the address space. For swapped-out address spaces that have a status of SWAUX or SWINIP, this column represents the number of quad-frame groups required by this address space when it is swapped in.

DSP R  The number of real frames in use for data spaces owned by the address space. For a z/Architecture dump, this includes real frames used for hiperspaces.

TOT F  The total number of real frames containing fixed pages that are in use by the address space.

TOT F2G  Total number of fixed 2G frames (in 4K units) for all selected address spaces. The total does not include spaces whose status is SWAUX, SWEXP, or SWINIP.

B F  The number of real frames below 16 megabytes containing fixed pages and in use by the address space.

A F  The number of fixed frames above 16 megabytes but below 2 gigabytes in use by the address space.

PRF F  The number of preferred real frames containing fixed pages that are in use by the address space.

TOT SHAR  The total number of shared pages for this address space that were established through the IARVSERV macro, not including pages in shared segments.

TOT SH V  The total number of shared pages that are addressable in central storage for this address space, not including pages in shared segments.

TOT HV SHAR  The total number of high virtual shared segments for this address space that were shared through the IARV64 SHAREMEMOBJ macro option.
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X An indication of cross memory RSM requests:
Y Address space has cross memory RSM requests pending.
N Address space has no pending cross memory RSM requests.

For more information about the request(s), see the RSM requests report.

P The preferred storage usage rules for the address space:
Dash (–) Private area pages may be placed in non-preferred storage.
L Local system queue area (LSQA) and long-term fixes must be placed in preferred storage.
S Short-term fixes must be placed in preferred storage.
LS LSQA and short and long-term fixes must be placed in preferred storage.

DG Diagnostic data useful to IBM.

Totals for this address space report (in decimal):
These totals are located at the end of the report.
The total number, in decimal, is recorded for the selected address spaces that are in the following states: CREATE, LSWAP, NONSWAP, SWAUX, SWAUXIP, SWEXP, SWEXPPIP, SWIN, SWINIP, or TERM. These states are described for the STATUS field. A dash (–) indicates that address spaces for that STATUS were not selected for the report.
The total number, in decimal, of address spaces evaluated is recorded in the TOTAL field.
The total number, in decimal, is recorded for frames from the selected address spaces that are in the following states:
• B F
• B R
• DBL
• DSP R
• PRF F
• PRF R
• PRF REQ
• RESWPIP
• TOT F
• TOT R
• TOT SHAR
• TOT SH V
• TOT HV SHAR
The fields not listed below are described previously.

TOT R Total number of real frames for all selected address spaces. The total does not include spaces whose status is SWAUX, SWEXP, or SWINIP.

DBL Total number of double frames needed by all address spaces. The total includes frames whose status is SWAUX, SWEXP, or SWINIP.
**Real Storage Manager**

**PRF REQ**
Total number of fixed frames from the selected address spaces that must be preferred frames. The number includes the fixed frames that:

- Require short or long-term fixes in preferred storage. These frames are indicated by an S or an L in column P.
- Are non-swappable.

The number does not include frames that were fixed when only preferred frames were available.

**TOT SHAR**
Total number of shared data pages for all selected address spaces.

**TOT SH V**
Total number of shared data pages that are valid in storage for all selected address spaces.

**TOT HV SHAR**
The total number of segments allocated in the high virtual shared area using the IARV64 GETSHARED macro option. This number includes any shared storage rounding by the system for optimization purposes.

**RSMDATA DIVMAP subcommand output**
The RSMDATA DIVMAP subcommand provides an RSM data-in-virtual mapped range report. This report gives information about ranges of pages mapped by data-in-virtual.

The mapped pages are sorted by ASID. For each ASID, the mapped pages are grouped with the pages for the address space first, followed by the pages for each data space. Within each group, the pages are in no particular order.

```
DIV MAPPED RANGE REPORT

<table>
<thead>
<tr>
<th>JOBNAME</th>
<th>ASID</th>
<th>DSPNAME</th>
<th>START AD</th>
<th>NUM</th>
<th>BLCK</th>
<th>HS OBJ</th>
<th>HS START</th>
<th>STATUS</th>
<th>PF</th>
<th>E</th>
<th>DG</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMALLJOB 0023</td>
<td>-</td>
<td>01530000</td>
<td>000000705</td>
<td>-</td>
<td>-</td>
<td>MAPPED</td>
<td>00</td>
<td>N</td>
<td>02056780</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMALLJOB 0023</td>
<td>-</td>
<td>MYDSP</td>
<td>04035000</td>
<td>000068394</td>
<td>-</td>
<td>-</td>
<td>MAPPED</td>
<td>00</td>
<td>N</td>
<td>02055660</td>
<td></td>
</tr>
<tr>
<td>THRASHER 0042</td>
<td>DSP3</td>
<td>002EF000</td>
<td>00000030</td>
<td>-</td>
<td>-</td>
<td>MAPPED</td>
<td>00</td>
<td>N</td>
<td>02056760</td>
<td></td>
<td></td>
</tr>
<tr>
<td>THRASHER 0042</td>
<td>DSP22</td>
<td>002FF000</td>
<td>00000034</td>
<td>-</td>
<td>-</td>
<td>MAPPED</td>
<td>00</td>
<td>N</td>
<td>02056740</td>
<td></td>
<td></td>
</tr>
<tr>
<td>THRASHER 0042</td>
<td>DSP1</td>
<td>0020F000</td>
<td>00000054</td>
<td>-</td>
<td>-</td>
<td>MAPIP</td>
<td>00</td>
<td>N</td>
<td>020557C0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>THRASHER 0042</td>
<td>-</td>
<td>0100F000</td>
<td>000000F3</td>
<td>-</td>
<td>-</td>
<td>MAPPED</td>
<td>00</td>
<td>N</td>
<td>02145600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JOB1</td>
<td>009E</td>
<td>OLDDSP</td>
<td>3AC33000</td>
<td>00000396</td>
<td>-</td>
<td>-</td>
<td>MAPPED</td>
<td>00</td>
<td>N</td>
<td>020346C0</td>
<td></td>
</tr>
<tr>
<td>BIGJOB</td>
<td>0099</td>
<td>-</td>
<td>00233000</td>
<td>00000E20</td>
<td>MYHSP01</td>
<td>00001000</td>
<td>MAPPED</td>
<td>00</td>
<td>N</td>
<td>020CA3E0</td>
<td></td>
</tr>
<tr>
<td>BIGJOB</td>
<td>0099</td>
<td>-</td>
<td>0045F000</td>
<td>000A4144</td>
<td>-</td>
<td>-</td>
<td>MAPPED</td>
<td>00</td>
<td>N</td>
<td>021039A0</td>
<td></td>
</tr>
<tr>
<td>MEDTSO</td>
<td>0099</td>
<td>-</td>
<td>00432000</td>
<td>000004175</td>
<td>-</td>
<td>-</td>
<td>MAPPED</td>
<td>00</td>
<td>N</td>
<td>02100020</td>
<td></td>
</tr>
<tr>
<td>BADJOB</td>
<td>00A2</td>
<td>-</td>
<td>02345000</td>
<td>00000548</td>
<td>-</td>
<td>-</td>
<td>MAPPED</td>
<td>00</td>
<td>N</td>
<td>02034AA0</td>
<td></td>
</tr>
</tbody>
</table>
```

Totals for this DIV mapped range report (in decimal):

```
MAPIP | MAPPPIP | UNMAPIP | SAVEIP | RESETIP
2 | 1 | 15 | 0 | 0

MAPPED TOTAL
1,667 | 1,685
```

**JOBNAME**
Name of the job that owns the mapped range of pages.
ASID
Address space identifier of the address space that owns the mapped range of pages.

DSPNAME
Name of the data space that contains the mapped range of pages or dash (–) for address space ranges.

START AD
The address of the start of the mapped range.

NUM BLCK
The number, in hexadecimal, of blocks in the mapped range. A block is 4096 bytes or one page.

HS OBJ
The name of the Hiperspace™, if the address space range is mapped to a Hiperspace. Dash (–) for data-in-virtual objects that are not Hiperspaces.

HS START
The starting address in the Hiperspace of the mapped page range, if the range is mapped to a Hiperspace. Dash (–) for data-in-virtual objects that are not Hiperspaces.

STATUS
Any operations currently in progress on the range:

MAPIP
DIV MAP request is in progress

MAPRPIP
DIV MAP reprime request is in progress

UNMAPIP
DIV UNMAP request is in progress

SAVEIP
DIV SAVE request is in progress

RESETIP
DIV RESET request is in progress

MAPPED
DIV MAP request has completed and no other DIV macro function is in progress

PF Page fault count, in hexadecimal.

E An indication of an error in the mapped range:
Y Error
N No error

DG Diagnostic data useful to IBM.

Totals for this DIV mapped range report (in decimal):
These totals appear at the end of the report.
MAPPED
The total number, in decimal, of pages in mapped ranges that are in the indicated state. The state is given in the STATUS field.

TOTAL
The total number, in decimal, of pages in mapped ranges evaluated in the report.

RSMDATA DSPACE subcommand output

The RSMDATA DSPACE subcommand provides an RSM data space report. This report gives information about data spaces.

The data spaces are sorted by ASID. The data spaces for an address space are listed in no particular order.

<table>
<thead>
<tr>
<th>JOBNAME</th>
<th>ASID</th>
<th>DSPNAME</th>
<th>OWNG TCB</th>
<th>CUR B</th>
<th>MAX B</th>
<th>T S R F</th>
<th>TOT R</th>
<th>DG</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>MASTER</em> 0001</td>
<td>DSP01</td>
<td>007E4560 10000 10000 0 B C E Y 00023 00000240 80000A00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>MASTER</em> 0001</td>
<td>DSP02</td>
<td>007E4560 00200 00200 0 B A E Y 0001C 000003B0 80000F00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RASP 0003</td>
<td>SYSDS000</td>
<td>7FFFF 7FFFF 0 B S E Y 0018E 7FFE0000 80000000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRACED 0003</td>
<td>TRDSP</td>
<td>007C4000 7FFFF 7FFFF 0 B S E Y 0018E 7FFE0000 80000000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DUMPSRV 0005</td>
<td>DUMP01</td>
<td>007E4560 007FF 007FF 0 B S E Y 00000000 80000440 80000120</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONSOLE 0007</td>
<td>DSP01</td>
<td>007F0200 0030 007F 0 B S D Y 00025 00000400 80000110</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONSOLE 0007</td>
<td>DSP02</td>
<td>007F0200 007F 007F 0 B S D Y 00131 000004C0 80000140</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONSOLE 0007</td>
<td>DSP03</td>
<td>007F0200 007F 007F 0 B S D Y 00011 000003CD 80000100</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONSOLE 0007</td>
<td>DSP04</td>
<td>007F0200 007F 007F 0 B S D Y 0000E 00000300 80000000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NOSWNOMT 001E</td>
<td>NONODS01</td>
<td>00000000 7FFFF 7FFFF 0 B S E Y 010C9 00000400 800002A0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Totals for this data space report (in decimal):

<table>
<thead>
<tr>
<th>SINGLE</th>
<th>ALL</th>
<th>COMMON</th>
<th>DREF</th>
<th>EREF</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>4</td>
<td>2</td>
<td>7</td>
<td>15</td>
</tr>
</tbody>
</table>

The fields in the diagnostic data are as follows:

JOBNAME
The name of the job.

ASID
Address space identifier.

DSPNAME
Data space name.

OWNG TCB
Owning task's TCB address.

CUR B
Current number, in hexadecimal, of blocks in the data space. A block is 4096 bytes or one page.

MAX B
Maximum number, in hexadecimal, of blocks to which the data space can be expanded. A block is 4096 bytes or one page.
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K  Storage protection key.

T  Type of data space:
   B  Basic data space
   H  Hiperspace
   M  Basic data space containing shared segments

S  Scope of reference:
   S  Accessible from only the owning address space
   A  Accessible from all address spaces
   C  Common data space
   Dash (-)  Not applicable

R  Reference type:
   D  Disabled references allowed
   E  Enabled references only
   Dash (-)  Not applicable

F  Indication of fetch protection:
   Y  Fetch protected
   N  Not fetch protected

TOT R  Total number, in hexadecimal, of real frames in use by the data space.

DG  Diagnostic data useful to IBM.

Totals for this data space report (in decimal):
These totals appear at the end of the report.

SINGLE  The total number, in decimal, of data spaces accessible from only the owning address space.

ALL  The total number, in decimal, of data spaces accessible from all address spaces.

COMMON  The total number, in decimal, of common data spaces.

DREF  The total number, in decimal, of data spaces for which disabled references are allowed.

EREF  The total number, in decimal, of data spaces for which only enabled references are allowed.

BASIC  The total number, in decimal, of basic data spaces.

HIPERSP  The total number, in decimal, of data spaces being used as Hiperspaces.
**TOTAL**

The total number, in decimal, of data spaces evaluated in the report.

---

**RSMDATA EXCEPTION subcommand output**

The RSM diagnostics/exception report verifies RSM global data structures and provides information about incorrect data areas. For one of the following subcommands, the report also verifies local data structures for the specific address spaces:

- RSMDATA EXCEPTION JOBNAME(cccccccc)
- RSMDATA EXCEPTION JOBLIST(cccccccc[,cccccccc]...)
- RSMDATA EXCEPTION ASIDLIST(hhhh[,hhhh]...)

For an RSMDATA EXCEPTION DATASPACES subcommand, the report includes information about data spaces.

Problems in RSM data structures are identified by messages IAR81002I, IAR81003I, and IAR81004I. If IAR81003I or IAR81004I is issued, RSMDATA dumps the affected area. See [z/OS MVS Dump Output Messages](#) for more information about these messages.

Figure 33 on page 616 shows the first parts of an RSM diagnostics/exception report.
The RSM execution status report contains information that IBM may need for diagnosis.

<table>
<thead>
<tr>
<th>RSMDATA EXECUTION subcommand output</th>
</tr>
</thead>
<tbody>
<tr>
<td>The RSM execution status report contains information that IBM may need for diagnosis.</td>
</tr>
</tbody>
</table>
RSMDATA HIGHVIRTUAL subcommand output

The RSM high virtual page report provides information about virtual pages above 2 gigabytes in the system, including page owner, location, and status. It also includes a summary of the memory objects.

The total number of pages in each page state are displayed for each job name at the end of the report. The report is sorted by the ASID of the job name and, within each ASID, by virtual page address. The memory objects are summarized after the detailed page report and before the totals, and they are sorted by the starting virtual page address.

The numbers in the top section of the report are hexadecimal. The totals at the bottom of the report are decimal.
The fields in the diagnostic data are as follows:

**JOBNAME**

The job name of the page owner.

**PAGE**

The virtual address for the page.

**G**

An indication of whether the page has been GETSTORed

- **Y** The page is GETSTORed.

- **N** The page is not GETSTORed.

**S**

The page is shared by this address space.

**K**

The storage protect key for the page.

**F**

An indication of whether the page is protected:

- **Y** The page is fetch-protected.

- **N** The page is not fetch-protected.

**P**

An indication of how the page is protected:
Real Storage Manager

Y The page is page-protected.
N The page is not page-protected.

L An indication of whether the page is locked:
Y The page is locked
N The page is not locked

STAT
The status of the page. Swap states apply only to working set pages.

DASD Page resides on a paging data set.
FREF First reference state. The page was never referenced or it was released by a DETACH request.
FRFM First reference state. The 1M page was never referenced or it was released by a DETACH request.

GUARD
Page resides in the guarded area of the memory object.

HIDE Page is hidden.
REAL Page resides in real storage. It is either valid or has output paging I/O in progress.
RL_M 1 MB page resides in a real frame. It is either valid or has output paging I/O in progress.
RL2G 2 GB page resides in a real frame.
SCM Page resides on storage-class memory (SCM).
SCMM 1M page resides on storage-class memory (SCM).
SIAI Swap-in from auxiliary storage in progress.
SOAI Swap-out to auxiliary storage in progress.
SWAX Page was swapped to auxiliary storage.

T DAT translation status:
V Page is valid.
P Page is not valid.
S Page resides in an invalid segment.
3 Page resides in an invalid region third.
2 Page resides in an invalid region second.
1 Page resides in an invalid region first.
N DAT structures are not built for this page.
A Page resides in an invalid space (swapped out).
U Page is unavailable due to a hardware or software error or is in a transitional state.

R LOC
The current, or most recent, real frame number of the page. To obtain the real address of the frame, add three zeros to the right of the frame number.
Real Storage Manager

**LOC**
The current, or most recent, location of the page. The character to the right of
the location indicates the storage type.

- **r** Real storage
- **p** Paging data set
- **f** Storage-class memory (SCM)

A question mark (?) indicates that the storage type cannot be determined.

**PAGE I/O**
The type of paging I/O (if any) current for the page. A dash (-) indicates that
I/O is not active. For the list of functions, see PAGE I/O.

**FIX**
The fix count for the page.

**DG** Diagnostic data useful to IBM.

**START VSA**
The beginning (lowest) virtual storage address for a memory object. This
includes guard pages, therefore if GUARDLOC is specified as LOW this VSA
may represent a guard page.

**END VSA**
The last (highest) virtual storage address for a memory object. This includes
guard pages, therefore if GUARDLOC is specified as HIGH this VSA may
represent a guard page.

**S** An indication of the shared attribute:

- **N** The memory object is not shared.
- **L** The memory object is shared with a local scope.
- **G** The memory object is shared with a global scope.

**K** The storage protect key for the pages in the memory object.

**F** An indication of how the memory object is protected:

- **Y** The pages in the memory object are fetch-protected
- **N** The pages in the memory object are not fetch-protected

**C** An indication of the control value of the memory object. The control value
indicates whether the memory object should be eligible for certain other
services. A dash (-) indicates that this field is not applicable such as for shared
memory objects.

- **A** Memory object is authorized and other requests such as PAGEFIX can
  be performed on memory object pages.
- **U** Memory object is unauthorized and other requests such as PAGEFIX
  cannot be performed on memory object pages.

**M** An indication as to whether the memory object should be included in an SVC
dump when region is requested.

- **Y** The virtual storage in the memory object should be captured when
  SDATA=RGN is specified on the SVC dump request.
- **N** The virtual storage of the memory object is not included in the dump
  when SDATA=RGN is specified on the SVC dump request if not
  specifically requested.
CREATE TIME
The time when the memory object was created via GETSTOR or GETSHARED.

REQUESTOR
The return address of the requester of the memory object. For a shared memory object, this is the requester of the GETSHARED request.

RQAS
The address space identifier of the requester of the memory object.

USER TOKEN
The user token associated with a high virtual memory object. For shared memory objects, this is the user token for the most recent SHAREMEMOBJ request. A dash (-) indicates that no user token was specified.

SHR MEM
The number of interests the address space has in a memory object (SHAREMEMOBJ requests still active). A dash (-) indicates that no user token was specified.

RESERVED
Indicates the number of segments in hex that is reserved for optimization. A dash (-) indicates that this field is not applicable.

Totals for job cccccccc ASID hhhh (in decimal):
These totals are located at the end of each job name.

The total number, in decimal, is recorded for the virtual pages from each job name in the following page states: DASD, FREF, REAL, GUARD, SCM, SIAI, SOAI, RL_M, FRFM, SCMM, RL2G or SWAX. These states are described for the STAT field. Swap states apply to working set pages only.

RSMDATA HVCOMMON subcommand output
The RSM high virtual common report [Figure 34 on page 622] provides information about the common virtual storage that is allocated in the system above 2 GB. The report includes the owner, location, size, and status.

Note: Dumps taken on systems before z/OS V1R13 might not contain useful information.
Real Storage Manager

**COMMON ADDRESS RANGE**

The hexadecimal virtual address range for high common area on this system.

**START VSA**

The beginning (lowest) virtual storage address for a memory object.

**END VSA**

The last (highest) virtual storage address for a memory object.

**SIZE**

The size of the memory object in megabytes.

**ST**

The status of the job that created the common memory object:

- **AC** The job is still active.
- **OG** The owner is gone; the creating job was purged.

**T**

The type of owner of the memory object:

- **J** or **S** J is job and S is system.

**K**

An indication of which key is protecting the memory object.

**F**

An indication of how memory object is protected:

- **Y** The pages in the memory object are fetch-protected.
- **N** The pages in the memory object are not fetch-protected.

**L**

An indication of the type of pages that are used to back the memory object:

- **Y** Large pages back the memory object.
- **N** Large pages do not back the memory object.

**JOBNAME**

The name of job that created the memory object.

---

**Figure 34. Example: RSMDATA HVCOMMON subcommand output**

**COMMON ADDRESS RANGE**

The hexadecimal virtual address range for high common area on this system.

**START VSA**

The beginning (lowest) virtual storage address for a memory object.

**END VSA**

The last (highest) virtual storage address for a memory object.

**SIZE**

The size of the memory object in megabytes.

**ST**

The status of the job that created the common memory object:

- **AC** The job is still active.
- **OG** The owner is gone; the creating job was purged.

**T**

The type of owner of the memory object:

- **J** or **S** J is job and S is system.

**K**

An indication of which key is protecting the memory object.

**F**

An indication of how memory object is protected:

- **Y** The pages in the memory object are fetch-protected.
- **N** The pages in the memory object are not fetch-protected.

**L**

An indication of the type of pages that are used to back the memory object:

- **Y** Large pages back the memory object.
- **N** Large pages do not back the memory object.

**JOBNAME**

The name of job that created the memory object.
CREATE TIME
The date and time when the memory object was created.

REQUESTOR
The return address of the requester of the memory object.

RQAS
The requestor address space identifier (ASID) of the memory object.

UNOWNED TIME
The date and time the job that created the memory object ended.

DG  Diagnostic data that is useful to IBM

RSMDATA HVSHRDATA subcommand output

The RSM high virtual shared data report (Figure 35) provides information about memory objects that are shared by the system. The report will also contain information about segments or regions that are shared including the view from each address space or the global view depending on the changeaccess scope of the memory object. The report is sorted by memory object virtual addresses. The first line for each memory object contains information about the GETSHARE invoker, followed by a list of address spaces currently sharing that memory object. If the memory object is shared with a global scope, the view for the segments and regions will follow the list of address spaces. The numbers in the top section of the report are hexadecimal. The totals at the bottom of the report are decimal.

Figure 35. Example: RSMDATA HVSHRDATA subcommand output

SHARED ADDRESS RANGE
The range of virtual addresses to be used for shared memory objects.

S  An indication of the shared scope attribute:
  L  The memory object is shared with a local scope.
  G  The memory object is shared with a global scope.
Real Storage Manager

**START VSA**
The beginning (lowest) virtual storage address for a memory object, when the first line of a memory object, or the beginning of a range of segments with a particular view.

**END VSA**
The last (highest) virtual storage address for a memory object, when the first line of a memory object, or the end of a range of segments with a particular view.

**ST**
An indication as to whether sharing is being done at the segment level or region level:
- S  The memory object is being shared at the segment level.
- R  The memory object is being shared at the region level.

**K**
The storage protect key for the pages in the memory object.

**F**
An indication of how the memory object is protected:
- Y  The pages in the memory object are fetch-protected.
- N  The pages in the memory object are not fetch-protected.

**VT**
An indication of the view type of pages within the range:
- SW  Shared-write access.
- RO  Read-only access.
- HD  Data is hidden.

**JOBNAME**
Name of jobs that are sharing the memory object.

**ASID**
The identifier of the address spaces (ASIDs) sharing the memory object.

**CREATE TIME**
The time when the memory object was created using IARV64 GETSHARED.

**REQUESTOR**
The return address of the requester of the memory object (IARV64 GETSHARED) request.

**RQAS**
The address space identifier of the requester of the memory object.

**USER TOKEN**
The user token associated with the shared memory object (passed on the IARV64 GETSHARED request).

**DG**
Diagnostic data useful to IBM

**RSMDATA REALFRAME subcommand output**
The RSM real frame report [Figure 36 on page 625](#) provides information about real frames in central storage. The report displays information about each frame's status, location, and current, or most recent owner. For an RSMDATA REALFRAME subcommand, the report is sorted by the ASID of the current (or most recent) owner of the frame. For an RSMDATA REALFRAME ALL subcommand, the report is sorted by frame number. The numbers in the top section of the report are hexadecimal. The totals at the bottom of the report are
### RSM Real Storage Frame Report

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---

Figure 36. Example: A portion of the RSM DATA REALFRAME subcommand output (1 of 2)
The fields in the report are:

**R FRM**
The real frame number. To obtain the real address of the frame, add three zeros to the right of the frame number.

**STATUS**
The status of the real frame:

**ALLOC**
Allocated 4K frame.

**ALLOC2G**
Allocated 2G frame.

**AVAIL**
Available 4K frame.

**AVAIL2G**
Available 2G frame.

**OFFINT**
Offline intercepted. When freed from its current owner, the frame will be taken offline. This status overrides any pending interceptions for a V=R job.

**OFFINTPL**
Offline intercepted, but the frame is in use by a job that is polluting the V=R area with a long-term resident page.

**OFFINTVR**
Offline intercepted, but the frame is allocated to a V=R job.

**OFFLINE**
Offline.
POLLUTE
The frame is part of the V=R area, but is allocated to a long-term resident that is not a V=R page.

VRINT
V=R intercepted. When freed from its current owner, the frame will be assigned to a waiting V=R job.

ALLOC1M
Allocated 1M frame.

AVAIL1M
Available 1M frame.

JOBNAME
One of the following:
• The name of the current frame owner.
• The name of the most recent frame owner, when the STATUS is AVAIL or OFFLINE.

DATOFF
A permanently resident frame that contains a portion of the DAT-off nucleus.

FIXCOMM
A frame that backs a page from the system queue area (SQA) or the fixed common service area (CSA).

FLPA
A frame that backs a permanently resident common area page that contains a portion of the fixed link pack area.

HSA
A permanently resident frame that contains a portion of the hardware system area.

HVCOMN
A frame that backs a page from high virtual common.

HVSHARED
An indication that the data in the central storage frame is shared through the IARV64 macro.

PAGECOMM
A frame that backs a page from a pageable common area subpool (including common area disabled reference subpools), the pageable link pack area (PLPA), or the modified link pack area (MLPA).

PERMCOMM
A frame that backs a permanently resident common area page.

RONUC
A frame that backs a permanently resident common area page that contains a portion of the read-only nucleus.

RSBUFFER
A frame that is reserved for use as a central storage buffer for SVC dump processing.

RWNUC
A frame that backs a permanently resident common area page that contains a portion of the read-write nucleus.
SADMP
A frame that was claimed by stand-alone dump on an SADMP IPL
previous to the one that created this dump.

*SHARED*
An indication that the data in the central storage frame is shared
through the IARVSERV macro.

SQARESRV
A frame that is reserved for potential SQA usage.

ASID
The address space identifier (ASID) of the current frame owner or, if the
STATUS is AVAIL or OFFLINE, the most recent frame owner. A dash (–)
indicates that the frame is in the common area or the high virtual shared area.

DSP NAME
The name of the data space that contains the page. A dash (–) indicates that the
page is not within a data space.

PAGE ID
The virtual address of the current, or most recent, page residing in the real
frame. The page ID is the shared page token, if *SHARED* appears in the
JOBNAME column. (The shared page token appears in the Shared Data Report
in the SH TOKEN column.)

- A d after the entry indicates that the frame is backing a high virtual DAT
  structure (region table, segment table, page table). When the frame is
  backing a high virtual DAT structure, the PAGE ID contains the lowest VSA
  for which the table provides translation.

- An f after the entry indicates that the frame is backing a page that is
  freemained. See [z/OS MVS Initialization and Tuning Guide] for a description of
  this type of frame.

- A v after the entry indicates that the page is a virtual input/output (VIO)
  page and the entry contains a VIO token that represents the individual page
  within the VIO data set. A VIO page is not always marked with a v.

P An indication of the storage area for the frame. In general, this indicator is
relevant only when the RSU system parameter, which defines the number of
reconfigurable storage units, is non-zero.

Y The frame is in the preferred area

N The frame is in the non-preferred area

E An indication of an error, if any, that occurred on the frame:

N No errors occurred

C One or more correctable hardware errors occurred

U One or more uncorrectable hardware errors occurred

S A software error occurred

D An indication of the frame use:

Y The frame is intended for use in a double-frame pair. (Only for
  ESA/390 dumps)

N The frame is not intended for use in a double-frame pair nor intended
  for use in a quad-frame group for z/Architecture dumps.

Q The frame is intended for use as part of a quad-frame group for
  z/Architecture dumps.
The frame is intended for use as part of a double-frame pair for z/Architecture dumps.

The frame may not be currently in use as a double-frame pair or quad-frame group.

An indication of the page backed by the frame:
- The frame backs an enabled reference page
- The frame backs a disabled reference page

**PAGE I/O**

The name of the function that initiated the active I/O for the frame. A dash (-) indicates that I/O is not active for the frame.

- **ASPCREAT**
  - Address space create
- **CHGKEY**
  - Change key service (CHANGKEY macro)
- **COPYSERV**
  - COPYSERV function.
- **COPYSRVH**
  - High virtual copy service
- **COUNTS**
  - RSM event and resource count service
- **DFSTEAL**
  - Double frame steal
- **DIVACCUN**
  - DIV ACCESS and DIV UNACCESS services
- **DIVMAP**
  - Data-in-virtual MAP service
- **DIVMAPLV**
  - Data-in-virtual MAP service with LOCVIEW = MAP processor
- **DIVRES**
  - Data-in-virtual RESET service
- **DIVRESLV**
  - Data-in-virtual RESET service with LOCVIEW = MAP processor
- **DIVRTR**
  - Data-in-virtual router
- **DIVSAVE**
  - Data-in-virtual SAVE service
- **DIVSLIST**
  - DIV SAVE LIST
- **DIVUNMAP**
  - Data-in-virtual UNMAP service
- **DSPCONV**
  - Data space convert services
- **DSPCREAT**
  - Data space create
Real Storage Manager

DSPDELET
Data space delete

DSPDRFOF
Data space define DREF off

DSPDRFON
Data space define DREF on

DSPSRTRD
Data space services router (DSPSERV macro) for disabled callers

DSPEXTEN
Data space extend service

DSPIOOF
Data space define I/O off

DSPIOON
Data space define I/O on

DSPLIMIT
Data space limit services

DSPLOAD
Data space load

DSPOUT
Data space out

DSPREL
Data space release

DSPSRTR
Data space services router (DSPSERV macro)

DUMPSERV
Dump services

FLTADPAG
Address space disabled page fault

FLTAEPAG
Address space enabled page fault

FLTAESEG
Address space enabled segment fault

FLTAHPAG
Address space page faults for address above the 2 gigabytes bar

FLTAHSEG
Address space segment faults for addresses above the 2 gigabytes bar

FLTAREGN
Address space region faults

FLTATYPE
Address space type faults

FLTDDIS
Data space disabled fault

FLTDEN
Data space enabled fault
Real Storage Manager

**FLTEPROT**
Enabled protection fault

**FREEFRAM**
Free frame service

**GENDEFER**
General defer processor (handles requests waiting for frames to become available)

**GENIOCMP**
General I/O completion (handles paging I/O completion)

**GENTERM**
General abend (handles clean-up for RB, task, or address space abend)

**GLRUSTL**
Global LRU steal

**HSPCACHE**
Hiperspace cache services, that is, the HSPSERV macro with a CREAD or CWRITE parameter

**HSPSCROL**
Hiperspace scroll services, that is, the HSPSERV macro with an SREAD or SWRITE parameter

**MACHCHK**
Storage machine check handler

**MIGRAT**
Migration from expanded storage to auxiliary storage

**NIP**
RSM system initialization routines

**PER**
Program event recording support

**PGANY**
Page any

**PGFIX**
Page fix

**PGFREE**
Page free

**PGLOAD**
Page load

**PGOUT**
Page out

**PGPROT**
PGSER PROTECT service

**PGREL**
Page release

**PGSRTR**
Paging services router (PGSER macro)

**PGUNPROT**
PGSER UNPROTECT service

**QFSTEAL**
Quad frame steal
Real Storage Manager

REALSWAP
   In-real swap

RECONFIG
   Real storage reconfiguration processing

RECOVERY
   RSM recovery

RECREC
   Recovery for RSM recovery

REFINST
   REFPAT install

REFPAT
   REFPAT router

REFREM
   REFPAT remove

RPBPMGT
   RSM request buffer management

RSMPIN
   RSMPIN services

SRMEXIT
   SRM exit call

SSPASSIG
   Subspace assign

SSPCONV
   Subspace convert

SSPCREAT
   Subspace create

SSPDELETE
   Subspace delete

SSPIDENT
   Subspace identify

SSPSRTR
   Subspace router

SSPUNAS
   Subspace unassign

SSPUNID
   Subspace unidentify

SWAPIN
   Swap in

SWAPOUT
   Swap out

TRACE
   RSM component trace service

UIC
   Unreferenced interval count (UIC) update or steal

UMCPU
   Free CPU related frames
Real Storage Manager

V6CHACC
    IARV64 CHANGEACCESS service

V6CHGURD
    IARV64 CHANGEGUARD service

V6DETACH
    IARV64 DETACH service

V6DISCAR
    IARV64 DISCARDDATA service

V6GETSHR
    IARV64 GETSHARES service

V6GETSTR
    IARV64 GETSTOR service

V6LIST
    IARV64 LIST service

V6PAGFIX
    IARV64 PAGEFIX service

V6PAGIN
    IARV64 PAGEUNFIX service

V6PAGOUT
    IARV64 PAGEOUT service

V6PAGUNF
    IARV64 PAGEUNFIX service

V6ROUTR
    IARV64 service router

V6SHMOMB
    IARV64 SHARMEMOBJ service

VFETCH
    Virtual fetch services

VIO
    VIO services

VR
    V=R services

VSMFRMN
    FREEMAIN processing

VSMGTMN
    GETMAIN processing

VSCHGACC
    IARVSERV CHANGEACCESS service

VSROUTR
    IARVSERV router

VSSHARE
    IARVSERV SHARE service

VSUNSHARE
    IARVSERV UNSHARE service

WAITSER
    RSM wait services
**Real Storage Manager**

**XFINDPAGE**
Find page information service

**XMPOST**
RSM cross memory POST service

**UI**
The unreferenced interval count (UIC) for the page residing in the frame. The higher the UIC, the longer the page has been unreferenced.

**FIX**
The fix count for the page residing in the frame. An i at the end of the entry indicates that the page is implicitly fixed. Examples of implicitly fixed pages are permanently assigned pages and pages residing in fixed subpools.

**DG**
Diagnostic data useful to IBM.

**Totals for this real frame report (in decimal):**
These totals are located at the end of the report.

The total number, in decimal, is recorded for the real frames that are in the following states: ALLOC, ALLOCVR, ALLOCM, ALLOCG, AVAIL, AVAILM, AVAILG, FREEMAINED, OFFLINE, OFFINT, OFFINTVR, OFFINTPL, POLLUTE, or VRINT. These states are described in the STATUS field. A dash (–) indicates that real frames for that STATUS were not selected for the report.

**Note:** When frames that are allocated to shared segments (ALLOCSM) are included in the report, their total number will be included in the ALLOC total. The total number, in decimal, of frames evaluated in the report is recorded in the TOTAL field.

---

**RSMDATA RSMREQ subcommand output**

The RSM requests report ([Figure 38 on page 635](#)) provides information about the status of asynchronous requests. An asynchronous request is any request for which RSM has suspended the requesting work unit. In general, synchronous requests do not appear in this report. For each request, the report identifies the requester, identifies the RSM function fulfilling the request, lists the status of the request, and identifies the requested pages. The numbers for each active, cross memory, or residual request in the report are hexadecimal.

To determine the type and amount of asynchronous RSM activity in the system or for a particular job, look at the following:

- Active requests are listed at the beginning of the report. The requests are sorted by address space identifier (ASID) and the work unit of the requester.
- Next, the report repeats any active cross memory requests. These are requests for storage that is not in the requester’s private area nor in a data space owned by the requester. Cross memory requests are sorted by the ASID of the owner of the requested page.
- Following the cross memory requests, the report lists any residual requests. These are requests that are not currently active. Residual requests are sorted by the order of activity, with the most recently active first.
- At the end of each active, cross memory, or residual requests list, the report has totals, in decimal, of requested pages in each state (or STATUS).
### RSM REQUESTS REPORT

<table>
<thead>
<tr>
<th>JOBNAME</th>
<th>ASID</th>
<th>TCB/SRB</th>
<th>FUNCTION</th>
<th>STATUS</th>
<th>OWNG JOB</th>
<th>ONAS</th>
<th>DSP NAME</th>
<th>PAGE ID</th>
<th>COUNT</th>
<th>R</th>
<th>FRM</th>
<th>DG</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>MASTER</em></td>
<td>0001</td>
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<td>PAGECOMM</td>
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<td>00000001</td>
<td>00003614</td>
<td>0218153C</td>
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</tr>
<tr>
<td><em>MASTER</em></td>
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<td>t006E7B60</td>
<td>PGFIX</td>
<td>COMPLETE</td>
<td>PAGECOMM</td>
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<td>-</td>
<td>00000000_02618000</td>
<td>00000001</td>
<td>00003530</td>
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</tr>
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<tr>
<td><em>MASTER</em></td>
<td>0001</td>
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<tr>
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<td>PAGECOMM</td>
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<td>-</td>
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<td>00000001</td>
<td>0000508B</td>
<td>0218159C</td>
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<tr>
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<td>PGFIX</td>
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<td>-</td>
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<td>GRS</td>
<td>-</td>
<td>-</td>
<td>00000000_7FFC3000</td>
<td>00000001</td>
<td>0003E2C</td>
<td>7FCF7FC</td>
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</tr>
<tr>
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<td>0007</td>
<td>t006FFBF8</td>
<td>PGFIX</td>
<td>COMPLETE</td>
<td>GRS</td>
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<td>00000000_7FFC2000</td>
<td>00000001</td>
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</tr>
<tr>
<td>VTAM</td>
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<td>PGFIX</td>
<td>COMPLETE</td>
<td>VTAM</td>
<td>0018</td>
<td>-</td>
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<tr>
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<td>t006EC948</td>
<td>PGFIX</td>
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<td>-</td>
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</tr>
<tr>
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<td>VTAM</td>
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<td>00000002</td>
<td>00021B3</td>
<td>7FCF3FC</td>
<td></td>
</tr>
<tr>
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<td>001D</td>
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<td>FLTAEPAG</td>
<td>PGREAD</td>
<td>TBBOTH</td>
<td>001C</td>
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<td>00000001</td>
<td>00003F13</td>
<td>020DB8B0</td>
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</tr>
<tr>
<td>IBMUSER</td>
<td>001D</td>
<td>t006FF0D0</td>
<td>FLTAEPAG</td>
<td>PGREAD</td>
<td>TBBOTH</td>
<td>001C</td>
<td>-</td>
<td>00000000_0475B000</td>
<td>00000001</td>
<td>00003F13</td>
<td>020DB8B0</td>
<td></td>
</tr>
</tbody>
</table>

**Totals for active RSM requests in this report (in decimal):**

<table>
<thead>
<tr>
<th>PGREAD</th>
<th>PGWRITE</th>
<th>FRAMEAA</th>
<th>FRAMEAB</th>
<th>FRAMEPA</th>
<th>FRAMEPH</th>
<th>FRAMEAH</th>
<th>QUADFRAME</th>
<th>FRAMEPB</th>
<th>DBLFRAME</th>
<th>INPROGR</th>
<th>COMPLETE</th>
<th>CANCEL</th>
<th>IOFAIL</th>
<th>XMFAIL</th>
<th>FAIL</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Residual requests, sorted with most recently active first:**

<table>
<thead>
<tr>
<th>JOBNAME</th>
<th>ASID</th>
<th>TCB/SRB</th>
<th>FUNCTION</th>
<th>STATUS</th>
<th>OWNG JOB</th>
<th>ONAS</th>
<th>DSP NAME</th>
<th>PAGE ID</th>
<th>COUNT</th>
<th>R</th>
<th>FRM</th>
<th>DG</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBBOTH</td>
<td>001C</td>
<td>t006EC4C0</td>
<td>FLTAHPAG</td>
<td>PGREAD</td>
<td>TBBOTH</td>
<td>001C</td>
<td>-</td>
<td>00000001_01000000</td>
<td>00000001</td>
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</tr>
<tr>
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<td>FLTAHPAG</td>
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<td>TBBOTH</td>
<td>001C</td>
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<td>00000001</td>
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</tr>
<tr>
<td>IBMUSER</td>
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<td>PGFIX</td>
<td>COMPLETE</td>
<td>IBMUSER</td>
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<td>-</td>
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<td>00000003</td>
<td>0001754</td>
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<td>00000003</td>
<td>0001754</td>
<td>7FF8F06B</td>
<td></td>
</tr>
</tbody>
</table>

**Residual requests, sorted with most recently active first:**

<table>
<thead>
<tr>
<th>JOBNAME</th>
<th>ASID</th>
<th>TCB/SRB</th>
<th>FUNCTION</th>
<th>STATUS</th>
<th>OWNG JOB</th>
<th>ONAS</th>
<th>DSP NAME</th>
<th>PAGE ID</th>
<th>COUNT</th>
<th>R</th>
<th>FRM</th>
<th>DG</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBBOTH</td>
<td>001C</td>
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<td>PGREAD</td>
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<td>001C</td>
<td>-</td>
<td>00000001_01000000</td>
<td>00000001</td>
<td>00002719</td>
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<td>PGREAD</td>
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<tr>
<td>IBMUSER</td>
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<td>IBMUSER</td>
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<td>00000000_006C7000</td>
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<td>IBMUSER</td>
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<td>PGFIX</td>
<td>COMPLETE</td>
<td>IBMUSER</td>
<td>001D</td>
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<td>00000000_006C7000</td>
<td>00000003</td>
<td>0001754</td>
<td>7FF8F06B</td>
<td></td>
</tr>
</tbody>
</table>

**Totals for residual RSM requests in this report (in decimal):**

<table>
<thead>
<tr>
<th>PGREAD</th>
<th>PGWRITE</th>
<th>FRAMEAA</th>
<th>FRAMEAB</th>
<th>FRAMEPA</th>
<th>FRAMEPH</th>
<th>FRAMEAH</th>
<th>QUADFRAME</th>
<th>FRAMEPB</th>
<th>DBLFRAME</th>
<th>INPROGR</th>
<th>COMPLETE</th>
<th>CANCEL</th>
<th>IOFAIL</th>
<th>XMFAIL</th>
<th>FAIL</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
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<td>0</td>
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<td></td>
</tr>
</tbody>
</table>

---

**Figure 38. Example: RSM DATA RSMREQ subcommand output**

---

Chapter 21. Real Storage Manager (RSM) 635
**Real Storage Manager**

**JOBNAME**
The name of the task or the service request block (SRB) that initiated the request.

**ASID**
The address space identifier (ASID) of the task or the SRB that initiated the request.

**TCB/SRB**
The address of the TCB (prefix t) or SRB (prefix s) that initiated the request.

**FUNCTION**
The RSM function that initiated the request. See the PAGE I/O description for the list of functions.

**STATUS**
The current state of the request. Multiple entries can appear for some multiple page requests.

- **PGREAD**
  Waiting for a page to be read in from a data set.

- **PGWRITE**
  Waiting for a page to be written to a data set.

- **FRAMEAA**
  Waiting for any type of real frame below 2 gigabytes.

- **FRAMEAB**
  Waiting for a real frame that resides below 16 megabytes.

- **FRAMEPA**
  Waiting for a real frame that resides in the preferred area.

- **FRAMEPB**
  Waiting for a real frame that resides in the preferred area below 16 megabytes.

- **DBLFRAME**
  Waiting for a real frame pair.

- **INPROGR**
  Request in progress.

- **COMPLETE**
  Waiting for a PGSER FREE request. COMPLETE applies only to completed, non-fast path PGSER FIX requests.

- **CANCEL**
  The request was cancelled, probably because of an address space abend or data space deletion.

- **IOFAIL**
  The I/O initiated by the request failed.

- **XMFAIL**
  The request failed because of a cross memory access error.

- **FAIL**
  The request failed for an unknown reason.

- **FRAMEAH**
  Waiting for any type of real frame. (Only for z/Architecture dumps)
Waiting for any real frame that resides in the preferred area. (Only for z/Architecture dumps)

Waiting for a quad-frame group. (Only for z/Architecture dumps)

The name of the job that owns the requested pages or PAGECOMM for pageable common area pages (including common area disabled reference pages), the pageable link pack area (PLPA), or the modified link pack area (MLPA). If OWNG JOB does not match JOBNAME, the request is a cross memory request.

*SHARED* appears instead of the job name when the RSM request data is shared through the IARVSERV macro.

HVSHARED appears instead of the job name when the RSM request data is high virtual shared through the IARV64 macro.

HVCOMM appears instead of the job name when the RSM request data is high virtual common.

The ASID of the address space owning the requested pages. A dash (–) indicates that the requested pages are in the common area, are shared pages, or are high virtual shared pages.

The name of the data space that contains the requested pages. A dash (–) indicates that the requested pages do not reside in a data space.

The virtual starting address of the first or only requested page. A dash (–) indicates that the request is not related to a specific virtual address. The page ID is the shared page token if *SHARED* appears in the OWNG JOB column. (The shared page token appears the Shared Data Report in the SH TOKEN column.)

The number of requested pages that are still waiting for frames to become available or for I/O to complete. For a FIX request in which the STATUS is COMPLETE, COUNT is the number of times the requester fixed the requested page.

The real frame number associated with the request. A dash (–) appears if there is no specific frame related to the request.

Diagnostic data useful to IBM.

Totals for active RSM requests in this report (in decimal):

Totals for residual RSM requests in this report (in decimal):

These totals are located at the end of each active or residual requests list in the report. The total number, in decimal, is recorded for the RSM requests that are in the following states: CANCEL, COMPLETE, DLBFRA M, FAIL, FRAMEAA, FRAMEAB, FRAMEPA, FRAMEPB, INPROGR, IOFAIL, PGREAD, PGWRITE, or XMFAIL. These states are described for the STATUS field. A dash (–) indicates that requests for that STATUS were not selected for the report. The total number, in decimal, of requests evaluated in the report is recorded in the TOTAL field.
The RSMDATA SHRDATA subcommand provides an RSM shared data report. The report provides information about how virtual pages are shared through the use of the IARVSERV macro.

**SH TOKEN**

The token that represents the sharing page.

**K**

The storage protect key for the sharing page.

**GP**

Indicates how the page is protected. A summary for the sharing group.

- **UW** Unique write access
- **–** Not protected

**R**

Indicates the type of reference allowed.

- **E** An enabled reference is allowed.
- **D** A disabled reference is allowed.

**V**

Indicates whether the page is part of a data-in-virtual object.

- **Y** The page is part of a data-in-virtual object.
- **N** The page is not part of a data-in-virtual object.

**P**

Indicates whether the sharing page should be fixed in preferred storage.

- **Y** The sharing page should be fixed in a frame from the preferred area.
- **N** The sharing page does not need to be fixed in a frame from the preferred area.

**B**

Indicates whether the sharing page should be fixed in real storage below 16 megabytes.

- **Y** The sharing page should be fixed with a frame that resides below 16 megabytes.

---

**RSM SHARED DATA REPORT**

<table>
<thead>
<tr>
<th>SH TOKEN</th>
<th>K</th>
<th>R</th>
<th>V</th>
<th>P</th>
<th>STAT</th>
<th>GP</th>
<th>LOC</th>
<th>LOC2</th>
<th>PAGE</th>
<th>I/O</th>
<th>V</th>
<th>TOLFD</th>
<th>JOBNAME</th>
<th>DSP</th>
<th>NAME</th>
<th>PAGE</th>
<th>DG</th>
</tr>
</thead>
<tbody>
<tr>
<td>01ED54F8</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>ENNA REAL 0009C16E</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>RO</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>J2ARAUX 0022 J2ARCVR 14E63000 01ED32F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01ED5400</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>ENNA SCM 0009C15E 000392FCf</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>RO</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>J2ARAUX 0022 J2ARCVR 14E64000 01ED32F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01ED5407</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>ENNA SCM 0009C198 000392D1F</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>RO</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>J2ARAUX 0022 J2ARCVR 14E65000 01ED32F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01ED5520</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>ENNA SCM 0009C18B 00392B7F</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>RO</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>J2ARAUX 0022 J2ARCVR 14E66000 01ED32F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01ED55B0</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>ENNAS C M 0009C17E 000392E7f</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>RO</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>J2ARAUX 0022 J2ARCVR 14E67000 01ED32F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01ED5528</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>ENNAS C M 0009C176 000392F0f</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>RO</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>J2ARAUX 0022 J2ARCVR 14E68000 01ED32F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01ED55C0</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>ENNAS C M 0009C16C 000392F3f</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>RO</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>J2ARAUX 0022 J2ARCVR 14E69000 01ED32F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01ED5628</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>ENNAS C M 0009C15D 000392FDf</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>RO</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>J2ARAUX 0022 J2ARCVR 14E6A000 01ED32F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01ED5668</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>ENNAS C M 0009C1C0 000392A1f</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>RO</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>J2ARAUX 0022 J2ARCVR 14E6D000 01ED32F</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Totals (in decimal):

<table>
<thead>
<tr>
<th>REAL</th>
<th>DIV</th>
<th>DSN</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AUX</th>
<th>DASD</th>
<th>SCM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,407</td>
<td>0</td>
<td>1,407</td>
</tr>
</tbody>
</table>

FREF | DREF | TOTAL
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>1,441</td>
</tr>
</tbody>
</table>

**Figure 39. Example output from the RSM shared data report**

**SH TOKEN**

The token that represents the sharing page.
The sharing page can be fixed with any type of frame.

B The sharing page should be fixed with a frame that resides below 16 megabytes. (Only for z/Architecture dumps)

A The sharing page should be fixed with a frame that resides below 2 gigabytes. (Only for z/Architecture dumps)

**STAT**
Indicates the status of the page.

**DASD**
Page resides on a paging data set.

**DSN**
The sharing page resides on a data set containing the data-in-virtual object.

**FREF**
The page is in the first reference state. That is, the page was never referenced, or it was released through the use of the DSPSERV or PGSER macro.

**REAL**
The sharing page resides in a real frame. The page is either valid or it has output paging I/O in progress.

**SCM**
Page resides on storage-class memory (SCM).

**R LOC**
Indicates the current, or most recent, real frame number of the sharing page. To obtain the real address of the frame, add three zeros to the right of the frame number.

**LOC**
The current, or most recent, location of the sharing page. The character to the right of the location indicates the storage type.

* r Real storage.

* p Paging data set.

* f Storage-class memory (SCM).

* h Data set that contains a data-in-virtual object.

A question mark (?) indicates that the system cannot determine the storage type.

**LOC2**
Indicates the current, or most recent, secondary address of the sharing page. The character to the right of the location indicates the storage type. A question mark (?) indicates that the system cannot determine the storage type.

* r Real storage.

* p Paging data set. (The secondary address might be meaningless).

* h Data set that contains a data-in-virtual object.

**PAGE I/O**
The type of paging I/O (if any) that is current for the page. A dash (–) indicates that I/O is not active. See **PAGE I/O** output in the RSMDATA REALFRAME report.

**VT**
Indicates the type of view for this sharing page.

* RO Read-only access
Real Storage Manager

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW</td>
<td>Shared-write access</td>
</tr>
<tr>
<td>TW</td>
<td>Target-write access</td>
</tr>
<tr>
<td>UW</td>
<td>Unique-write access</td>
</tr>
<tr>
<td>?</td>
<td>Unknown type of view</td>
</tr>
<tr>
<td>Y</td>
<td>Indicates this sharing page is the source.</td>
</tr>
<tr>
<td>N</td>
<td>The page is the target.</td>
</tr>
<tr>
<td>Y</td>
<td>Indicates this sharing page is for a private area LSQA page.</td>
</tr>
<tr>
<td>N</td>
<td>The view is not part of LSQA.</td>
</tr>
<tr>
<td>F</td>
<td>Indicates whether this sharing page is fixed in real (Y) or not (N).</td>
</tr>
<tr>
<td>D</td>
<td>Indicates whether this sharing page is a disabled reference page (Y) or not (N).</td>
</tr>
<tr>
<td>JOBNAME</td>
<td>The job name of the sharing page owner or one of the following:</td>
</tr>
<tr>
<td>FIXCOMM</td>
<td>Fixed common area page.</td>
</tr>
<tr>
<td>PAGECOMM</td>
<td>Page in a pageable common area subpool (including disabled reference subpools), PLPA, or MLPA.</td>
</tr>
<tr>
<td>PERMCOMM</td>
<td>Permanently resident common area page.</td>
</tr>
<tr>
<td>ASID</td>
<td>The address space identifier (ASID) of the owner of the shared data page. For a data space, this ASID represents the address space that owns the data space.</td>
</tr>
<tr>
<td>DSP NAME</td>
<td>The name of the data space that contains the sharing page. A dash (–) indicates that the page is not within a data space.</td>
</tr>
<tr>
<td>PAGE</td>
<td>The virtual address, in hexadecimal, of the sharing page.</td>
</tr>
<tr>
<td>DG</td>
<td>IBM internal diagnostic information. No customer interpretation is intended.</td>
</tr>
</tbody>
</table>

**Note:** SQA can be further differentiated from LSQA by the JOBNAME and ASID values. The SQA page has a JOBNAME of PERMCOMM or FIXCOMM and its ASID would be “not applicable” (–). The LSQA has a JOBNAME of the address space name and its ASID is a valid value for an address space identifier.

**Totals (in decimal):**
These totals are located at the end of the report. The total number, in decimal, is recorded for each sharing group in the following page states: DASD, DSN, FREF, REAL and SCM. These states are described for the STAT field.

The DREF, DIV, and TOTAL fields are attribute totals and do not indicate page status:

AUX The total pages in auxiliary storage.
DREF The total disabled reference (DREF) pages for the job.
DIV  The total data-in-virtual pages for the job.

TOTAL  The total number of sharing groups that met the RSMDATA subcommand selection criteria.

**RSMDATA SUBSPACE subcommand output**

The RSMDATA SUBSPACE subcommand provides an RSM subspace report (Figure 40). The subspaces are sorted by ASID. The subspaces for an address space are listed by the lower limit of the subspace virtual storage address.

```
RSM SUBSPACE REPORT

JOBNAME  ASID  SSP NAME  OWNG TCB  STOKEN  DG  DG  DG  DG
--------  ----  --------  --------  ------------  -----  -----  -----  -----  ------
SERV0001  0041  SSP00001  009EEE80  90000A01  0000000B  7FFF1040  68FF0000  0128F000  7FFFF000
SERV0001  0041  SSP00002  009EEE80  90000B01  0000000C  7FFF10B0  68FF0800  0128F080  7FFFF000
SERV0001  0041  SSP00003  009EEE80  90000C01  0000000D  7FFF10C0  68FF1000  0128F100  00000000

Number of subspaces: nn,nnn
```

*Figure 40. Example: RSMDATA SUBSPACE subcommand output*

**JOBNAME**  The name of the job.

**ASID**  Address space identifier.

**SSP NAME**  Subspace name.

**OWNG TCB**  Owning task’s TCB address.

**STOKEN**  Subspace token. This token is the value returned by the IARSUBSP CREATE service when the subspace was created.

**START**  Lower limit address of the subspace range.

**END**  Upper limit address of the subspace range.

**STATUS**  Status of the range of address space storage. Status is one of the following:
Real Storage Manager

GLOBAL
The storage can be referenced by all subspaces within this address space.

ASSIGN
The storage is assigned to the subspace indicated by SSP NAME

UNASSIGN
The storage is not assigned to any subspace.

DG IBM internal diagnostic information. This section of the report contains data that is useful to IBM.

Number of subspaces: nn,nnn
Number of subspaces in the report.

RSMDATA SUMMARY subcommand output
The RSM summary report provides information on central storage usage on a system-wide basis. The report also displays information about any unusual RSM conditions. Because some report sections appear only when certain conditions exist, all the sections that are described might not appear in your report.
The top section of the report displays the usage statistics, in decimal, for the following types of frames:

**Tot real**
The total number of real frames

**Prf real**
Preferred real frames

**Below**
Real storage frames below 16 MB

**Prf B**
Preferred real frames below 16 MB
Real Storage Manager

Above  Real storage frames above 16 MB, but below 2 GB
Prf A  Preferred real frames above 16 MB, but below 2 GB
Db1 real  Double frame pairs
Qd Real  Quad frame groups

V=R Region:  
If there is a V=R region, the second section of the report lists the number, in hexadecimal, of the first and last real frames in the V=R region. It also lists the total number of frames in the V=R region, in decimal. If there is no V=R region, a message appears.

Total disabled reference (DREF) pages in real:  
The next section of the report displays the total number, in decimal, of disabled reference (DREF) pages in central storage.

Number of shared data pages:  
The next section of the report displays the total number, in decimal, of shared pages in real (fixed or pageable) and auxiliary (DASD and SCM) storage.

Number of 64-bit common memory pages:  
The next section of the report displays the total number, in decimal, of high virtual common pages backed in real, fixed, DREF and auxiliary storage (DASD and SCM).

Number of fixed 1 MB-pages:  
The next section of the report displays the total number, in decimal, of fixed 1 MB-pages in real storage.

Number of pageable 1 MB-pages:  
The next section of the report displays the total number, in decimal of 1 MB-pages in real storage (fixed or pageable).

Number of fixed 2 GB-pages:  
The next section of the report displays the total number, in decimal, of 2 GB-pages in real storage.

Number of 64-bit common memory pages:  
The next section of the report displays the total number, in decimal, of high virtual common pages backed in real, fixed, DREF and auxiliary storage (DASD and SCM).

Some RSM requests are suspended waiting for unavailable real frames:  
If any RSM requests are suspended because they are waiting for frames, the number of requests waiting for each type of frame appears, in decimal.

IARnnnnnns messages  
Messages appear for any unusual conditions. See z/OS MVS Dump Output Messages for message explanations.

IBM internal diagnostic information:  
The last section of the report contains diagnostic data useful to IBM.

RSMDATA VIRTPAGE subcommand output

The RSM virtual page report provides information about virtual pages in the system, including page owner, location, and status. If you specify RSMDATA VIRTPAGE DATASPACES, the report includes information about data spaces.
The total number of pages in each page state is displayed for each job name at the end of the report. The report is sorted by the ASID of the job name and, within each ASID, by virtual page address.

The numbers in the top section of the report are hexadecimal. The totals at the bottom of the report are decimal.

**RSM VIRTUAL PAGE REPORT**

<table>
<thead>
<tr>
<th>JOBNAME</th>
<th>DSP NAME</th>
<th>PAGE</th>
<th>REFD</th>
<th>REFM</th>
<th>HIDE</th>
<th>RL_M</th>
<th>DIV</th>
<th>VIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRACE</td>
<td>00000000</td>
<td>Y O N E N N N R E A L V 00000000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>00001</td>
<td>7FF00000 00000000 00000000 00</td>
</tr>
<tr>
<td>TRACE</td>
<td>00001000</td>
<td>Y O N E N N N R E A L V 00000000</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7FF00008 00000000 00000000 00</td>
</tr>
<tr>
<td>TRACE</td>
<td>00002000</td>
<td>N   -   -   -   -   -   -   -</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7FF00010 00000000 00000000 00</td>
</tr>
<tr>
<td>TRACE</td>
<td>00003000</td>
<td>through 00005000 identical to 00002000 (00000003 pages)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>TRACE</td>
<td>00006000</td>
<td>Y O N E N N N S C M P 000A0D02 0003C04F 57</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7FF00030 00000000 00000000 00</td>
</tr>
<tr>
<td>TRACE</td>
<td>00007000</td>
<td>N   -   -   -   -   -   -   -</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7FF00038 00000000 00000000 00</td>
</tr>
<tr>
<td>TRACE</td>
<td>00008000</td>
<td>through 0000F000 identical to 00007000 (000000F8 pages)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>TRACE</td>
<td>00100000</td>
<td>N   -   -   -   -   -   -   -</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7FF11000 00000000 00000000 00</td>
</tr>
<tr>
<td>TRACE</td>
<td>00101000</td>
<td>through 003FF000 identical to 00100000 (000002FF pages)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>TRACE</td>
<td>00400000</td>
<td>N   -   -   -   -   -   -   -</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7FF117D8 00000000 00000000 00</td>
</tr>
<tr>
<td>TRACE</td>
<td>00401000</td>
<td>through 004FA000 identical to 00400000 (000000FA pages)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>TRACE</td>
<td>00402000</td>
<td>Y O N E N N N S C M P 000A0D03 0003C04F 57</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7FF117E0 00000000 00000000 00</td>
</tr>
<tr>
<td>TRACE</td>
<td>00403000</td>
<td>N   -   -   -   -   -   -   -</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7FF117E8 00000000 00000000 00</td>
</tr>
<tr>
<td>TRACE</td>
<td>00404000</td>
<td>N   -   -   -   -   -   -   -</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7FF117F0 00000000 00000000 00</td>
</tr>
<tr>
<td>TRACE</td>
<td>00405000</td>
<td>through 004FA000 identical to 00404000 (000000FA pages)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>TRACE</td>
<td>00406000</td>
<td>N   -   -   -   -   -   -   -</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7FF117F8 00000000 00000000 00</td>
</tr>
<tr>
<td>TRACE</td>
<td>00407000</td>
<td>through 004FB000 identical to 00406000 (000000FA pages)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>TRACE</td>
<td>00408000</td>
<td>N   -   -   -   -   -   -   -</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7FF11800 00000000 00000000 00</td>
</tr>
<tr>
<td>TRACE</td>
<td>00409000</td>
<td>through 004FB000 identical to 00408000 (000000FA pages)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>TRACE</td>
<td>0040A000</td>
<td>N   -   -   -   -   -   -   -</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7FF11808 00000000 00000000 00</td>
</tr>
<tr>
<td>TRACE</td>
<td>0040B000</td>
<td>through 004FB000 identical to 0040A000 (000000FA pages)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>TRACE</td>
<td>0040C000</td>
<td>N   -   -   -   -   -   -   -</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7FF11816 00000000 00000000 00</td>
</tr>
<tr>
<td>TRACE</td>
<td>0040D000</td>
<td>through 004FB000 identical to 0040C000 (000000FA pages)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>TRACE</td>
<td>0040E000</td>
<td>N   -   -   -   -   -   -   -</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7FF11824 00000000 00000000 00</td>
</tr>
<tr>
<td>TRACE</td>
<td>0040F000</td>
<td>through 004FB000 identical to 0040E000 (000000FA pages)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**Totals (in decimal 4K units) for job TRACE ASID 0004:**

<table>
<thead>
<tr>
<th>REAL</th>
<th>RL_M</th>
<th>DIV</th>
<th>VIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>67</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DSN</th>
<th>Pref</th>
<th>FRM</th>
<th>HIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>200</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AUX</th>
<th>DASD</th>
<th>SCM</th>
<th>SCMM</th>
</tr>
</thead>
<tbody>
<tr>
<td>46</td>
<td>1</td>
<td>45</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOAI</th>
<th>SIAI</th>
<th>SWAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DREF</th>
<th>SMEG</th>
</tr>
</thead>
<tbody>
<tr>
<td>67</td>
<td>0</td>
</tr>
</tbody>
</table>

**JOBNAME**

The job name of the page owner or one of the following:

**COMMON**

Non-permanently resident common area page (either PAGECOMM or FIXCOMM)
Real Storage Manager

FIXCOMM
Page in the system queue area (SQA) or the fixed common service area (CSA)

FLPA Page in the fixed link pack area

PAGECOMM
Page in a pageable common area subpool (including common area disabled reference subpools), the pageable link pack area (PLPA), or the modified link pack area (MLPA)

PERMCOMM
Permanently resident common area page

RONUC Page in the read-only nucleus

RWNUC Page in the read-write nucleus

DSP NAME
The name of the data space that contains the page. A dash (–) indicates that the page is not within a data space.

PAGE
The virtual address for the page.

G An indication of the page assignment:
Y The page is GETMAIN-assigned
N The page is not GETMAIN-assigned

K The storage protect key for the page.

F An indication of page protection:
Y The page is fetch-protected
N The page is not fetch-protected

R An indication of the type of reference allowed:
E An enabled reference is allowed
D A disabled reference is allowed

P An indication of how the page is protected:
Y The page is page-protected
N The page is not page-protected

D An indication of whether the page is part of a data-in-virtual object:
Y The page is part of a data-in-virtual object
N The page is not part of a data-in-virtual object

B An indication of whether the page is part of a reference pattern block:
Y The page is part of a reference pattern block
N The page is not part of a reference pattern block

L An indication of whether the page is locked:
Y The page locked
N The page is not locked
The status of the page. Swap states apply only to working set pages.

**DASD**  
Page resides on a paging data set.

**DSN**  
Page resides on a data set containing the data-in-virtual object.

**FREF**  
First reference state. The page was never referenced, or it was released by the DSPSERV or PGSER macro.

**FRFM**  
First reference state. The 1M page was never referenced or it was released by the DSPSERV or PGSER macro.

**HIDE**  
Page is hidden.

**REAL**  
Page resides in real storage. It is either valid or has output paging I/O in progress.

**RL_M**  
1M page resides in real storage. It is either valid or has output paging I/O in progress.

**SCM**  
Page resides in storage-class memory (SCM).

**SCMM**  
1M page resides in storage-class memory (SCM).

**SIAI**  
Swap-in from auxiliary storage in progress.

**SOAI**  
Swap-out to auxiliary storage in progress.

**SWAX**  
Page was swapped to auxiliary storage.

**VIO**  
Page resides on a VIO data set.

**T**  
DAT translation status:

**V**  
Page is valid.

**P**  
Page is not valid.

**S**  
Page resides in an invalid segment.

**A**  
Page resides in an invalid space.

**U**  
Page is unavailable due to a hardware or software error or is in a transitional state.

**R LOC**  
The current, or most recent, real frame number of the page. To obtain the real address of the frame, add three zeros to the right of the frame number.

**LOC**  
The current, or most recent, location of the page. The character to the right of the location indicates the storage type.

**r**  
Real storage

**p**  
Paging data set

**f**  
Storage-class memory (SCM)

**v**  
First half of a VIO logical page ID. (Second half appears in the LOC2 column.)

**h**  
Data set that contains a data-in-virtual object

A question mark (?) indicates that the storage type cannot be determined.
Real Storage Manager

LOC2
The current, or most recent, secondary address of the page. The character to the right of the location indicates the storage type.

r Real storage.
p Paging data set (This field may contain meaningless residual information)
f Storage-class memory (SCM)
t Shared page token
v Second half of a VIO logical page ID. (First half appears in the LOC column.) An asterisk (*) indicates that the VIO logical page ID could not fit in this column.

A question mark (?) indicates that the storage type cannot be determined.

PAGE I/O
The type of paging I/O (if any) current for the page. A dash (–) indicates that I/O is not active. See PAGE I/O description for the list of functions.

FIX
The fix count for the page. An i at the end of the entry indicates that the page is implicitly fixed. Examples of implicitly fixed pages are permanently assigned pages and pages residing in fixed subpools.

DG Diagnostic data useful to IBM.

Totals (in decimal) for job cccccc ASID hhhh:
These totals are found at the end of each job name.

The total number, in decimal, is recorded for the virtual pages from each job name in the following page states: DASD, DSN, FREF, FRFM, REAL, RL_M, SCM, SCMM, SIAI, SIEI, SMEG, SOAI, SOEI, SWAX, SWEX, SWMG, or VIO. These states are described for the STAT field. Swap states apply to working set pages only. The DREF and DIV fields are attribute totals and do not indicate page status.
Chapter 22. Recovery Termination Manager (RTM)

The recovery termination manager (RTM) provides RTM diagnostic data in dumps and in the logrec data set. This topic contains the following information for RTM:

- “Dumping RTM Data.”
- “Formatting RTM Dump Data.”
- “VRA Data for RTM-Related Problems” on page 650.
- “Logrec Data for RTM2 Recursive Errors” on page 650.
- “Logrec and Dump Data for a Problem During SLIP Processing” on page 651.
- “FRR Stacks” on page 652.
- “Extended Error Descriptor (EED)” on page 654.
- “RTM2 work area (RTM2WA)” on page 655.

### Dumping RTM Data

To dump RTM control blocks in a SNAP dump, issue the SNAP macro with SDATA=ERR or SDATA=SUM. See z/OS MVS Programming: Assembler Services Reference ABE-HSP for information on the SNAP macro.

### Formatting RTM Dump Data

To format RTM control blocks in an SVC dump or a stand-alone dump, enter the IPCS SUMMARY FORMAT subcommand. The control blocks are all TCB-related, and are formatted only when they are associated with the TCB. The formatted control blocks are:

- FRRS (functional recovery routine stack) - points to the RT1W and is formatted with the current TCB if the local lock is held.
- IHSA (interrupt handler save area) - has the normal FRR stack saved within it and is formatted with the TCB pointed to by the IHSA, if the address space was interrupted or suspended while the TCB was holding the local lock.
- RTM2WA (RTM2 work area) - formatted if the TCB pointer to it is not zero.
- ESA (extended save area of the SVRB) bit summary - formatted only if the RTM2WA formatted successfully and the related SVRB could be located.
- SDWA (system diagnostic work area) - formats the registers at the time of error only if the ESA formatted successfully and the SDWA could be located.
- EED (extended error descriptor block) - formatted if the TCB or RT1W pointer to it is not zero.
- SCB (STAE control block) - formatted for abend tasks only. It is formatted under SNAP/ABEND whenever the TCB pointer to it is not zero.
- XSB (extended status block) - formatted if the XSB pointer in the IHSA is not zero.
- STKE (stack element) - formatted if the STKE pointer in the XSB is not zero.

See z/OS MVS IPCS Commands for examples of the SUMMARY FORMAT subcommand output.
VRA Data for RTM-Related Problems

RTM supplies problem data in the variable recording area (VRA) in the system diagnostic work area (SDWA) as follows:

**ARR POSSIBLY SKIPPED. PC NUMBER/ASID INVALID**
An ARR is skipped due to a Program Call (PC) instruction that is not valid. In this case, the VRA also contains the name of logical store element (LSE) mapping followed by LSE state data not found in the SDWA.

**ARR SKIPPED DUE TO INVALID ENVIRONMENT**
An associated recovery routine (ARR) is skipped due to an environment that is not valid. In this case, the VRA also contains the following:
- Name of logical store element (LSE) mapping followed by LSE state data not found in the SDWA
- Name of entry table entry (ETE) mapping followed by the contents of the ETE

**ERROR IN DYNAMIC RESOURCE MANAGER - NO RETRY**
Retry was not allowed.

**REQUEST MADE TO MEMTERM ASCBNOTMT=1 ADDRESS SPACE. ASCB ADDR,ASID,R14 FOLLOWS.**
Abnormal end (MEMTERM) was requested for an address space that cannot be ended. The VRA also contains the following:
- RTM component identifier
- Address of the address space control block (ASCB)
- Address space identifier (ASID)
- Register 14 of the requestor

SDWASC contains the CSECT name of the caller, if RTM could determine the caller's name.

Logrec Data for RTM2 Recursive Errors

RTM2 writes a symptom record to the logrec data set for most instances of recursion in RTM2. The record includes:
- Component identifier
- Release level
- Name of the failing CSECT
- Name of the failing load module
- Name of this CSECT
- Offset into the failing CSECT
- System abend code
- Reason code
- The displacement and the register (program status word (PSW) - register)
- RTM recursion flags
- Registers at time of error
- Program status word (PSW) at time of error
- Exit handler flags
- Recursion indicators
- CSECT names and offsets associated with RTM2's recursion handler addresses
Logrec and Dump Data for a Problem During SLIP Processing

SLIP writes the following diagnostic information in the logrec data set and in the dump:

- The ESTAE parameter list, mapped by IEEZB906
- The SLIP header (SHDR) data area

SLIP recovery requests a summary dump, which usually contains:

- The functional recovery routine (FRR) parameter list, mapped by IHASLFP. Bits in the AUDITWRD portion of the FRR parameter list indicate what portion of SLIP encountered the problem.

Note: The logrec data set error record also contains the FRR parameter list. The system also writes more information about the error in the logrec data set.

- The SHDR data area.
- The SLIP control element (SCE)/SCE variable area (SCVA) data areas being processed at the time of the problem.
- The SLIP parameter list, mapped by IHASLPL.
- The SLIP work areas.
- The SLIP register save area.
- The SCE/SCVA data areas representing the enabled non-IGNORE PER trap, if they exist.

PER Activation/Deactivation Recovery

In general, if a problem is encountered at any point in the program event recording (PER) activation/deactivation process, the modules listed in Table 53 try to deactivate PER completely and record diagnostic information.

Table 53. Summary: Modules that try deactivate PER and record diagnostic information

<table>
<thead>
<tr>
<th>Module Name</th>
<th>Diagnostic Information Recorded</th>
</tr>
</thead>
</table>
| IEAVTGLB    | The system writes a logrec data set error record. The system writes a summary dump, which contains the following:  
  - The FRR parameter list, mapped by FRRWA in module IEAVTGLB.  
    Note: The logrec data set also contains the FRR parameter list.  
  - The communication vector table (CVT) data area.  
  - The SHDR data area.  
  - The SCE/SCVA data areas for the non-IGNORE PER trap.  
  - The model prefixed storage area (PSA) data area.  
  - The physical configuration communication area vector table (PCCAVT) data area.  
  - The ASCB being processed by IEAVTGLB.  
  - The name of the job running in the address space being processed by IEAVTGLB.  
  - The physical configuration communication area (PCCA) data area.  
  - The PER control registers: 9, 10, and 11.  
  The system issues message IEA414I and requests percolation if IEAVTGLB encounters a recursive problem. |
### Recovery Termination Manager

**Table 53. Summary: Modules that try deactivate PER and record diagnostic information (continued)**

<table>
<thead>
<tr>
<th>Module Name</th>
<th>Diagnostic Information Recorded</th>
</tr>
</thead>
</table>
| **IEAVTJBN** | The system:  
  - Writes a logrec data set error record.  
  - Writes a dump.  
  - Issues message IEA422I to indicate that the status of PER in the system is uncertain. |
| **IEAVTLCL** | The system writes a logrec data set error record. The system writes a summary dump, which contains all, or some, of the following:  
  - The FRR parameter list, mapped by FRRPARMS in module IEAVTLCL.  
  - The CVT data area.  
  - The SHDR data area.  
  - The SCE/SCVA data areas for the non-IGNORE PER trap.  
  - The ASCB for the address space in which IEAVTLCL was running when the error occurred.  
  - The name of the job in the address space. |
| **IEAVTPVT** | The system writes a logrec data set error record. The system writes a summary dump, which contains all, or some of the following:  
  - The FRR parameter list mapped by structure WORK24.  
  - The CVT data area.  
  - The SHDR data area.  
  - The SCE/SCVA data areas.  
  - The PCCA data area.  
  - The PER control registers: 9, 10, and 11.  
  The system issues message IEE414I and requests percolation. |

### FRR Stacks

The FRR (functional recovery routines) stacks are often useful for understanding the latest processes on the processors. They are mapped by the FRRS control block and consist of a header and 16 20 byte FRR entries which are added and deleted dynamically as processing occurs. There is always one set of FRR stacks per processor.

Look for the pointer to the current FRR stack at PSA +X'380' (PSACSTK). This will tell you where to find the FRR that was current at the time an error occurred.

The current FRR stack will often also be the normal FRR stack, which is pointed to by PSA +X'C00' (PSASTAK). This type of FRR is used by programs running in SRB or task mode and is usually the most useful type of stack for diagnosis. You should only, however, rely on the current recovery stack entry. Do not use FRR stacks to get information about the exact flow of processing. For example, in the following scenario:

- Module A gains control and establishes recovery  
- Module A passes control to module B  
- Module B establishes recovery, performs its function, deletes recovery  
- Module C establishes recovery and subsequently encounters an error.

The FRR stack will contain entries for module A’s and C’s recovery routines. But there is no indication from the FRR stack that B was ever involved in the process although it might have contributed to or even caused the error. You can gain
Recovery Termination Manager

insight into the process but will not see the exact flow. See Table 54 for useful fields in an FRR stack header and Table 55 on page 654 for useful fields in the FRR entries.

See z/OS MVS Data Areas in http://www.ibm.com/systems/z/os/zos/bkserv/ for a description of the FRRs and PSA.

FRR Stack Header

Table 54 shows useful fields in the FRR stack header.

Table 54. Useful fields in an FRR Stack Header

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Offset into FRR Stack</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRRSEMP</td>
<td>+X'0'</td>
<td>Address indicating an empty stack</td>
</tr>
<tr>
<td>FRRSLAST</td>
<td>+X'04'</td>
<td>Address of the last entry in the stack</td>
</tr>
<tr>
<td>FRRSELEN</td>
<td>+X'08'</td>
<td>Length of each FRR entry in the stack. This field contains a constant value of X'00000020'</td>
</tr>
<tr>
<td>FRRSCURR</td>
<td>+X'0C'</td>
<td>Address of current FRR entry. If this entry is equal to FRRSEMP at offset X'0' then the FRR stack is empty.</td>
</tr>
<tr>
<td>FRRSRTMW</td>
<td>+X'28'</td>
<td>Indicates whether RTM1 is active on the processor associated with this FRR. A non-zero value indicates that this FRR stack contains valid, current data. The error type is found at offset +2 into this field:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• X'01' - program check</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• X'02' - restart key</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• X'03' - SVC error. An SVC was issued while in locked, disabled, or SRB mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• X'04' - DAT error</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• X'05' - machine check</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• X'06' - STERM reentry</td>
</tr>
<tr>
<td>FRRSRTMA</td>
<td>+X'38'</td>
<td>Pointer to the RT1WA control block. Useful fields in the RT1WA control block include:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• RT1WRTCA (RT1WA +X'2C') - Pointer to the SDWA control block currently in use.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• RT1WEED (RT1WA +X'30') - Pointer to the EED control blocks acquired.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• RT1WMODE (RT1WA +X'34') - Contains the mode at the time of entry to RTM1. The mode is one of the following:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– X'80' - supervisor control mode (PSASUPER≠0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– X'40' - physically disabled mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– X'20' - global spin lock held</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– X'10' - global suspend lock held</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– X'08' - local lock held</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– X'04' - Type 1 SVC mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– X'02' - SRB mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td>– X'01' - unlocked task mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• RT1WSRMD (RT1WA +X'35') - Contains the current system mode.</td>
</tr>
<tr>
<td>FRRSENTS</td>
<td>+X'58'</td>
<td>Beginning for FRR stack entries.</td>
</tr>
</tbody>
</table>
Recovery Termination Manager

**FRR Entries**

Table 55 shows useful fields in the FRR stack entries.

**Table 55. Useful fields in an FRR Stack Entry**

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Offset into FRR Entry</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRRSFRRA</td>
<td>+X'0'</td>
<td>Address of the FRR recovery routine that will gain control if an error occurs.</td>
</tr>
<tr>
<td>FRRSFLGS</td>
<td>X'4'</td>
<td>Contains flags used for RTM processing as follows:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• X'80' - This FRR is currently in control.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• X'40' - Indicates that the FRR entry represents a nested FRR.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• X'08' - This FRR is not allowed to retry.</td>
</tr>
<tr>
<td>FRRSPARM</td>
<td>X'08'</td>
<td>A 24 byte FRR parameter area used to pass information from the mainline function associated with this FRR to recovery.</td>
</tr>
</tbody>
</table>

**Extended Error Descriptor (EED)**

The extended error descriptor (EED) passes error information between RTM1 and RTM2 and also between successive schedules of RTM1. The EED is described in [z/OS MVS Data Areas in http://www.ibm.com/systems/z/os/zos/bkserv/](http://www.ibm.com/systems/z/os/zos/bkserv/) It is pointed to by:

- RT1WEED (RT1W +X'3C')
- TCBRTM12 (TCB+X'104')
- RTM2 SVRB +X'7C' The EED pointed to by RTM's SVRB is not always valid, because RTM2 releases it early in its processing.

Important EED fields are:

**EEDFWRDP (EED+0)**

Either the pointer to the next EED on the chain, or zero

**EEDID (EED+4)**

Description of contents of the rest of the EED:

**BYTE 0**

- 1 - register and PSW information EED
- 2 - dump parameters EED
- 3 - machine check handler EED
- 4 - reserved
- 5 - dump storage range EED
- 6 - subpool list EED
- 7 - original error data EED (includes errorid)

**For a software EED**

**EEDREGS (EED+X'1C')**

Registers 0-15 at the time of the error

**EEDPSW (EED+X'4C')**

PSW/instruction length code (ILC)/translation exception address (TEA) at the time of the error
**EEDXM (EED+X'5C')**
Control registers 3 and 4 at the time of the error.

**RTM2 work area (RTM2WA)**

The system creates one RTM2 work area (RTM2WA) for each error which occurs. They are formatted from oldest to newest created. RTM2 uses the RTM2WA to control abend processing. Registers, PSW, abend code, etc. at the time of the error are recorded in the RTM2WA. This area is often useful for debugging and is pointed to by:
- TCBRTWA (TCB +X'EO')
- RTM2 SVRB +X'80'

The RTM2WA is described in z/OS MVS Data Areas in [http://www.ibm.com/systems/z/os/zos/bkserv/](http://www.ibm.com/systems/z/os/zos/bkserv/) This work area can be found through TCB+X'EO' (TCBRTWA), or RTM2 SVRB+X'80'.

The RTM2WA can be formatted using the IPCS SUMMARY FORMAT ERROR subcommand.
Chapter 23. System Resources Manager (SRM)

This topic contains the following diagnosis information for the system resources manager (SRM):

- “Formatting SRM dump data.”
- “VRA data for SRM related problems” on page 666.

Formatting SRM dump data

Format an SVC, stand-alone, or SYSMDUMP dump with the VERBEXIT SRMDATA subcommand to produce diagnostic reports about SRM. 

z/OS MVS IPCS Commands gives the syntax of the VERBEXIT SRMDATA subcommand and 
z/OS MVS IPCS User’s Guide explains how to use the SRMDATA option of the IPCS dialog.

VERBEXIT SRMDATA subcommand output

The report is divided into the following sections; each section shows an example a VERBEXIT SRMDATA report.

- A header
- System indicators
- Service class
- Resource group
- OUCB wait queue
- OUCB logically swapped wait queue
- OUCB out queue
- OUCB in queue
- Enclaves

Header

Figure 41 is an example of a VERBEXIT SRMDATA header report.

```
*** FORMATTED SRM DATA ***

PARMLIB MEMBERS IN EFFECT
IPS=N/A       WMST 021E508
OPT=IEAOPTBT  RMCT 015E540

ACTIVE POLICY INFORMATION

NAME   TIMESTAMP (LOCAL FORMAT)   ACTIVATING USERID
SERVICE POLICY: VICOM1  11/13/1996 15:45:22 *BYPASS*
SERVICE DEFINITION: COEFFS  06/07/1996 15:28:52 IBMUSER

Figure 41. Example: VERBEXIT SRMDATA Header report
```

Header Key:

IPS=cccccccc

Name of IEAIPSxx parmlib member.
System Resources Manager

OPT=cccccccc
Name of IEAOPTxx parmlib member.

See z/OS MVS Initialization and Tuning Reference for information about the IEAOPTxx parmlib member.

WMST hhhhhhhh
Address of the SRM workload manager specifications table.

RMCT hhhhhhhh
Address of the SRM parameter table.

System indicators
Figure 42 is an example of VERBEXIT SRMDATA system indicators.

*** SYSTEM INDICATORS ***

RMCT 015BE540
+7C (TOD) 0104796C - TIMESTAMP OF LAST SRM INVOCATION (MILLISECOND UNITS)
+94 (MFA) WORKLOAD REPORTING ACTIVE
+94 (WLM) SYSTEM IS OPERATING IN GOAL MODE

Figure 42. Example: VERBEXIT SRMDATA System indicators report

Service class
Figure 43 is an example of a service class report for a velocity goal.

*** SERVICE CLASSES ***

SERVICE CLASS = BESTEVER
PERIOD = 01
SCLTOKEN = 021BE924
PERTOKEN = 021BE96C

VELOCITY GOAL
VEL_GOAL. 0000003C DURATION. 00000000 IMP_LVL.. 0002
LOCAL_PI. 00001770 PLEX_PI.. 00001770 SI_TAR... 00000000 SWAP_PT.. 00000000 BASE_DP.. 00F5
SLICE_DP. 00F5 #_SLICES. 0000

EXPANDED STORAGE ACCESS POLICY INFORMATION
PROT_CNT. 0000 LRU_CNT.. 0000 SP_AVAL.. 0000 VIO_LRU.. 0000 VIO_SPA.. 0000
HSP_LRU.. 0000 HSP_SPA.. 0000

DELAY AND STATE SAMPLES INFORMATION
GENERAL.. 00000000 00000000 00000001 00000003 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000

XMEM..... 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000

MPL RELATED INFORMATION
CMPL..... 0000 MPLI..... 0000 MPL_60..... 0000 INCU..... 0000 NSW..... 0000
OUTU..... 0000 RUA..... 00000000 ASCT..... 00000000 ASAV..... 00000100 LRUA..... 0000
LASA..... 00000100 ENCT..... 00000001

Figure 44 on page 659 is an example of a service class report for a response time goal.

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Figure 44. Example: Service class report (for response time goal)

SERVICE CLASS = CICSUSER

SERVICE CLASS = DISCRETN

Figure 45 is an example of a service class report for a discretionary goal.

Figure 45. Example: Service class report (for discretionary goal)
protection. See the “Storage Protection” section of the “Workload Management Participants” chapter in z/OS MVS Planning: Workload Management.

‘SERVICE CLASS IS CPU CRITICAL.’
Flag denoting that this service class has been assigned long-term CPU protection. See the “CPU Protection” section of the “Workload Management Participants” chapter in z/OS MVS Planning: Workload Management.

PERIOD xx
Period number within service class

For velocity goal only:

VELOCITY GOAL
Period has a velocity goal

VEL_GOAL xxxxxxxx
Value of velocity goal

For response time goal only:

SHORT RESPONSE TIME GOAL
Period has a short response time goal

AVG_GOAL xxxxxxxx
Value of response time goal

DURATION xxxxxxxx
Duration of service class period

IMP_LVL xxxx
Importance level of service class period

LOCAL_PI
Performance Index of the service class period on the local system

PLEX_PI
Performance Index of service class period across the sysplex

EXPANDED STORAGE ACCESS POLICY INFORMATION
Fields that describe what type of access address spaces in this service class period have to expanded storage

DELAY AND STATE SAMPLE INFORMATION

GENERAL
General execution state samples for the service class period. The values in order are:
• Idle Samples
• Unknown Samples
• CPU Using Samples
• DASD Using Samples
• CPU Delay Samples
• Private Area Paging Samples
• Common Area Paging Samples
• VIO Samples
• Scroll Hyperspace Delay Samples
• Cache Hyperspace Delay Samples
• Swap Delay Samples
• MPL Delay Samples
• CPU Cap Delay Samples
- Shared Storage Delay Samples
- DASD I/O Delay Samples
- WLM Queue Delay Samples
- Enclave Private Area Paging Delay Samples
- Enclave VIO Paging Delay Samples
- Enclave Hiperspace Paging Delay Samples
- Enclave MPL Delay Samples
- Enclave Swap Delay Samples
- Cross Memory Other Delay Samples
- Buffer Pool Other Delay Samples

**XMEM**

Cross memory delay samples for the service class period. Each entry is a count of paging delay samples for work in the service class period accumulated in cross memory mode in a specific address space. The oucb address of that address space is given in the corresponding field in XMEMOUCB

**MPL RELATED INFORMATION**

Fields that described the MPL management of address spaces in the service class period.

**Resource group**

[Figure 46] is an example of a resource group report.

RESOURCE GROUP = HIGHPRTY
RGPTOKEN = 02205574
MIN SR. 00001388 MAX SR. 000F423F LOCAL SR. 00000000 PLEX SR. 00000000 CAPSLICE 0000
FLAGS1 80

**Figure 46. Example: Resource group report**

**OUCB queues**

The following examples are representative. The actual output might contain other fields or control blocks.

The following report is an example that shows OUCB wait and logically swapped wait queues.

*** OUCB WAIT QUEUE ***

*** QUEUE EMPTY ***

*** OUCB LS WAIT QUEUE ***

**Figure 46. Example: Resource group report**
The following information describes the fields in the OUCB wait and logically swapped wait queues report:

**JOB cccccccc**
- The name of the job that is associated with the address space.

**ASID hhhhhhhh**
- The address space identifier (ASID) of the job.

**OUCB hhhhhhhh LS WAIT QUEUE**
- The address of the OUCB.

**+10 (LSW) xxxxxxxxxx**
- The swap transition flag (only for OUCBs on the LS WAIT QUEUE).

**+11 (sfl)**
- The swapout continuation flag.

**+1F (PGP) PERIOD = pp**
- The period number.

**+29 (SRC) SWAP OUT REASON: xxxxxxxxxx**
- The swapout reason code.
System Resources Manager

'ADDRESS SPACE IS AN ENCLAVE(S) OWNER'
Flag denoting that this address space owns one or more enclaves.

'ADDRESS SPACE IS CURRENTLY CPU PROTECTED'
Flag denoting that this address space was assigned long-term CPU protection. See the “CPU Protection” section of the “Workload Management Participants” chapter in z/OS MVS Planning: Workload Management.

'ADDRESS SPACE IS ASSIGNED STORAGE PROTECTION'
Flag denoting that this address space was assigned long-term storage protection. See the “Storage Protection” section of the “Workload Management Participants” chapter in z/OS MVS Planning: Workload Management.

Note: Assigning long-term storage protection does not guarantee that an address space will remain storage protected (see 'ADDRESS SPACE IS CURRENTLY STORAGE PROTECTED').

'ADDRESS SPACE IS CURRENTLY STORAGE PROTECTED'
Flag denoting that this address space, which was assigned long-term storage protection (with ‘ADDRESS SPACE IS ASSIGNED STORAGE PROTECTION’), is in fact currently storage protected.

'ADDRESS SPACE IS EXEMPT FROM BEING TRANSACTION SERVER'
Flag denoting that this address space was exempted from management as a transaction server. See the “Exemption from Transaction Server Management” section of the “Workload Management Participants” chapter in z/OS MVS Planning: Workload Management.

The following report is an example that shows OUCB out and in queues.

JOB   PCAUTH
ASID  0002
OUCB 023DBA00 IN  QUEUE
+11 (NSW) NONSWAPPABLE
  (ASCBRSME) RAX ADDRESS IS 023DB8F8
SERVICE CLASS = SYSSTC
WORKLOAD = SYSTEM
INTERNAL CLASS= $SRMGOOD
PERIOD = 01

+0000 NAME..... OUCB   FWD....... 02075600  BCK...... 018638F0
+0011 SFL....... 80   YFL....... 40   AFL....... 40
+0017 UFL....... 08   LFL....... 80  RFL....... 21
+001C MFL....... 00   IAC....... 01   RSV1..... 00
+0024 MFL2..... 00   MFL3..... 00  DMO....... 0000
+002A SWC....... 0000  ASCB..... 00FC2180  PAGP...... 00000000
+0033 CPU....... 00000001 IOC....... 00000000  MSQ...... 00000000
+0050 DRFP...... 00000000 ACT....... 00000000  ACN....... 0000
+005C WMR....... 00000000 WMRL..... 00000000  VAL....... 0000
+0068 ERS1..... 00000000  ERS2..... 00000000  DSPC..... 00
+0074 PS1....... 00000000  PS2..... 00000000  PSTD..... 00000000
+0088 NDS....... 0001  NTSG..... FF  RSV2..... 00
+0094 DNMS...... 00000000  SRB....... 00000037  TWSS...... 00000000
+00A8 HST....... 00000000  CFS....... 000100AA  SUBN..... STC
+00BA NGP....... 0000  SRPG...... 0000  NRP..... 0000
+00C2 ARP0...... 0000  DRFP...... 00000000  TRXN..... PCAUTH
+00E0 TRS....... 00000000  TRR....... 00000000  ACTP..... 00000000
+00F4 FIXB...... 0000  APLV...... 00  ESAP..... 02

OUCBX Fields
+0100 APRQ...... 00000000  RSTB..... 006C90F0  EJST...... 00000000
+0114 WSS....... 00000000  HOLD..... 00000000  OUT...... 00000000
+0128 CSUM...... 00000000  CFCT...... 05BA  SWCB...... 0022
The following information describes the fields in the OUCB out and in queues report:
System Resources Manager

**JOB** cccccccc
The name of the job that is associated with the address space.

**ASID** hhhhhhhh
The address space identifier (ASID) of the job.

**OUCB** hhhhhhhh IN QUEUE
The address of the OUCB.

**+11 (sfl)**********
The swapout continuation flag.

**Enclaves**
Following is an example of an Enclaves report.

**ENCLAVE ADDRESS =** 01CA0F18

**SERVICE CLASS =** MEDIUM
**RESOURCE GROUP =** NONE
**PERIOD NUMBER =** 1

**ENCLAVE IS LOGICALLY DELETED**
**ENCLAVE IS INDEPENDENT**

**OWNING ADDRESS SPACE INFORMATION**

**JOBNAME =** GMDECQRY
**ASCBPTR =** 00F89A00
**OUCBPTR =** 02074B80

**ARRIVAL TIME :** 05/17/1999 20:13:26

**Ver.** 01  **Flags1.** 4080  **Ndp.** F0  **Next.** 01CA1318
**PreV.** 01CA1718  **Token.** 00000024 00000005

**Id.** 8002  **Dspn.** 00  **Dspc.** 00  **Oop.** 002074B80
**One.** 02074E84  **Opn.** 02074E86  **Wqlk.** 00000000  **DP.** F0
**Flag2.** 000000  **Fweb.** 01CBC1F0  **Capo.** 00000000  **Tsct.** 0002
**AismM.** 00233C53  **Ect.** 00233C53  **Perst.** 00233C53  **Sa.** 00000004
**Pss.** 00000000  **Embfirs.** 01CFC00  **Esmblast.** 01CFC00
**TcpuT.** 00000000  **O652A980**  **Scput.** 00000000  **0052A980**
**ApiBct.** 00000000  **O652A980**  **ApiBct.** 00000000 00000000
**ApiBsc.** 0002  **ApiSc.** 0031  **ApiFs.** 80  **Idp.** F0  **ApiDc.** 0000
**Apsrc.** 00000000  **Aptm.** 00000000  **Ehtime.** 00000000  **Ehcout.** 00
**Pgpo.** 00  **Pg.** 00000000  **Pn.** 0000  **Erpg.** 0000
**Scte.** 01D4E81C  **Spte.** 01D4E844  **Pernxt.** 01D4E8CE  **Perprev.** 01D4E8CE
**Pascw.** 0002  **Psperm.** 01  **Posc.** 00000000  **Wait.** 00000000
**Con.** 00000000  **Idsc.** 00000000  **Waitime.** 00000000  **Usingim.** 00000000
**Usingim.** 00000000  **Waitime.** 00000000  **Disc.** 00000000  **Etcblr.** 020D65B8
**Regcnt.** 00000000  **Eqlhead.** 01ECA428  **Eqctail.** 01ECA428

**ENCB Sampling Related Fields**

**Wsci.** 0016  **Wrci.** 0000  **Sxm.** 00000000  **Sxm.** 00000000  **Sxm.** 00000000
**Scite.** 01E3C3C4  **Spte.** 01E3C3CC  **Pgperid.** 01  **Resetic.** 0000  **Wait.** 00000000
**UtmeBsm.** 00000000  **WtmeBsm.** 00000000  **Disc.** 00000000  **Pseudio.** 8001

**ENCB Samples Array Section**

**Is.** 00000000  **OUS.** 00000000  **Cv.** 00000000  **Dsdios.** 00000000  **Cd.** 00000000
**Appd.** 00000000  **ApCd.** 00000000  **Avd.** 00000000  **Ashd.** 00000000  **Achd.** 00000000
**Asmd.** 00000000  **Md.** 00000000  **Ccd.** 00000000  **Aspd.** 00000000  **Dsdiosd.** 00000000
**WmQuqly.** 00000000  **EnclPvpt.** 00000000  **EnclPvpt.** 00000000  **EnclPvpt.** 00000000  **EnclPvpt.** 00000000
**EnclPm.** 00000000  **Pm.** 00000000  **Pm.** 00000000  **Pm.** 00000000  **Josname.** 0000
**EnclPm.** 00000000  **Josname.** 00000000  **Josname.** 00000000  **Josname.** 00000000

**ENCB Report Samples Array Section**

**RcT.** 00000000  **Cap.** 00000000  **Smpt.** 00000006  **Nodasid.** 00000000
**Camu.** 00000000  **Camd.** 00000000  **Apn.** 00000000  **Apd.** 00000000  **Fqdl.** 00000000

**Rdosname.** 0000  **Rdos**

**ENCB Classification Related Fields**

**Trxname.** 0000  **Sti.** 0000  **Usrld.** 0000  **Trxclass.** 0000  **Netid.** 0000  **Luname.** 0000
**Plan.** 0000  **Pkg.** 0000  **Connectn.** 0000  **Collectn.** 0000
**Correlat.** 0000  **Correl.** 0000  **Ssmpln.** 0000  **Acctlen.** 0000  **Procnaml.** 0000
**Conntn.** 0000  **Osef4090**  **Ssmpt.** 025aa9f29  **Acctptr.** 025aa9f29  **Perform.** 0000  **Subtype.** 0000
**Function.** 0000  **Subsname.** 0000  **WJEGK44**  **Scheden.** 0000  **Subcoln.** 0000
**Servclass.** 0000  **Sysother.** 0000  **Clstoken.** 17008000  **Process.** 0000  **Clsf.** 0000

Chapter 23. System Resources Manager (SRM) 665
VRA data for SRM related problems

When either of the SRM functional recovery routines (FRR) is entered, the FRR fills in the system diagnostic work area (SDWA) fields before scheduling an SVC dump. In some cases, the FRR changes the abend code or reason code after the dump is scheduled and before the logrec record is written; this action makes the abend code in the logrec record different from the code in the dump.

The FRR places problem determination data into the SDWA variable recording area (SDWAVRA) in key-length-data format using standard keys.

The following fields provide important information:

<table>
<thead>
<tr>
<th>Key</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRAETF</td>
<td>The entry point address of either the SRM routine that was in control at the time of the error or, if a subroutine was in control, the routine that called the subroutine.</td>
</tr>
<tr>
<td>VRARRP</td>
<td>A copy of the recovery routine parameter area (RRPA). The RRPA contains status information used on exit from SRM and during SRM recovery processing. The low-order byte in the first word of the RRPA contains the SYSEVENT code for the original entry to SRM.</td>
</tr>
<tr>
<td>VRAFP</td>
<td>A copy of the RRPA (as in field VRARRP) but with several entries cleared because they can be different for different invocations of the same function. The VRAFP is the footprint area SRM uses to recognize duplicate problems.</td>
</tr>
<tr>
<td>VRALBL</td>
<td>The name of the routine that failed.</td>
</tr>
<tr>
<td>VRAOA</td>
<td>The original abend code. The FRR might have changed the code.</td>
</tr>
<tr>
<td>VRAAID</td>
<td>The address space identifier (ASID) of the address space for which SRM was invoked.</td>
</tr>
<tr>
<td>VRACA</td>
<td>The caller's address, if the SYSEVENT was branch-entered.</td>
</tr>
</tbody>
</table>

See z/OS MVS Data Areas in [http://www.ibm.com/systems/z/os/zos/bkserv/](http://www.ibm.com/systems/z/os/zos/bkserv/) for VRAMAP, which describes the VRA keys, and for the IRARRPA mapping macro, which maps the RRPA.
Chapter 24. System logger

This topic contains the following diagnosis information for system logger:

- "Correcting common problems"
- "Logger JCL procedures" on page 668
- "Resolving system logger allocation errors" on page 672
- "Resolving z/OS IBM zAware log stream client errors" on page 674
- "Setting up SYSLOGR component trace" on page 678
- "Collecting documentation for system logger" on page 678
- "Interpreting IXCMIAPU output" on page 682
- "Analyzing component trace" on page 694
- "Restarting the system logger address space" on page 695
- "System logger latch conventions" on page 695
- "Associating latch contention with a logger TCB or WEB" on page 698
- "LOGGER subcommand output" on page 699
- "Relevant MVS system commands" on page 704
- "Relevant IPCS commands" on page 705

Correcting common problems

Some problems that occur in the system logger can be fixed with relatively simple adjustments to data set sizes or logger policy parameters. The following is a list of common problems that can be remedied by the user:

- If log stream data is missing or inaccessible, or new log stream offload data sets are being allocated before the old ones are filled, it may be that the Virtual Storage Access Method (VSAM) SHAREOPTIONS (3,3) was not specified when the data set was allocated (the default for SHAREOPTIONS is 1,3).
- If log stream data is deleted unexpectedly, or is retained too long, check AUTODELETE and RETPD in the LOGR policy to verify that the correct values have been specified.
- Offload problems may be caused by improper sizing of the log stream offload data sets (LS_SIZE). Small data sets may result in too many offload data sets, which can cause directory problems.
- Incorrect sizing of the staging data set (STG_SIZE) may cause offloads to occur too frequently.
- Message IXG251I with reason code 805 can mean that IXGLOGR is not marked as TRUSTED to the security product, preventing data sets from being allocated. If this is true, update the attribute and stop and restart the IXGLOGR address space to have the new authority take effect. See "Restarting the system logger address space" on page 695 for information on getting the IXGLOGR address space restarted.

If this is not the cause of the problem (IXGLOGR is marked as TRUSTED), examine associated syslog messages for a possible SMS or catalog problem.
- Message IXG002E with return code 8 and reason code 823 can indicate that the LSR, LSTRR or DSEXTENT values in the logger policy are not sufficient.
Incorrect sizing of a list structure or by having too many log streams in a list structure can cause errors. You might be able to avoid this problem by using the System z® Coupling Facility Structure Sizer Tool (CFSizer). The CFSizer simplifies the task of estimating the amount of storage required by the coupling facility structures used in your installation. The CFSizer asks questions about your existing configuration, and then use the answers you give to build customized jobs that you can run to create various structures as well as the LOGR couple data set, and OPERLOG and LOGREC log streams. See the [http://www.ibm.com/systems/support/z/cfsizer/](http://www.ibm.com/systems/support/z/cfsizer/).

Using IDCAMS REPRO to copy log stream offload data sets can result in errors indicated by messages IDC3302I, IDC3350I such as the following:

```
REPRO INFILE(SYS00014) -
OUTFILE(SYS00015)
IDC3302I ACTION ERROR ON MTSYSL.CICSAU3.UUSAU3.DFHLOG.A0000010
IDC3350I 10014,15173874,00000000B000,D,AXR000,USZCZT0T,STEP1,6
6D7,DA,SYS00014,A6- OP,INCORR. LENGTH ,00000020000B0C,VSAM
IDC3302I ACTION ERROR ON MTSYSL.CICSAU3.UUSAU3.A0010074.T5173829
IDC3351I ** VSAM I/O RETURN CODE IS 28 - RPLFDBWD = X'2908001C'
IDC31467I MAXIMUM ERROR LIMIT REACHED.
IDC0005I NUMBER OF RECORDS PROCESSED WAS 36
IDC3003I FUNCTION TERMINATED. CONDITION CODE IS 12
```

If you receive this error, see the topic [Managing logger log stream data sets](http://www.ibm.com/systems/support/z/cfsizer/) for the subtopic on “Copying log stream offload data sets” in [z/OS MVS Setting Up a Sysplex](http://www.ibm.com/systems/support/z/cfsizer/).

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**Logger JCL procedures**

Logger provides a JCL procedure in SYS1.PROCLIB and sample JCL procedures in SYS1.SAMPLIB to aid an installation in managing the logger address space and their log stream resources. These JCL procedures can do the following:

- Aid in restarting logger
- Affect the validity of a log stream’s log data
- Cause movement of data from primary storage (e.g. CF structure) to DASD
- Remove a log stream definition from the LOGR inventory
- Provide SMF88 subtype 1 reports

### JCL procedure in SYS1.PROCLIB

#### IXGLOGRS - Start the IXGLOGR server address space

**Function:**

This JCL procedure will attempt to start the IXGLOGR (logger server) address space.

**Use:**

This procedure can be used by an operator to request that the logger server address space, IXGLOGR, be restarted after the address space has already terminated.

**Syntax:**

`s ixglogrs`

**Parameters:**

- Not applicable

**Output:**

A new instance of the IXGLOGR address space will attempt to be started.
Requires:
Access to SYS1.PROCLIB from submitting userid.

References:
For more information on availability of the IXGLOGR address space, see z/OS MVS Setting Up a Sysplex.

Sample JCL procedures and functions in SYS1.SAMPLIB
The following procedures should only be used when it is necessary to take an installation action on the log stream. See the documentation by the subsystem or application that makes use of this log stream to understand any interaction or expectations before running any of these procedures.

IXGCONLS - Connect, wait (WTOR) and disconnect a log stream.

IXGOFLDS - Initiate an offload for a log stream.

IXGDELAB - Delete all blocks for a log stream.

IXGDELLS - Delete a log stream from LOGR CDS.

IXGLOGRF - Format utility for formatting a set of LOGR Couple Data Sets (CDS).

IXGLOGRP - Policy utility for establishing some system logger resources in the LOGR CDS.

IXGRPT1 - PL/I compile, link/edit and go sample for formatting SMF88 subtype 1 records.

IXGRPT1J - Sample job produce an SMF88 report using a pre-compiled version of IXGRPT1.

For details on IXGRPT1 and IXGRPT1J, the Logger SMF88 subtype 1 reporting SYS1.SAMPLIB members, see z/OS MVS System Management Facilities (SMF).

IXGCONLS – Connect, wait (WTOR) and disconnect a log stream

Function:
This sample JCL procedure will invoke a program to connect to the input log stream, issue a WTOR, and disconnect from the log stream after receiving the message reply.

Use:
This procedure can be used by a system programmer to request that a log stream connection be established and maintained until the WTOR reply is given (as an alternative to writing a program to perform the connection). To allow this program to maintain the log stream connection for the desired period of time, use the TIME= specification on the EXEC statement.

Syntax:
s ixgconls,logstrm=log_stream_name

Parameters:
log_stream_name
Name of the log stream to be connected.
System logger

Output:
When the procedure completes successfully, the following actions will happen:
• Message IXG273I will be issued to the console indicating that the log stream was connected.
• Message IXG227E will be issued to the console indicating that the log stream will remain connected until a reply is provided.
• Message IXG273I will be issued to the console indicating that the log stream was disconnected.

When the procedure does not complete successfully, the following action will happen:
• Message IXG274I will be issued to the console indicating which function failed and listing the return and reason code.

Note: Logger may also issue other messages to indicate whether the request was successful or not.

Requires:
Access to procedure library used by the installation from submitting userid. Assuming Security Authority Facility (SAF) is available and CLASS(LOGSTRM) is defined to SAF, READ access to the RESOURCE(log_stream_name) CLASS(LOGSTRM) is required by the owning userid to allow the program invoked by the procedure to connect to the log stream with READ authority.

References:
See [z/OS MVS Programming: Authorized Assembler Services Reference EDT-IXG] for more information on IXGCONN. You can also search the IXGCON mapping macro in [z/OS MVS Data Areas in http://www.ibm.com/systems/z/os/zos/bkserv/] for a return and reason code, and take the suggested action.

IXGOFLDS – Initiate an offload for a log stream

Function:
This sample JCL procedure will initiate an offload for all log blocks to DASD (secondary storage) for a defined log stream.

Use:
This procedure can be used by an operator to request data be off-loaded from primary storage (for example, CF structure) to secondary storage (DASD).

Syntax:
s ixgoflds,logstrm=log_stream_name

Parameters:
log_stream_name
Name of the log stream for the log blocks to be off-loaded.

Output:
When the procedure completes successfully, all the log blocks in the log stream will be off-loaded to DASD and message IXG273I will be issued to the console. When the procedure fails, message IXG274I will be issued to the console stating which function failed and listing the return and reason code.
**System logger**

**Note:** Logger may also issue other messages to indicate whether the request was successful or not.

**Requires:**
Access to procedure library used by the installation from submitting userid. Assuming Security Authority Facility (SAF) is available and CLASS(LOGSTRM) is defined to SAF, UPDATE access to the RESOURCE(log_stream_name) CLASS(LOGSTRM) is required by the owning userid to allow the program invoked by the procedure to connect to the log stream with WRITE authority.

**References:**
See [z/OS MVS Programming: Authorized Assembler Services Reference](https://publib.boulder.ibm.com/infocenter/eserver/v2r1/edt-ixg) for more information on IXGCONN and IXGOFFLD. You can also search the IXGCON mapping macro in [z/OS MVS Data Areas in http://www.ibm.com/systems/z/os/zos/bkserv/](http://www.ibm.com/systems/z/os/zos/bkserv/) for a return and reason code, and take the suggested action.

**IXGDELAB – Delete all blocks for a log stream**

**Function:**
This sample JCL procedure will request that all the log blocks in a defined log stream be marked logically deleted.

**Use:**
This procedure can be used by an operator to delete all active log blocks in a log stream. Instead of writing a job to perform the logger connect and delete log block requests, the operator can start this procedure from the console.

**Syntax:**
```
s ixgdelab,logstrm=log_stream_name
```

**Parameters:**
- `log_stream_name` Name of the existing log stream which will have all its log blocks marked logically deleted.

**Output:**
When the procedure completes successfully, all the log blocks in the log stream will be logically deleted and message IXG273I will be issued to the console. When the procedure fails, message IXG274I will be issued to the console stating which function failed and listing the return and reason code.

**Note:** Logger may also issue other messages to indicate whether the request was successful or not.

**Requires:**
Access to procedure library used by the installation from submitting userid. Assuming Security Authority Facility (SAF) is available and CLASS(LOGSTRM) is defined to SAF, UPDATE access to the RESOURCE(log_stream_name) CLASS(LOGSTRM) is required by the owning userid to allow the program invoked by the procedure to connect to the log stream with WRITE authority.

**References:**
See [z/OS MVS Programming: Authorized Assembler Services Reference](https://publib.boulder.ibm.com/infocenter/eserver/v2r1/edt-ixg) for more information on IXGCONN and IXGDELET. You can also
IXGDELLS – Delete a log stream from LOGR CDS

Function:
This sample JCL procedure will delete a defined log stream from the LOGR couple data set (CDS).

Use: This procedure is used by an operator to delete a defined log stream. Instead of writing a job to perform the logger inventory request, the operator can start this procedure from the console.

Syntax:
```
s ixgdells,logstrm=log_stream_name
```

Parameters:
- **log_stream_name**
  Name of the log stream to be deleted.

Output: When the procedure completes successfully, the log stream will be deleted from the logger inventory and message IXG273I will be issued to the console. When the procedure fails, message IXG274I will be issued to the console stating which function failed and listing the return and reason code.

Note: Logger may also issue other messages to indicate whether the request was successful or not.

Requires: Access to procedure library used by the installation from submitting userid. Assuming Security Authority Facility (SAF) is available and CLASS(LOGSTRM) is defined to SAF, ALTER access to the RESOURCE(log_stream_name) CLASS(LOGSTRM) is required by the owning userid to allow the program invoked by the procedure to request the log stream be deleted from the logger inventory.

References:
See [z/OS MVS Programming: Authorized Assembler Services Reference EDT-IXG](https://www.ibm.com/support/docview.wss?uid=swg21210316) for more information on IXGINVNT. You can also search the IXGCON mapping macro in [z/OS MVS Data Areas](http://www.ibm.com/systems/z/os/zos/bkserv/) for a return and reason code, and take the suggested action.

Resolving system logger allocation errors

IXGLOGR allocation error messages related to system logger offload or staging data sets will be prefixed with IXG251I. These types of IXG251I prefixed messages provide the information necessary to resolve allocation failure. Figure 47 on page 673 is an example of a IXG251I prefixed error message.
Some common reasons for allocation failure are:

1. IXGLOGR address space does not have TRUSTED authority.
   - The allocation failure can be resolved by updating the IXGLOGR address space to have TRUSTED authority. For new authority to take effect, the IXGLOGR address space must be stopped and restarted. See "Restarting the system logger address space" on page 695 for information on stopping and restarting the IXGLOGR address space.

2. There is not enough space on DASD to allocate the data set.
   - In this case, free up space or allow SMS to use more volumes.

3. The error message indicates the data set is not in the catalog or the catalog can not be accessed.
   - The problem could be caused by one of the following:
     - The data set was manually deleted.
     - Prevent users from manually deleting system logger offload or staging data sets.
     - There is a catalog problem.
     - The catalog problem must be resolved
     - The shareoptions of the data set are not 3,3.
     - Update the SHAREOPTIONS to 3,3 (the default for SHAREOPTIONS is 1,3) using IDCAMS, and update the DATACLASS associated with the log stream to prevent future problems.
     - Two or more sysplexes are trying to allocate the same staging data set at the same time.
     - Use different log stream names on the different sysplexes, or do not share the catalog across the sysplexes.
     - Two or more sysplexes allocating to the same named staging data set, one after the other, may result in system logger's failure to recover data for one or both of the sysplexes involved.
     - Use different log stream names on the different sysplexes, or do not share the catalog across the sysplexes.

For example, if SYSA in PLEXA did not delete the staging data set when the last disconnect occurred, then SYSA needs to have the staging data set
available when it reconnects to the log stream to offload data. However, if
SYSB in PLEXB tries to connect to a log stream which requires a staging data
set with the same name as the staging data set left behind by SYSA, SYSB
will delete the existing data set and create a new one. So, when SYSA
reconnects later, recovery for the log stream will fail.

For a complete list of IXG messages, see z/OS MVS System Messages, Vol 10
IXC-IZP.

Resolving z/OS IBM zAware log stream client errors

When an error occurs with z/OS Advanced Workload Analysis Reporter (IBM
zAware log) stream client processing, system logger messages IXG371E, IXG372I,
and IXG384I will indicate the type of problem encountered. System logger
messages IXG371E and IXG384I are helpful in identifying the general nature of the
problem, and message IXG372I contains useful details on the type of socket
communications problem logger experienced. Additionally, ABEND conditions may
also occur for related types of failures, and the most common ones are listed
below.

The first step if an error occurs in this area should always be to double check the
system logger status and ZAI SERVER AND PORT specifications via commands 'D
LOGGER,ST,ZAI' and/or 'D LOGGER,IXGCNF,ZAI' and ensure the values are as
intended.

For more details on the z/OS IBM zAware log stream client see Preparing for
z/OS IBM zAware log stream client usage in z/OS MVS Setting Up a Sysplex. See
IBM System z Advanced Workload Analysis Reporter (IBM zAware) Guide for
information concerning the IBM zAware server.

IXGLOGR address space not having OMVS authorization

IXG371E ZAI LOGSTREAM CLIENT MANAGER UNAVAILABLE
REASON: OMVS SEGMENT FAILURE FOR IXGLOGR.

or z/OS UNIX System Services callable service related ABEND condition EC6
reason code C008 indicates that the ABEND occurred because the calling process
cannot be dubbed.

For this condition, view the log around the time that particular incident and look
for an ICH408I message:
ICH408I USER(IXGLOGR ) GROUP(TASKS ) NAME(SYS PROGRAMMER ) 288
CL(PROCESS )
OMVS SEGMENT NOT DEFINED

The above conditions indicate the IXGLOGR address space does not have the
appropriate security permission for z/OS UNIX System Services. The user security
profile is either missing, incomplete, or the OMVS segment is not defined for the
user. The z/OS UNIX System Services segment is only for TCP/IP connectivity.
UID(0) or superuser ability can be used but are not required. For example, in
RACF issue the following command or set of commands:
ADDUSER IXGLOGR OMVS(UID(xxxx) HOME('/'))

or
ADDGROUP IXGGRP OMVS(GID(yyyy))
ADDUSER IXGLOGR DFLTGRP(IXGGRP) OMVS(UID(xxxx) HOME('/tmp')
PROGRAM('/bin/false')) NOPASSWORD
where \textit{xxxx} is a unique user ID and \textit{yyyy} is a unique group ID.

**TCP/IP, OMVS, Resolver, VTAM address space being available**

```
ERRNO=2  ERRNOJR=78801000
ERRNO=70  ERRNOJR=12CA00B6
```

When required services are not yet available for socket communications, some of the common reasons are revealed in system logger messages IXG371E and IXG372I.

**IXG371E ZAI LOGSTREAM CLIENT MANAGER UNAVAILABLE REASON:**

**OMVS NOT INITIALIZED OR IS UNAVAILABLE.**

OMVS has not been initialized or z/OS UNIX System Services is not available.

**OMVS BPX-SERVICE ERROR.**

An error was encountered on a BPX-service request.

**IXG372I LOGSTREAM CLIENT MANAGER ERROR FOR item logstream:**

```
FUNCTION=BPX1GAI  ERRNO=00000002  ERRNOJR=78801000
```

Logger BPX1GAI request to determine the location (getaddrinfo) for the ZAI SERVER value could not be satisfied since the 'Resolver' is not available. Ensure the Resolver is started.

```
FUNCTION=BPX1SOC  ERRNO=00000070  ERRNOJR=12CA00B6
```

Logger BPX1SOC request to create a socket to the IBM zAware server could not be satisfied since the physical file system (PFS) was not available.

The z/OS Communications Server environment must be available, that is, the z/OS UNIX System Services (OMVS) and resolver address spaces, VTAM address space and appropriate TCP/IP address space have been started. Also the necessary TCP/IP (network) definitions provided for the server location need to be determined in order for logger to establish a (socket) connection to the IBM zAware server. See \textit{z/OS Communications Server: IP Configuration Guide} and \textit{z/OS UNIX System Services Planning} for additional details for establishing the desired environment.

Verify that the OMVS, Resolver, VTAM, and TCP/IP address spaces have completed initialization. Look for the following messages:

```
EZZ9291I RESOLVER INITIALIZATION COMPLETE
BPX1004I OMVS INITIALIZATION COMPLETE
IST020I VTAM INITIALIZATION COMPLETE FOR level
```

**IBM zAware server location**

Several error conditions to the IBM zAware server location can occur for a z/OS log stream client.

Check the IBM zAware server level and location to ensure it is installed and running on the PR/SM™ logical partition (LPAR) where expected. Ensure the IXGCNFxx parmlib member ZAI SERVER and PORT information correctly identifies the IBM zAware server location.

Confirm that the communication is allowed (such as sockets connections being allowed over any firewall, and the appropriate routers in the path support the IP format address type).
Resolving hostname issues (ERRNO=1 ERRNOJR=78AE1004)
The following steps should be taken to determine why a "hostname cannot be
resolved" type or problem has occurred:

Note: Although you might find the hostname through PING or NSLOOKUP
commands, you might not be able to find it through the resolver. Take the
following steps to determine why a "hostname" cannot be resolved.

1. To determine the hostname returned for the IBM zAware server location, issue
the following command on the logical partition where the IBM zAware server
runs:

    hostname -g

to determine the hostname returned for the IBM zAware server location.
If this is the hostname you expect, then skip the remainder of this section and
go to the next step.
The TCPIP started task determines its host name when it is started by calling a
service to retrieve the value of the stack's TCPIP.DATA HOSTNAME statement.
The z/OS UNIX search order is used to find the stack's TCPIP.DATA
statements. The host name is determined in the following order:
    a. If the found TCPIP.DATA contains a valid HOSTNAME statement, its value
       is returned.
    b. If there is no valid HOSTNAME statement, the VMCF node name with
       which VMCF was started is returned.
    c. If VMCF was not active when the stack was started, the CVTSNAME value
       (this is the SYSNAME=value in IEASYSxx that was IPLed) is returned.
If the host name came from TCPIP.DATA, it is in the message case it was
specified on the HOSTNAME statement. For VMCF or CVTSNAME the name
is upper case. If you cannot determine why TCPIP has the wrong name, add a
SYSTCPTT DD to the TCPIP proc and restart TCPIP. This will enable resolver
tracing of TCPIP.
When you fix the hostname issue, TCPIP will have to be recycled to pick up
this change.

2. If the hostname is correct and it does not resolve to a valid IP address, do the
following:

   Issue:

   host  hostname

from where z/OS system logger runs and make sure the hostname resolves
properly.
If you get an error that the host is unknown, (for example: EZZ8342I junk:
Unknown host), check to see if the hostname has been added to the DNS.
If the hostname has been added to the DNS and the name still does not resolve
to an IP address, then enable a resolver trace for the OMVS session and issue
the host command again:

   Export RESOLVER_TRACE= stdout
   host host-name

If you make any changes to the DNS or local host file, you need to refresh the
resolver.
3. If the ip address does not resolve to a fully qualified domain name, use the following command to verify that a fully qualified domain name is returned and it is the fully qualified domain name expected for the z/OS IBM zAware log stream client:

   ```
   host <ip_address>
   ```

   where `<ip_address>` is the ip address the host command returned in prior steps. Ensure that this resolves to the expected hostname.

   **Note:** If you make any changes to the DNS or local host file, you need to refresh the resolver.

**Resolving firewall/routing issues (ERRNO=450 ERRNOJR=74947206)**

The z/OS IBM zAware log stream client can receive socket connection "time out" type error conditions that stem from security settings on the IBM zAware server logical partition. Do the following:

1. Verify the network configuration of the IBM zAware server logical partition (for example, one or more of the IP addresses, the port that makes use of 'ifconfig', 'netstat -an', and so forth).
2. Verify that the `_BPXK_SETIBMOPT_TRANSPORT` environment variable is not set on the z/OS system. The 'env' command will show the environment variable setting.
3. Verify that routing was set up properly using 'ping', 'ftp' or 'traceroute'. From the IBM zAware server logical partition, ping the z/OS image intended as the z/OS IBM zAware log stream client system. The command 'D TCPIP, [procname],ROUTE' shows the routing table of the z/OS system.
4. If the connection is successful from the IBM zAware server logical partition to the z/OS IBM zAware monitored client system, but the reverse direction fails, check the security setting on the IBM zAware server logical partition.

**Note:**

1. The TCPDUMP tool is useful to determine where the communication attempt fails. Start the TCPDUMP tool first on the IBM zAware server logical partition. You might want to specify the '-i' option to filter out the content: 'tcpdump -i interfacename'.
2. Try to connect from the z/OS IBM zAware log stream client system to the IBM zAware server logical partition: 'ftp ipaddress portnumber'.
3. Check to determine if the SYN packets have arrived for the connection request and if there are any SYN/ACK response packets. If a SYN/ACK response packet does not exist, check the security setting on the IBM zAware server logical partition.

**IPv6 format address issues (ERRNO=45A ERRNOJR=112B0000)**

If all the routers in the path of a socket between the z/OS IBM zAware log stream client and IBM zAware server do not support IPv6 format addresses, system logger is not able to use an IPv6 address to communicate with the IBM zAware server. Check the details in system logger message IXG372I to determine if something similar to the following occurs:

```
FUNCTION=BPXISOC ERRNO=0000045A ERRNOJR=112B0000
```
System logger

Ensure all the routers in the path of the socket connection support IPv6 format addresses or provide an IPv4 format address on the system logger ZAI SERVER specification for the IBM zAware server location.

IBM zAware server available and ready to receive z/OS data for analytics

See IBM z Advanced Workload Analysis Reporter (IBM zAware) Guide, SC27-2632, for more information about how to verify the IBM zAware server availability and overall state.

Setting up SYSLOGR component trace

A component trace provides data about events that occur within the component. You will typically use component trace while recreating a problem. The trace data is intended for the IBM Support Center, which can use the trace to diagnose problems in the component.

For system logger the trace parmlib member should be used so that the trace is always active after an IPL. To set up a component trace for system logger:

1. Create a CTnLOGxx parmlib member on each system in the sysplex. You should give the CTnLOGxx parmlib member the same name on each system. It is recommended that you create the member to trace everything except STORAGE and INVENTRY. As of z/OS V1.4 with OA07611 applied, the default CTILOG00 member is shipped with the following recommended setup:
   
   TRACEOPTS ON
   
   BUFSIZE(16M)
   
   OPTIONS('CONNECT,LOGSTRM, DATASET, SERIAL, MISC, LOCBUFF, RECOVERY')

   **Rule:** To reduce the likelihood of losing data in a wrapped buffer, it is recommended that the BUFSIZE not be lowered below 16 MB.

2. Start the trace with the following command:

   ROUTE *ALL, TRACE CT, ON, COMP=SYSLOGR, PARM=CTnLOGxx

3. Display the SYSLOGR trace status to verify that it has been set correctly:

   ROUTE *ALL, D TRACE, COMP=SYSLOGR

   The SYSLOGR status should be ON, and the OPTIONS should match the options you specified in the CTnLOGxx parmlib member.

See the component trace chapter of z/OS MVS Diagnosis: Tools and Service Aids for information about requesting and formatting the component trace.

Collecting documentation for system logger

Depending on the problem, the following seven methods are used to collect the documentation that is needed to diagnose a system logger problem. For assistance in interpreting this documentation, contact the IBM Support Center.

1. Obtain a dump of system logger and associated jobs. Use the following example to set up your dump command:

   DUMP COMM=(your dump title)
   
   DUMP COMM=(your dump title)
   
   r vv,STRLIST=(STRNAME=structure_name,LOCKENTRIES,ACC=NOLIM,
   
   r ww, JOBNAME=(IXGLOGR, XCFAS, hung_job), CONT
   
   r xx, DSPNAME=('XCFAS','IXGLOGR').*, CONT
   
   r zz, SDATA=(COUPLE, ALLNUC, LPA, LSQA, PSA, RGN, SQA, TRT, CSA, GRSQ, XEDATA), CONT
   
   r yy, REMOTE=(SYSLI=*,('XCFAS','IXGLOGR'),DSPNAME,SDATA), ENO
Note:

a. STRLIST is only necessary when you must browse the data in the coupling facility structure.

b. JOBNAME must always include IXGLOGR, but you might also include other address space identifiers (XCFAS and hung_job in this example), depending on the situation.

c. DSPNAME must always include 'IXGLOGR'.*, which includes both SYSIXG0x (local buffers), and SYSLOGR0 (trace data).

d. SDATA must always include the same parameters as shown in the code example after SDATA*.

e. REMOTE is only necessary when offload problems occur.

2. Use the D LOGGER command to display the following information:

   • IXGLOGR address space status.
   • Log stream, structure, and connection information.
   • Sysplex status for log streams.
   • Specifics for DASDONLY log streams.

3. Set a SLIP trap. The following example shows a SLIP trap that is set to capture instances of message DFHLG077x.

   SL SET,IF,L=(IGC0003E,0),A=SVCV,
   DATA={(R?+4,4,EQ,C4C68B03,B,EQ,C7F07F7F),
   STRLIST=(STRNAME=structure_name,LOCKENTRIES,ACC=NOLIM,
   (LISTNUM=ALL,ENTRYDATA=SERIALIZE,ADMUNCT=CAPTURE)),
   JOBLIST=(IXGLOGR,XCFAS),
   DSPNAME=('XCFAS'.*,IXGLOGR'),
   SDATA=(COUPLE,ALLNUC,LPA,LSQA,PSA,RGN,SGA,TRT,CSA,GRSQ,XSDEATA),
   REMOTE=(DSPNAME,SDATA,JOBLIST),END

   For more information about setting a SLIP trap, see the SLIP command chapter in
   z/OS MVS System Commands.

4. Use ADRDSSU to print the current (highest generation) offload data set for a log stream:

   //ADRDSSU JOB MSGLEVEL=(1,1),NOTIFY=&SYSUID
   /*-----------------------------------------------*/
   /* Print the current offload data set */
   /* -----------------------------------------------*/
   /*
   //STEP1 EXEC PGM=ADRDSSU,REGION=4M
   //SYSPRINT DD SYSOUT=* 
   //SYSIN DD *
   PRINT INDYNAM(SEC001) - 
       DS(hlq.xxxx.A00000yyy)
   */

   Use IDCAMS to print all other log stream offload data sets:

   //IDCAMS1 JOB MSGLEVEL=(1,1),NOTIFY=&SYSUID
   /*-----------------------------------------------*/
   /* RUN PRINT against system logger DASD Log stream data set */
   /* -----------------------------------------------*/
   /*
   //PRINTIT EXEC PGM=IDCAMS
   //SYSPRINT DD SYSOUT=H
   //SYSIN DD *
   PRINT INDDATASET('hlq.xxxx.A00000yyy')
   */

Note:

a. hlq is IXGLOGR by default, unless HLQ(hlq) is specified when the log stream is defined
System logger

b. xxxx is the defined log stream name
c. A0000yy is the generation number LLQ created by system logger

5. Obtain VSAM linear offload data set characteristics. You can use the following sample JCL to look at the characteristics of the data set you are dumping.

```csh
//IDCAMS2 JOB MSGLEVEL=(1,1),NOTIFY=&SYSUID
//PRINTIT EXEC PGM=IDCAMS
//SYSPRINT DD SYSPUT=H
//SYSIN DD *
LISTCAT ALIAS ALL
LISTCAT ALIAS ALL CAT('SROCAT.CATALOG')
LISTCAT ALIAS ALL CAT('SYSTEM.CATALOG')
LISTCAT LVL('HLQ_NAME') ALL
```

This job will
- display all alias names that are specified in the master catalog, along with the associated user catalog for each high-level qualifier
- display all alias names that are defined in a specified catalog
- display the contents of a user catalog and the volume on which it exists
- display all information that is related to data sets with a particular high-level qualifier.

See [z/OS DFSMS Access Method Services Commands](1) for information about how to interpret the output that is produced by this job.

6. Obtain a LOGR inventory detail list. Use this sample job to format the contents of the system logger couple data set.

```csh
//LISTUT1 JOB MSGLEVEL=(1,1),NOTIFY=&SYSUID,MSGCLASS=A
//STEP1 EXEC PGM=IXCMIAPU
//SYSPRINT DD SYSPUT=*=
//SYSIN DD *
DATA TYPE(LOGR) REPORT(YES)
LIST LOGSTREAM NAME(CICSA.TEST.DFHLOG) DETAIL(YES)
LIST STRUCTURE NAME(DFHLOG_CICSA) DETAIL(YES)
LIST LOGSTREAM NAME(SYSPLEX.*) DETAIL(YES)
LIST STRUCTURE NAME(OPER*) DETAIL(YES)
```

You can use an asterisk (*) in place of the log stream name and structure name to list all log streams and structures.

The output of this report contains the characteristics of the log stream, the connection information, and a list of the offload data sets.

```csh
LOGSTREAM NAME(SYSPLEX.OPRLOG) STRUCTNAME(LIST14) LS_DATACLAS(VSAMLS)
  LS_MGMTCLAS() LS_STORCLAS(STANDARD) HLQ(HHLQ) MODEL(NO) LS_SIZE()
  STG_MGMTCLAS() STG_STORCLAS() STG_DATACLAS() STG_SIZE(0)
  LOWOFFLOAD(50) HIGHOFFLOAD(80) STG_DUPLEX(NO) DUPLEXMODE()
  RMNAME() DESCRIPTION() RETPD(3) AUTODELETE(YES)
  DASDONLY(NO) DIAG(NO)

LOG STREAM ATTRIBUTES:
User Data:
0000000000000000000000000000000000000000000000000000000000000000
0000000000000000000000000000000000000000000000000000000000000000

LOG STREAM CONNECTION INFO:
SYSTEMS CONNECTED: 0

LOG STREAM DATA SET INFO:
DATA SET NAMES IN USE: HHLQ.SYSPLEX.OPRLOG.
Ext. <SEQ#> Lowest Blockid Highest GMT Highest Local
7. If you suspect that the logger couple data set is corrupted, dump the logger couple data set with the job that follows:

```
//DUMPCDS JOB MSGLEVEL=(1,1),NOTIFY=SYSUID
//******************************************************/
//* RUN ADRDSSU to dump off the LOGR Couple Dataset */
//******************************************************/
//STEP1 EXEC PGM=ADRDSSU,REGION=4M
//SYSPRINT DD SYSOUT=* 
//DD1 DD DISP=SHR,VOL=SER=xxxxxx,UNIT=3380
//SYSIN DD *
PRINT DATASET(logr.couple.dataset) INDDNAME(DD1) TOL(ENQF) /*
```

8. Specify DIAG=YES on the log stream definition to enable further diagnostic activity.

**Enable additional log stream diagnostics**

System Logger provides the ability to enable additional diagnostics at the log stream level by specifying **DIAG=YES** on the log stream definition.

The additional diagnostics that can be enabled at the log stream level are listed here:

- When the appropriate specifications are set for the IXGCONN, IXGDELETE or IXGBRWSE service, the application can collect additional diagnostic information. For more details, see the topic about “Dumping on data loss (804-type) conditions” in [z/OS MVS Programming: Assembler Services Guide](#).

- Informational logrec software symptom records are indicated by RETCODE VALU/H00000004.
  - In this example, a software symptom record is issued on for an offload operation:
    ```
    PIDS/5752SCLOG RIDS/I XGF1W0W RIDS/IXGINPVT#L LVLS/770
    FLDS/RETCODE VALU/H00000004 FLDS/REASON VALU/H04160014
    ```
  - In this example, a software symptom record is issued when an offload data set switch occurs:
    ```
    PIDS/5752SCLOG RIDS/IXGASWT RIDS/IXGINPVT#L LVLS/770
    FLDS/RETCODE VALU/H00000004 FLDS/REASON VALU/H01170008
    ```

- Warning messages for certain unwanted conditions. For example, IXG230I.
Interpreting IXCMIAPU output

The following report shows an example of a complete LOGR inventory list; it is followed by individual field descriptions and output explanations. The output of this report will contain the characteristics of the log stream, the connection information, and a list of the offload data sets. You can use an asterisk (*) in place of the log stream name and structure name to list all log streams and structures.

### ADMINISTRATIVE DATA UTILITY: INPUT DATA TYPE = LOGR

<table>
<thead>
<tr>
<th>DATA TYPE</th>
<th>REPORT(YES)</th>
</tr>
</thead>
<tbody>
<tr>
<td>List Logstream Name(*)</td>
<td>DETAIL(YES)</td>
</tr>
<tr>
<td>List Structure Name(*)</td>
<td>DETAIL(YES)</td>
</tr>
</tbody>
</table>

### ADMINISTRATIVE DATA UTILITY: MESSAGES DATA TYPE = LOGR

<table>
<thead>
<tr>
<th>IXG005I LOGR POLICY PROCESSING LINE# 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOGSTREAM NAME(USER01.STREAM.NOTUSED) STRUCTNAME() LS_DATACLAS()</td>
</tr>
<tr>
<td>LS_MGMTCLAS() LS_STORCLAS() HLQ(IXGLOGR) MODEL(NO) LS_SIZE(0)</td>
</tr>
<tr>
<td>STG_MGMTCLAS() STG_STORCLAS() STG_DATAclas() STG_SIZE(0)</td>
</tr>
<tr>
<td>LOWOFFLOAD(0) HIGHOFFLOAD(80) STG_DUPLEX(YES) DUMPLEXMODE(UNCOND)</td>
</tr>
<tr>
<td>RNAME() DESCRIPTION() RETPD(0) AUTODELETE(NO) OFFLOADRECALL(NO)</td>
</tr>
<tr>
<td>ZAI(NO) ZAIDATA(&quot;NO_ZAIDATA&quot;) WARNPRIMARY(NO) LS_ALLOCHEAD(0)</td>
</tr>
<tr>
<td>DASDONLY(YES) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ) GROUP(PRODUCTION)</td>
</tr>
<tr>
<td>MAXBUFFSIZE(65532)</td>
</tr>
</tbody>
</table>

### LOG STREAM ATTRIBUTES:

**User Data:**

```
0000000000000000000000000000000000000000000000000000000000000
0000000000000000000000000000000000000000000000000000000000000
```

**Time Defined:** 02/25/02 17:32:22 (GMT)

### LOG STREAM CONNECTION INFO:

**SYSTEMS CONNECTED:** 0

### LOG STREAM DATA SET INFO:

**DATA SET NAMES IN USE:** IXGLOGR.USER01.STREAM.NOTUSED.<SEQ#>

<table>
<thead>
<tr>
<th>Ext. &lt;SEQ#&gt;</th>
<th>Lowest Blockid / Highest GMT / Highest Local / Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>+00001 A000000</td>
<td>---------------------------------------------------</td>
</tr>
</tbody>
</table>

**NUMBER OF DATA SETS IN LOG STREAM:** 1

### POSSIBLE ORPHANED LOG STREAM DATA SETS:

**NUMBER OF POSSIBLE ORPHANED LOG STREAM DATA SETS:** 0

**LOGSTREAM NAME(USER01.LOSS.OF.DATA) STRUCTNAME() LS_DATACLAS()**

```
LS_MGMTCLAS() LS_STORCLAS() HLQ(IXGLOGR) MODEL(NO) LS_SIZE(0) |
STG_MGMTCLAS() STG_STORCLAS() STG_DATAclas() STG_SIZE(0) |
LOWOFFLOAD(0) HIGHOFFLOAD(80) STG_DUPLEX(YES) DUMPLEXMODE(UNCOND) |
RNAME() DESCRIPTION() RETPD(0) AUTODELETE(NO) OFFLOADRECALL(NO) |
ZAI(NO) ZAIDATA("NO_ZAIDATA") WARNPRIMARY(NO) LS_ALLOCHEAD(0) |
DASDONLY(YES) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ) GROUP(PRODUCTION) |
```

### POSSIBLE LOSS OF DATA, LOW BLKID:

```
0000000111111111, HIGH BLKID: 000000022222222222
```

**User Data:**

```
0000000000000000000000000000000000000000000000000000000000000
0000000000000000000000000000000000000000000000000000000000000
```
LOG STREAM CONNECTION INFO:

SYSTEMS CONNECTED: 0

LOG STREAM DATA SET INFO:

DATA SET NAMES IN USE: IXGLOGR.USER01.LOSS.OF.DATA.<SEQ#>
Ext. <SEQ#> Lowest Blockid / Highest GMT / Highest Local / Status
Highest Blockid Highest RBA System Name
----- -------- ---------------- ----------------- ---------
*00001 A0000000000000000000000000000000000000000000000000000000000000
0000000000000000000000000000000000000000000000000000000000000

NUMBER OF DATA SETS IN LOG STREAM: 1

POSSIBLE ORPHANED LOG STREAM DATA SETS:

NUMBER OF POSSIBLE ORPHANED LOG STREAM DATA SETS: 0

LOGSTREAM NAME(USER01.ORPHAN.DATASET) STRUCTNAME(LOGGERSTR2) LS_DATACLAS() LS_MGMTCLAS() LS_STORCLAS() HLQ(IXGLOGR) MODEL(NO) LS_SIZE(2)
STG_MGMTCLAS() STG_STORCLAS() STG_DATACLAS() STG_SIZE(100)
LOWOFFLOAD(20) HIGHOFFLOAD(80) STG DUPLEX(YES) DUPLEXMODE(UNCOND)
RMNAME() DESCRIPTION() RETPD(0) AUTODELETE(NO) OFFLOADRECALL(NO)
ZAI(NO) ZAIDATA("NO_ZAIDATA") WARNPRIMARY(NO) LS_ALLOCATE يبدو(0)
DASDONLY(NO) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ) GROUP(PRODUCTION)

LOG STREAM ATTRIBUTES:

User Data:
0000000000000000000000000000000000000000000000000000000000000
0000000000000000000000000000000000000000000000000000000000000

Time Defined: 02/25/02 17:32:22 (GMT)

LOG STREAM CONNECTION INFO:

SYSTEMS CONNECTED: 0

LOG STREAM DATA SET INFO:

DATA SET NAMES IN USE: IXGLOGR.USER01.ORPHAN.DATASET.<SEQ#>
Ext. <SEQ#> Lowest Blockid / Highest GMT / Highest Local / Status
Highest Blockid Highest RBA System Name
----- -------- ---------------- ----------------- ---------
*00001 A0000001 000000000001D971 02/25/02 16:53:07 02/25/02 11:53:07 CURRENT
0000000000000000000000000000000000000000000000000000000000000

NUMBER OF DATA SETS IN LOG STREAM: 1

POSSIBLE ORPHANED LOG STREAM DATA SETS:

DATA SET NAMES:
--------------------------------------------
IXGLOGR.USER01.ORPHAN.DATASET.A0000000

NUMBER OF POSSIBLE ORPHANED LOG STREAM DATA SETS: 1

LOGSTREAM NAME(USER01.DELETE.PENDING) STRUCTNAME(LOGGERSTR2) LS_DATACLAS() LS_MGMTCLAS() LS_STORCLAS() HLQ(IXGLOGR) MODEL(NO) LS_SIZE(1)
STG_MGMTCLAS() STG_STORCLAS() STG_DATACLAS() STG_SIZE(0)
LOWOFFLOAD(0) HIGHOFFLOAD(80) STG DUPLEX(NO) DUPLEXMODE()
RMNAME() DESCRIPTION() RETPD(0) AUTODELETE(NO) OFFLOADRECALL(NO)
ZAI(NO) ZAIDATA("NO_ZAIDATA") WARNPRIMARY(NO) LS_ALLOCATE يبدو(0)
DASDONLY(NO) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ) GROUP(PRODUCTION)
ORIGINALNAME(ORIGINAL_STREAM_NAME)
System logger

LOG STREAM ATTRIBUTES:

User Data:
0000000000000000000000000000000000000000000000000000000000000
0000000000000000000000000000000000000000000000000000000000000

Time Defined: 02/25/02 17:32:22 (GMT)

LOG STREAM CONNECTION INFO:

SYSTEMS CONNECTED: 3

<table>
<thead>
<tr>
<th>SYSTEM</th>
<th>STRUCTURE</th>
<th>CONNECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NAME</td>
<td>VERSION ID</td>
</tr>
<tr>
<td>--------</td>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td>SY1</td>
<td>B73E4F38CD23F649</td>
<td>01 00010000</td>
</tr>
<tr>
<td>SY2</td>
<td>B73E4F38CD23F649</td>
<td>02 00020008</td>
</tr>
<tr>
<td>SY3</td>
<td>B73E4F38CD23F649</td>
<td>02 00020008</td>
</tr>
</tbody>
</table>

LOG STREAM DATA SET INFO:

STAGING DATA SET NAMES: IXGLOGR.USER01.DELETE.PENDING.<suffix>

DATA SET NAMES:
---------------------------------------------
IXGLOGR.USER01.DELETE.PENDING.SY2
IXGLOGR.USER01.DELETE.PENDING.SY3

NUMBER OF STAGING DATA SETS: 2

DATA SET NAMES IN USE: IXGLOGR.ORIGINAL.STREAM.NAME.<SEQ#>

<table>
<thead>
<tr>
<th>Ext.</th>
<th>&lt;SEQ#&gt;</th>
<th>Lowest Blockid</th>
<th>Highest Blockid</th>
<th>Highest GMT</th>
<th>Highest Local</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>+00001</td>
<td>A000100166</td>
<td>00000000000000000001</td>
<td>02/25/02 18:48:31</td>
<td>02/25/02 13:48:31</td>
<td>DELETE PENDING</td>
<td></td>
</tr>
<tr>
<td></td>
<td>00000000000000000001</td>
<td>00000000000000000001</td>
<td>02/25/02 13:48:31</td>
<td>02/25/02 13:48:31</td>
<td>DELETE PENDING</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A0000167</td>
<td>00000000000000000001</td>
<td>02/25/02 18:48:32</td>
<td>02/25/02 13:48:31</td>
<td>DELETED</td>
<td></td>
</tr>
<tr>
<td></td>
<td>00000000000000000001</td>
<td>00000000000000000001</td>
<td>02/25/02 13:48:31</td>
<td>02/25/02 13:48:31</td>
<td>DELETED</td>
<td></td>
</tr>
<tr>
<td>.00002</td>
<td>A0000168</td>
<td>00000000000000000001</td>
<td>02/25/02 18:48:32</td>
<td>02/25/02 13:48:31</td>
<td>CURRENT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>00000000000000000001</td>
<td>00000000000000000001</td>
<td>02/25/02 13:48:31</td>
<td>02/25/02 13:48:31</td>
<td>CURRENT</td>
<td></td>
</tr>
</tbody>
</table>

NUMBER OF DATA SETS IN LOG STREAM: 3

POSSIBLE ORPHANED LOG STREAM DATA SETS:

NUMBER OF POSSIBLE ORPHANED LOG STREAM DATA SETS: 0

LOGSTREAM NAME(USER01.FAILED.LOGSTRM) STRUCTNAME(LOGGERSTR1) LS_DATACLAS()
LS_MGMTCLAS() LS_STORCLAS() HLQ(IXGLOGR) MODEL(NO) LS_SIZE(0)
STG_MGMTCLAS() STG_STORCLAS() STG_DATACLAS() STG_SIZE(0)
LOWOFFLOAD(0) HIGHOFFLOAD(80) STG_DUPLEX(NO) DUPLEXMODE()
RMNAME() DESCRIPTION() RETRO(NO) AUTODELETE(NO) OFFLOADRECALL(NO)
ZA1(NO) ZAIDATA(NO ZAIDATA) WARMPRIMARY(NO) LS_ALLOCHEAD(NO)
DASDONLY(NO) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ) GROUP(production)

LOG STREAM ATTRIBUTES:

User Data:
0000000000000000000000000000000000000000000000000000000000000
0000000000000000000000000000000000000000000000000000000000000

Time Defined: 02/25/02 17:32:22 (GMT)

LOG STREAM CONNECTION INFO:

SYSTEMS CONNECTED: 1

<table>
<thead>
<tr>
<th>SYSTEM</th>
<th>STRUCTURE</th>
<th>CONNECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NAME</td>
<td>VERSION ID</td>
</tr>
<tr>
<td>--------</td>
<td>-----------</td>
<td>------------</td>
</tr>
<tr>
<td>SY1</td>
<td>B73E462011704E4A</td>
<td>01 00010004</td>
</tr>
</tbody>
</table>

LOG STREAM DATA SET INFO:

DATA SET NAMES IN USE: IXGLOGR.USER01.FAILED.LOGSTRM.<SEQ#>
## System logger

**Table 1: Structure Name (Logger Str) Logstream Name (User Str) Inventory**

| Structure Name (Logger Str) | Logstream Name | Connection | LS_DATACLAS() | LS_MGMTCLAS() | LS_STORCLAS() | HLQ | MB | LS_SIZE() | STG_MGMTCLAS() | STG_STORCLAS() | STG_DATACLAS() | STG_SIZE() | LOWOFFLOAD() | HIGHOFFLOAD() | STG_DUPLEX() | RMNAME() | DESCRIPTION() | RETPD() | AUTODELETE() | OFFLOADRECALL() | ZAI() | ZAIDATA() | WARNPRIMARY() | LS_ALLOCAHEAD() | DASDONLY() | DIAG() | LOGGERDUPLEX() | EHLQ() | GROUP()
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>STRUCTURE NAME(L_LOGGERSTR1)</td>
<td>LOGSTREAM NAME(USER01. FAILED.LOGSTRM)</td>
<td>YES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STRUCTURE NAME(L_LOGGERSTR2)</td>
<td>LOGSTREAM NAME(USER01. ORPHAN.DATASET)</td>
<td>NO</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**Log Stream Inventory Record Summary:**

- **LOGR COUPLE DATA SET FORMAT LEVEL: HBB7705**
- ***/Functional Items: /***
- ***/ SM Duplex(1) /***

**Administrative Data Utility Report Data Type = LOGR**

<table>
<thead>
<tr>
<th>Type</th>
<th>Formatted</th>
<th>In-use</th>
</tr>
</thead>
<tbody>
<tr>
<td>LSR (Log Stream)</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>LSTRR (Structure)</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

DSEXTENT (Data Set Extent) 5 0
The following examples and field descriptions are used to interpret the output of the LOGR inventory list.

If **REPORT(YES)**, a LOGR Summary Record (see Figure 48) with the characteristics of the log stream will be returned at the end of the detail list.

Figure 48. Example: LOGR Summary Report - REPORT (YES)

A loss of data might indicate that all of the data did not get written out to a log stream offload data set or the structure lost data. Determine if the data is usable. If not, delete the log stream and redefine it. For additional information on loss of data return codes on IXGBRWSE and IXGWRITE requests, see **z/OS MVS**.
System logger

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Figure 49 is an example of a log stream that encountered a possible loss of data.

```
LOGSTREAM NAME(USER01.LOSS.OF.DATA) STRUCTNAME()
   LS_DATACLAS()
   LS_MGMTCLAS() LS_STORCLAS() HLQ(IXGLOGR) MODEL(NO) LS_SIZE(0)
   STG_MGMTCLAS() STG_STORCLAS() STG_DATACLAS() STG_SIZE(0)
   LOWOFFLOAD(0) HIGHOFFLOAD(80) STG_DUPLEX(YES) DUPLEXMODE(UNCOND)
   RMNAME() DESCRIPTION() REITPD(0) AUTODELETE(NO) OFFLOADRECALL(NO)
   ZAI(NO) ZAIDATA('NO_ZAIDATA') WARNPRIMARY(NO) LS_ALLOCATE(0)
   DASDONLY(YES) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ)
   MAXBUFSIZE(65532)
```

LOG STREAM ATTRIBUTES:

   POSSIBLE LOSS OF DATA, LOW BLKID: 0000001111111111, HIGH BLKID: 0000002222222222

---

Figure 49. Example: Log stream with possible loss of data

Figure 50 shows the Log Stream Attribute section. The timestamp displays the time that the log stream is defined.

```
LOG STREAM ATTRIBUTES:

User Data:
   0000000000000000000000000000000000000000000000000000000000000
   0000000000000000000000000000000000000000000000000000000000000

Time Defined: 02/25/02 17:32:22 (GMT)
```

---

Figure 50. Example: Log Stream Attribute section

UNKNOWN appears in place of the date and time if both of the following situations occur:

- The log stream has been defined on a pre-OS/390 V1R3 release in an HBB5520 format level LOGR CDS
- The log stream had not been connected or updated since on a HBB6603 or HBB7705 format level LOGR CDS

When the HBB5520 format level LOGR CDS defined log stream is connected or updated to on a higher level CDS, the time defined represents the time of the connect or update. The format for the time defined is mm/dd/yy hh:mm:ss.

Figure 51 on page 688 shows an example if an empty data set that has not been written to. The field descriptions are as follows:

- **Ext.** is the couple data set extent number. An * in front of the number indicates the extent is in the base directory of the log stream record.
- **<SEQ>** is the data set sequence number—that is, the low level qualifier.
- **Lowest Blockid** indicates the lowest (oldest) log block in the data set.
- **Highest GMT** indicates the highest Time Stamp of the last blockid written in the data set, expressed in GMT format.
- **Highest Local** indicates the same time as Highest GMT, express in local time format.
- **Status** indicates the state of the data set.
- **Highest Blockid** indicates the highest log block in the data set.
System logger

- **Highest RBA** indicates the relative byte address of the highest used block in the data set.
- **System Name** is the name of the system that last changed the state of the data set. The state of the data set changes when the data set is newly allocated, closed, or marked for deletion. System Name does not name the last system to write to the dataset.

**DDATA SET NAMES IN USE:** IXGLOGR.USER01.STREAM.NOTUSED.<SEQ#>

<table>
<thead>
<tr>
<th>Ext.</th>
<th>&lt;SEQ#&gt;</th>
<th>Lowest Blockid / Highest Blockid</th>
<th>Highest GMT / Highest RBA</th>
<th>System Name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>+00001</td>
<td>0000000000000001 A0000000</td>
<td>0000000000000000 CURRENT</td>
<td>SYSTEM_1</td>
</tr>
</tbody>
</table>

**Figure 51. Example: Data sets that have not been written to**

**Figure 52** shows examples of data sets that have been written to. The **Status** of the data sets can be:

- **DELETE PENDING** specifies the data set is being used by another logger process. The system logger deletes the data set the next time an offload data set is allocated for that particular log stream.
- **DELETED** indicates that system logger has deleted the data set from its directory and the data set has been physically deleted.

**Note:** This status occurs when there is an older offload data set in the **DELETE PENDING** status.

- **CURRENT** is the data set currently being written to.
- **ADV-CURRENT** are the data sets that are allocated beforehand and primed for use after switching from the CURRENT data set, for example when it becomes full.
- **I/O Error** indicates that the system logger has received an I/O error trying to access this data set.

**DDATA SET NAMES IN USE:** IXGLOGR.USER01.STREAM.NOTUSED.<SEQ#>

<table>
<thead>
<tr>
<th>Ext.</th>
<th>&lt;SEQ#&gt;</th>
<th>Lowest Blockid / Highest Blockid</th>
<th>Highest GMT / Highest RBA</th>
<th>Highest Local / Highest RBA</th>
<th>System Name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>+00001</td>
<td>0000000000000001 A0000000</td>
<td>0000000000000000 02/25/02 18:48:31</td>
<td>02/25/02 13:48:31</td>
<td>SYSTEM_1</td>
</tr>
<tr>
<td></td>
<td>A0000167</td>
<td>0000000000000003 F01286C</td>
<td>0000000000000000</td>
<td>00013B0</td>
<td>SYSTEM_1</td>
</tr>
<tr>
<td></td>
<td>A0000167</td>
<td>0000000000000003 F0138A1</td>
<td>0000000000000000</td>
<td>00013B0</td>
<td>SYSTEM_1</td>
</tr>
<tr>
<td></td>
<td>A0000168</td>
<td>0000000000000003 F027741</td>
<td>0000000000000000</td>
<td>00013B0</td>
<td>SYSTEM_5</td>
</tr>
<tr>
<td></td>
<td>A0000169</td>
<td>0000000000000000 F02E5A</td>
<td>0000000000000000</td>
<td>00013B0</td>
<td>SYSTEM_1</td>
</tr>
<tr>
<td></td>
<td>A0000170</td>
<td>0000000000000000 ****</td>
<td>0000000000000000</td>
<td>00013B0</td>
<td>SYSTEM_1</td>
</tr>
<tr>
<td></td>
<td>A0000171</td>
<td>0000000000000000 ****</td>
<td>0000000000000000</td>
<td>00013B0</td>
<td>SYSTEM_1</td>
</tr>
</tbody>
</table>

**Figure 52. Example: Data sets that have been written to**

The system name is updated when the data set status is changed. System Name means the follows if the Status is:

- **DELETE** or **DELETE PENDING** indicates the system that deletes the data set.
System logger

- Blank or I/O Error indicates the system that filled in the Lowest Blockid, Highest GMT, Highest Local, Highest Blockid and Highest RBA for this data set.
- CURRENT indicates the system that defined the data set. The System Name might appear blank if a pre-V1R10 system defines this data set.

System Name might appear as blank if a pre-V1R10 system updated the data set status.

System logger cannot determine the Highest Blockid field occasionally. The situation happens when a pre-V1R10 system fills the data set and sets the Lowest Blockid, Highest GMT, Highest Local, and Highest RBA. The Highest Blockid is set to ****UNKNOWN**** if system logger cannot determine the block ID.

For the current offload data set, the following fields might be filled as blanks or zeroes if they are created, but not yet written to.
- Lowest Blockid
- Highest GMT
- Highest Local
- Highest Blockid
- Highest RBA

These fields might also be filled in, but appear out of date for the current offload data set, even if data has been written to them. The reason is that system logger permanently stores this information after a rebuild, disconnection, or data set switch for performance reasons.

An orphaned data set is a data set that logger does not know about in the data set directory, but has not been physically deleted. This might indicate a procedural problem. Figure 53 on page 690 shows an example of an orphaned data set. Delete an orphaned data set manually if it is not useful.

Note:
1. If logger encounters an error scanning the catalog for orphan data sets, it will append the following message to the existing orphaned data set section: CATALOG ERROR - ORPHAN LIST MAY BE INCOMPLETE
2. One exception occurs when the next current data set shows up on the orphaned data set list. This is a timing issue. System logger has to successfully allocate the data set before it updates its directory to contain the data set. Do not manually delete the data set if this is the case.
If the CONNECTION STATE indicates Failed, there is log stream data in the coupling facility structure that has not been written to permanent storage. To recover the data, reconnect to the log stream or restart the system logger.

System logger will internally request a larger buffer if it runs out of output buffer space during the list or report processing. Because system logger processes the report where it left off there could be a duplication of the last resource processed in the report output. The report will contain the following message where the error occurred:

INTERNAL BUFFER CONSTRAINT ENCOUNTERED
PRIOR RESOURCE MAY BE DUPLICATED

LISTCAT (IDCAMS) messages for offload data sets

When LISTCAT is requested on a LIST LOGSTREAM request, logger includes in the report output the information that is provided by an IDCAMS “LISTCAT ENTRIES(cluster-data-set-name) ALL” command request for each offload data set shown in the report.

Summary of new output in the “LOG STREAM DATA SET INFO” report portion for each data set in the table:

A0000001 line 1...
  line 2...
  listcat (all) output from IDCAMS for this data set [e]hlq.logstreamname.A0000001
A0000002 line 1...
  line 2...
  listcat (all) output from IDCAMS for this data set [e]hlq.logstreamname.A0000002
**System logger**

Sample output: for a description of the IDCAMS LISTCAT output listing messages, see [z/OS DFSMS Access Method Services Commands](#).

LOG STREAM DATA SET INFO:
DATA SET NAMES IN USE: IXGLOGR.USER.LOGSTREAM. <SEQ#>
Ext. <SEQ#>  Lowest Blockid / Highest GMT / Highest Local / Status
Highest Blockid Highest RBA  System Name

+00001 A0000001 000000000001D971 06/21/08 00:11:01 06/20/08 19:11:01
000000000000000000456F SY51

/* IDCAMS COMMAND */
LISTCAT ENTRIES(IXGLOGR.USER.LOGSTREAM,A0000001) ALL

CLUSTER------- IXGLOGR.USER.LOGSTREAM,A0000001
IN-CAT------- SRDSCAT.CATALOG
HISTORY

DATASET-OWNER-------(NULL) CREATION-------2008.172
RELEASE-------------2 EXPIRATION-------0000.000
SMSDATA
STORAGECLASS-------LOGGER MANAGEMENTCLASS-STANDARD
DATACLASS--------LSMEG LBACKUP ---0000.000.0000
CA-RECLAIM--------(NO)
EATTR-------------(NULL)
BWO STATUS------00000000 BWO TIMESTAMP---00000000:00:00.0
BWO-------------(NULL)

RLSDATA
LOG ----------------(NULL) RECOVERY REQUIRED --(NO) FRLOG --------- (NULL)
VSAM QUIESCED--------(NO) RLS IN USE -------(NULL)
LOGSTREAMID----------------- (NULL)
RECOVERY TIMESTAMP LOCAL---X'0000000000000000'
RECOVERY TIMESTAMP GMT---X'0000000000000000'
PROTECTION-PWD--------(NULL) RACF--------(NULL)
ASSOCIATIONS
DATA-------IXGLOGR.USER.LOGSTREAM.A0000001.DATA
DATA----- IXGLOGR.USER.LOGSTREAM.A0000001.DATA
IN-CAT------- SRDSCAT.CATALOG
HISTORY

DATASET-OWNER-------(NULL) CREATION-------2008.172
RELEASE-------------2 EXPIRATION-------0000.000
ACCOUNT-INFO-----------------------------------(NULL)
PROTECTION-PWD--------(NULL) RACF--------(NULL)
ASSOCIATIONS
CLUSTER-------IXGLOGR.USER.LOGSTREAM,A0000002
ATTRIBUTES
KEYLEN----------------0 AVGLRECL---------------0 BUFSPACE-----------092 CJSIZE-----------096
RKP------------------0 MAXRECL---------------0 EXCPRT------(NULL) CI/CA-----------36
SRIPTNS(3,J) RECOVERY UNIQUE NOERASE LINEAR NwwITECHK NOIMBED NOREPLICAT
UNORDERED MOREUSE NONSPANNED

STATISTICS
REC-TOTAL-------------0 SPLITS-CI----------0 EXCPRT------(NULL)
REC-INSERTED---------0 SPLITS-CA-----------0 EXTENTS------1
REC-UPDATED----------0 FREESPCE-------0
REC-RETRIEVED-------0 FREESPCE-------0

ALLOCATIONS
SPACE-TYPE--------TRACK HI-A-RBA----------147456
SPACE-PRI----------3 HI-U-RBA----------147456
SPACE-SEC----------0

VOLUME
VOLSER--------SMSVL3 PHRVSZ---------4096 HI-A-RBA----------147456 EXTENT-NUMBER--------1
DEVTYP---X'30102009' PHRVSZ---------12 HI-U-RBA----------147456 EXTENT-TYPE--------X'40'
VOLFLAG--------PRIME TRACKS/CA---------3
EXTENTS:
LOW-CCHH------X'00000002' LOW-RBA---------0 TRACKS---------3
HIGH-CCHH------X'00000004' HIGH-RBA-------147455
000000000000000003A6F3 06/21/08 00:22:11 02/25/02 19:22:11 CURRENT
000000000000000007873 00024000 SY51

/* IDCAMS COMMAND */
LISTCAT ENTRIES(IXGLOGR.USER.LOGSTREAM,A0000002) ALL

CLUSTER------- IXGLOGR.USER.LOGSTREAM,A0000002
IN-CAT------- SRDSCAT.CATALOG
HISTORY

DATASET-OWNER-------(NULL) CREATION-------2008.172
RELEASE-------------2 EXPIRATION-------0000.000
SMSDATA
STORAGECLASS-------LOGGER MANAGEMENTCLASS-STANDARD
DATACLASS--------LSMEG LBACKUP ---0000.000.0000
BWO STATUS------00000000 BWO TIMESTAMP---00000000:00:00.0
BWO-----------(NULL)

RLSDATA
LOG ----------------(NULL) RECOVERY REQUIRED --(NO) FRLOG --------- (NULL)
VSAM QUIESCED--------(NO) RLS IN USE -------(NULL)
LOGSTREAMID----------------- (NULL)
RECOVERY TIMESTAMP LOCAL---X'0000000000000000'
RECOVERY TIMESTAMP GMT---X'0000000000000000'
PROTECTION-PWD--------(NULL) RACF--------(NULL)
ASSOCIATIONS
DATA-------IXGLOGR.USER.LOGSTREAM,A0000002.DATA
DATA----- IXGLOGR.USER.LOGSTREAM.A0000002.DATA

Chapter 24. System logger 691
Utility error messages

If the IXCMIAPIU request fails, there are cases where Logger issues messages to the System Log. Check for IXGxxx messages in both the job log and the system log to assist in problem determination. Once there is an error, logger stops reading the input unless CONTINUE is specified.

The following section contains examples of IXCMIAPIU Error Messages:

1. Error messages from IXCMIAPIU:

   **ADMINISTRATIVE DATA UTILITY:** INPUT
   **DATA TYPE = LOGR**

   **LINE #** | **CONTROL CARDS**
   --- | ---
   1 | DATA TYPE(LOGR) REPORT(NO)
   2 | DEFINE STRUCTURE NAME(LIST02) LOGSNUM(4)
   3 | AVGBUFSIZE(4096) MAXBUFSIZE(32768)

   **ADMINISTRATIVE DATA UTILITY:** MESSAGES
   **DATA TYPE = LOGR**

   IXG005I LOGR POLICY PROCESSING LINE# 2
   IXG013E STRUCTURE LIST02 ALREADY EXISTS
   IXG002E LOGR POLICY PROCESSING ENDED WITH RETCODE=00000008 RSNCODE=00000825
   IXG003I LOGR POLICY PROCESSING ENCOUNTERED AN UNEXPECTED ERROR.
   **DIAGNOSIS INFORMATION:** 00000000 00000000 050B000C 00000000

   The RETCODE and RSNCODE can be found in mapping Macro IXGCON or IXGINVNT.
   The 'DIAGNOSIS INFORMATION' is intended for IBM Level 2 only.
   The line number referenced (in this case '2') refers to where the Request type is located ('DEFINE').

2. Messages written to the SYSLOG:

   **ADMINISTRATIVE DATA UTILITY:** INPUT
   **DATA TYPE = LOGR**

   **LINE #** | **CONTROL CARDS**
   --- | ---
   1 | DATA TYPE(LOGR) REPORT(NO)
   2 | DEFINE LOGSTREAM NAME(BAD.LOG STREAM) LOWOFFLOAD(20)
System logger

3 DASDONLY(NO) STG_SIZE(100) LS_SIZE(24) STG_DUPLEX(YES)
4 DUPLEXMODE(UNCOND) STRUCTNAME(LIST02)
5 LS_DATACLAS(NOTDEF)

Administrative Data Utility: Messages

IXG005I LOGR Policy processing Line# 2
IXG007E A Storage Management Subsystem (SMS) Attribute Class is Undefined.
IXG002E LOGR Policy processing ended with Retcode=00000008 RSNcode=000083B
IXG003I LOGR Policy processing encountered an Unexpected Error.
Diagnosis Information: 00000004 00003F6 0107001B 00000000

--------------------

Syslog:
IXG251I IKJ56893I DATA SET IXGLOGR.BAD.LOG.STREAM.A0000000 NOT ALLOCATED+
IXG251I IGD01014I DATA SET ALLOCATION REQUEST FAILED -
IXG251I SPECIFIED DATACLAS NOTDEF DOES NOT EXIST

3. If logger encounters an error while processing any IXCMIApu request, it terminates processing and ignores any other input.

Administrative Data Utility: Input

Line # | Control Cards
---|---
1 | DATA TYPE(LOGR) REPORT(NO)
2 | DEFINE LOGSTREAM NAME(BAD.LOG.STREAM) LOWOFFLOAD(20)
3 | DASDONLY(NO) LS_SIZE(20) STG_DUPLEX(NO)
4 | STRUCTNAME(LISTXX)
5 | DEFINE LOGSTREAM NAME(GOOD.LOG.STREAM) STG_SIZE(100)
6 | LOWOFFLOAD(20) DASDONLY:YES) HIGHOFFLOAD(90)
7 | MAXBUFSIZE(32768)
8 | MAXBUFSIZE(32768)

Administrative Data Utility: Messages

IXG005I LOGR Policy processing Line# 2
IXG018E STRUCTURE LISTXX DOES NOT EXIST
IXG002E LOGR Policy processing ended with Retcode=00000008 RSNcode=0000827
IXG003I LOGR Policy processing encountered an Unexpected Error.
Diagnosis Information: 00000008 0000F801 05030004 050B000B

Ignore lines 5 to 8.

4. If CONTINUE is specified before system logger encounters an error, system logger continues to execute requests that follow the request in an error.

Administrative Data Utility: Input

Line # | Control Cards
---|---
1 | DATA TYPE(LOGR) REPORT(YES)
2 | CONTINUE
3 | DEFINE LOGSTREAM NAME(BAD.LOG.STREAM) LOWOFFLOAD(20)
4 | DASDONLY(NO) LS_SIZE(20) STG_DUPLEX(NO)
5 | STRUCTNAME(LISTXX)
6 | DEFINE LOGSTREAM NAME(GOOD.LOG.STREAM) STG_SIZE(100)
7 | LOWOFFLOAD(20) DASDONLY(YES) HIGHOFFLOAD(90)
8 | MAXBUFSIZE(32768)

Administrative Data Utility: Messages

IXG005I LOGR Policy processing Line# 2
IXG004I LOGR Policy processing ended without error
IXG003I LOGR Policy processing error encountered.
IXG447I LOGR Policy processing found an error but continues
System logger

RETCODE=00000008 RSN=00000827
IXG003I LOGR POLICY PROCESSING ENCOUNTERED AN UNEXPECTED ERROR.
DIAGNOSIS INFORMATION: 00000008 0000F801 05030040 0500000B
IXG005I LOGR POLICY PROCESSING LINE# 6
IXG004I LOGR POLICY PROCESSING ENDED WITHOUT ERROR
IXG446E LOGR POLICY PROCESSING FOUND ERRORS BUT CONTINUED.
FIRST ERROR FOUND LINE# 3 RETCODE=00000008 RSNCODE=00000827
TOTAL NUMBER ERRORS FOUND: 1

Because CONTINUE is specified, system logger executes the request on line 6.

5. If a syntax error is found, processing of requests stops, although CONTINUE is specified.

ADMINISTRATIVE DATA UTILITY: INPUT  DATA TYPE = LOGR
LINE # CONTROL CARDS
1 DATA TYPE(LOGR) REPORT(YES)
2 CONTINUE
3 DEFINE LOGSTREAM NAME(BAD.LOG.STREAM) LOWOFFLOAD(20)
4 DASDONLY(YES) LS_SIZE(20) STG_DUPLEX(NO)
5 STRUCTNAME(LISTXX)
6 DEFINE LOGSTREAM NAME(WILL.NOT.BE.CREATED) STG SIZE(100)
7 LOWOFFLOAD(20) DASDONLY(YES) HIGHOFFLOAD(90)
8 MAXBUFSIZE(32768)

ADMINISTRATIVE DATA UTILITY: MESSAGES  DATA TYPE = LOGR
IXG005I LOGR POLICY PROCESSING LINE# 2
IXG004I LOGR POLICY PROCESSING ENDED WITHOUT ERROR
IXG004I LOGR POLICY PROCESSING ENDED WITHOUT ERROR
IXG001I LOGR POLICY PROCESSING ENDED WITHOUT ERROR
IXG433E SYNTAX ERROR: WHEN DASDONLY(YES) IS SPECIFIED,
THE FOLLOWING MAY NOT BE SPECIFIED: STRUCTNAME

The request specified on line 6 is not executed.

Analyzing component trace

The output from component trace will allow you to find the module ID of the failing module and to identify parameters that are passed to the module. Trace will produce output in the format shown in Figure 55.

<table>
<thead>
<tr>
<th>System Name</th>
<th>Type of Ctrace record</th>
<th>Module identifier and location</th>
<th>TimeStamp</th>
<th>Tracing Module description</th>
</tr>
</thead>
<tbody>
<tr>
<td>JB0</td>
<td>SERIAL</td>
<td>06050002</td>
<td>11:43:25.857844</td>
<td>WRKUN ADD AND START RQE</td>
</tr>
<tr>
<td>ASCB addr</td>
<td>TCB addr</td>
<td>Job________________Name</td>
<td>Stack addr</td>
<td>Asid/#Mods</td>
</tr>
<tr>
<td>00F60080</td>
<td>0070E70</td>
<td>C9C204E4 E2D9F540</td>
<td>27790F28</td>
<td>01760001</td>
</tr>
</tbody>
</table>

Figure 55. Example: Component trace output

Each ctrace entry is consistent up through the module IDs. After that, each entry has its own format. To identify the fields:
1. Find the halfword module identifier in IXGXMT. This will identify the module name.
2. Browse the module to find the full id, which will identify the label in that module where the trace record was requested.
Formatting system logger dump data

Format an SVC or stand-alone dump with the interactive problem control system (IPCS) LOGGER subcommand to produce diagnostic reports about the system logger. 

Restarting the system logger address space

If it is necessary to restart the IXGLOGR address space to correct problems or apply maintenance, then the following procedure is recommended:

1. Take action to cause any log stream connectors (exploiters) to disconnect from their log stream(s).
   
   You can use the following commands to identify any connectors and which log streams need attention.
   
   Display LOGGER,C,JOB=*  
   Display LOGGER,C,LSN=*  
   
   When there are no log stream connections remaining on the system, IXG601I message output will indicate 'NO MATCHING INFORMATION FOUND.'

2. Issue the command FORCE IXGLOGR,ARM and wait for it to complete (see message IXG067E in 
   \[/OS MVS System Messages, Vol 10 (IXC-IZP)\]).

3. If this restart is to install maintenance, ensure it is applied at this point.

4. Issue the command START IXGLOGRS to restart system logger.

5. Take action to reconnect to log streams as needed.

Note: The FORCE IXGLOGR,ARM command will cause disconnects for active log stream connections on the system and log stream requests will fail until logger is restarted. Applications with log stream connections may experience outages when system logger is unavailable. Log streams will need to be reconnected when system logger is available to resume operations.

For more information on the START IXGLOGRS command, see \[IXGLOGRS - Start the IXGLOGR server address space\] on page 668. For more information on availability of the IXGLOGR address space, see \[/OS MVS Setting Up a Sysplex\].

System logger latch conventions

System logger uses GRS latches to serialize different operations and control resource access. You can use commands from an MVS console to identify what logger latches are held. Use the following commands to display which latches are held by logger. See \[Relevant MVS system commands\] on page 704 for more details.

- D GRS, Latch, Jobname=IXGLOGR  
- D GRS,ANALYZE,LATCH,DEPENDENCY,DETAIL  
- D GRS,C,LATCH

Logger uses three distinct types of latches: miscellaneous latches, structure or task latches, and log stream latches. Table 56 shows the latch set names and latch numbers of the three types of latches.

Table 56. Latch types used by Logger

<table>
<thead>
<tr>
<th>Latch type</th>
<th>Latch set name</th>
<th>Latch number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miscellaneous latches</td>
<td>SYS.IXGLOGER_MISC</td>
<td>8</td>
</tr>
</tbody>
</table>
System logger

Table 56. Latch types used by Logger (continued)

<table>
<thead>
<tr>
<th>Latch type</th>
<th>Latch set name</th>
<th>Latch number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure or task latches</td>
<td>'SYS.IXGLOGER_STRUCTURE_LATCH_SET</td>
<td>1024</td>
</tr>
<tr>
<td>Log stream latches</td>
<td>'SYS.IXGLOGER_LCBIT___CTA:12345678_SLSA:1234</td>
<td>224 per latch set name</td>
</tr>
</tbody>
</table>

Logger uses different procedures to create and manage these latches:

- **Miscellaneous latches:**
  - Miscellaneous latches are established when the IXGLOGR address space is initialized.
  - The latch set name contains six latch numbers.
  - Each latch number controls a different logger resource. For example, miscellaneous latch number 7 controls access to the system logger configuration (for example: IXGCNFXX parmlib) settings.

- **Structure or task latches:**
  - Structure or task latches are established when the IXGLOGR address space is initialized.
  - The latch set name contains 1024 latch numbers.
  - There are two sets of latch numbers.
  - Each latch number corresponds to a logger connecting task and its corresponding CTA entry.

- **Log stream latches:**
  - Log stream latches are established as needed during a log stream connection. When a log stream is associated with a logger connection task, the log is included in the first available latch set name, if any are already established under that connection task.
  - Each log stream latch set name is created using the following model:
    `SYS.IXGLOGER_LCBIT___CTA:12345678_SLSA:1234`
    
    In the model, each log stream latch set name is uniquely identified by a combination of the CTA number and the SLSA number.
    - The CTA number identifies which logger connection task holds the latch.
    - The SLSA number identifies a unique latch set instance, within the CTA number, for a log stream. For structure-based log streams, there can be up to 16 latch sets per CTA number. For DASDONLY-based log streams, there can be up to two latch sets per CTA number.
    - Each log stream latch set contains 224 latch numbers.
    - Each log stream has seven latch subtypes.
    - Each latch subtype is represented in a range of indexes within the latch set.

Logger associates a log stream name with a latch number for a log stream latch set. When you use the MVS command `D GRS,ANALYZE,LATCH,DEPENDENCY,DETAIL` to show global latch contention, you can use the log stream names to determine the resources that are involved with the latching. The following examples show the outputs by using the `D GRS,ANALYZE,LATCH,DEPENDENCY,DETAIL` command.
Figure 56 shows output of ISG374I messages from the DGRS,ANALYZE,LATCH,DEPENDENCY,DETAIL command. In this example, system logger (jobname IXGLOGR) is waiting to get the latch exclusive but another job (WRITE3) holds the latch shared.

- CTA number 3 identifies the third logger task of the structure connection.
- SLSA number 1 is for the second latch set within the logger connecting task 3.
- Latch number 2 is the latch number shared for the log stream named IXGLOGR.SOME.LOG.STREAM.

Figure 57 shows the output of ISG374I messages from the DGRS,ANALYZE,LATCH,DEPENDENCY command. Logger recommends the detail display because the regular display truncates a portion of the latch set name.

Figure 58 on page 698 shows the output of other ISG374I messages from the DGRS,ANALYZE,LATCH,DEPENDENCY,DETAIL command. In this example, system logger is waiting for dasdonly log stream IXGLOGR.DASDONLY.STREAM to get exclusive control of latch 1 in latch set SYSL:IXGLOGR.LCBIT__CTA:00000324_SLSA:0001 while job READLOG holds the latch shared.
Associating latch contention with a logger TCB or WEB

If the logger address space hangs, it might be useful to investigate what latches logger holds. To find out what local latches are being used by system logger, you can either use the D GRS, C command from an MVS console or use the IPCS command IP ANALYZE RESOURCE to format the information in a dump. A sample of a logger latch is as follows:

SYS.IXGLOGER_LCBIT_CTA:00000257_SLSA:0001 ASID=0016 Latch#=11

The CTA number identifies which structure task (IXGWITSK) holds the latch and the ASID identifies the logger (IXGLOGR) address space. The latch number indicates the type of log stream latch that is held.

To find out what processing occurred under the unit of work, follow these steps:

1. Use the IP ANALYZE RESOURCE command to determine the WEB and TCB addresses. The command will generate output as shown in Figure 59.

   RESOURCE #0018: NAME=SYS.IXGLOGER_LCBIT_CTA:00000257_SLSA:0001 ASID=0016 Latch#=11

   RESOURCE #0018 IS HELD BY:
   JOBNAME=IXGLOGR ASID=0016 WEB=029E4598
   DATA=SHARED RETADDR=8612A6
   REQID=0000005800000001

   RESOURCE #0018 IS REQUIRED BY:
   JOBNAME=IXGLOGR ASID=0016 TCB=007E8688
   DATA=EXCLUSIVE RETADDR=860AFC6
   JOBNAME=IXGLOGR ASID=0016 TCB=00791C8
   DATA=EXCLUSIVE RETADDR=860A70A2

   Figure 59. Example: Output from IP ANALYZE RESOURCE command

Note:

a. The RETADDR identifies the latch requestor.

b. The WEB address can be located in an SSRB in the IXGLOGR address space.

c. The TCB address will match the PTCB in an SSRB in the IXGLOGR address space.

d. The REQID will match the STOKEN of an RQE.
2. Issue the following command to find the associated SSRB by searching for the WEB or PTCB address (note the linkage stack pointer (LSDP) at +C0).

   IP SUMMARY FORMAT REGS JOBNAME(IXGLOGR)

   Figure 60 is a sample of the output from this command.

   LOCAL SUSPENDED SRB QUEUE
   SSRB: 030DA988
   +0000  ID........ SSRB  FLNK..... 0341D310  ASCB..... 00FA3280
   +000C  CPAIR..... 0000  PAST..... 0016  PTCB..... 007E868B
   +0014  CPAK..... 00000000  MRTK..... 813AC6D  PARM..... 00000000
   +0020  WEB...... 029E4998  PKF...... 00  FLGS...... 08
   +0026  HLHI..... 00  FLGS...... 00  FRRA..... 00000000
   +0030  FPR...... 00000000  00000000  00000000  00000000  00000000
   +0044  SAFN..... 0000  TYPE...... 0C  FLGS...... FB
   +0054  GPR0..... 00000000  GPR1...... FFFFFFFF
   +0060  GPR2..... FFFFFFFF  GPR3..... FFFFFFFF  GPR4..... FFFFFFFF
   +006C  GPR5..... FFFFFFFF  GPR6..... FFFFFFFF  GPR7..... FFFFFFFF
   +0078  GPR8..... FFFFFFFF  GPR9..... FFFFFFFF  GPR10..... FFFFFFFF
   +0084  GPR11..... FFFFFFFF  GPR12..... FFFFFFFF  GPR13..... FFFFFFFF
   +0090  GPR14..... FFFFFFFF  GPR15..... FFFFFFFF
   +0098  CPSW..... 470C0000  8112F9A2
   +00A0  CPUT...... 00000000  00403800
   +00A4  TIME...... 00000000  08242800  XSB...... 030DAFB0
   +00B0  0000...... 0016  EAX...... 0000
   +00C0  LSDP...... 023B5168

   Figure 60. Example: Output from IP SUMMARY FORMAT command

3. After locating the SSRB (suspended SRB) in the logger address space using the WEB or TCB address, use the following commands to format the linkage stack entries (LSE) and identify what processing occurred under that SRB by using the LSDP pointer from the SSRB.

   a. IP List LSDP-A0
   b. IP EQ LSE1 X
   c. IP CBF LSE1 STR(LSE)

   LSE: 023B50CB
   GENERAL PURPOSE REGISTER VALUES
   00-03.... 25D663D4  266F1B30  00000000  266F172B
   04-07.... 00FE8AC8  00000C58  00000000  00FC0080
   08-11.... 25F59A50  266F0018  266F1B30  06148D9F
   12-15.... 06147DA0  266F1950  00000317  00020000  <--IXGL1WRK
   PKM...... 0000  SASN..... 00000000  00000000  00000000
   PASN..... 0016  PSM...... 470C0000  86148DEC
   TARG..... 00000000  MSTA..... 00000000  00000000
   TYPE..... 05
   PC STATE ENTRY
   RFS...... 02A0  NES...... 0000

LOGGER subcommand output

   Use the LOGGER subcommand to diagnose errors in the system logger address space. The dump must include the system logger private storage. Status is provided for:
   - the state of the address space
   - the coupling facility structures in use by system logger
   - log streams and log stream connections
   - the logger tasks (TCBs)
System logger

- queued work (RQEs)
- stack information
- logger module names and addresses

Use IPCS LOGGER in conjunction with the MVS command D LOGGER or IXCMIAPU TYPE(LOGR) DETAIL(YES) report to provide supporting diagnostic information. The IPCS LOGGER subcommand has no parameters. Figure 61 is an example of a LOGGER report.

<table>
<thead>
<tr>
<th>System Logger Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOGR Couple Dataset Level: HBB6603</td>
</tr>
<tr>
<td>System Logger Asid: 0014</td>
</tr>
<tr>
<td>System Logger state information</td>
</tr>
<tr>
<td>----------------------------</td>
</tr>
<tr>
<td>Available</td>
</tr>
<tr>
<td>Ctrace is active</td>
</tr>
<tr>
<td>System level recovery performed</td>
</tr>
<tr>
<td>Couple Dataset available</td>
</tr>
<tr>
<td>SMS has been checked</td>
</tr>
<tr>
<td>Report for Generalized tasks</td>
</tr>
<tr>
<td>----------------------------</td>
</tr>
<tr>
<td>BLF01 Tcb Address 007E2868</td>
</tr>
<tr>
<td>BLF01 Request Que 00000000</td>
</tr>
<tr>
<td>Waiting For work</td>
</tr>
<tr>
<td>WORKT Tcb Address 007E24B0</td>
</tr>
<tr>
<td>WORKT Request Que 00000000</td>
</tr>
<tr>
<td>Waiting For work</td>
</tr>
<tr>
<td>FITTT Tcb Address 007E2220</td>
</tr>
<tr>
<td>FITTT Request Que 00000000</td>
</tr>
<tr>
<td>Waiting For work</td>
</tr>
<tr>
<td>AITSK Tcb Address 007E2900</td>
</tr>
<tr>
<td>AITSK Request Que 05823880</td>
</tr>
<tr>
<td>Processing work or initializing</td>
</tr>
<tr>
<td>MITSK Tcb Address 007E1E88</td>
</tr>
<tr>
<td>MITSK Request Que 00000000</td>
</tr>
<tr>
<td>Waiting For work</td>
</tr>
<tr>
<td>AIHSM Tcb Address 007E2740</td>
</tr>
<tr>
<td>AIHSM Request Que 00000000</td>
</tr>
<tr>
<td>Waiting For work</td>
</tr>
<tr>
<td>LITSK Tcb Address 007E1A60</td>
</tr>
<tr>
<td>LITSK Request Que 05824840</td>
</tr>
<tr>
<td>Processing work or initializing</td>
</tr>
<tr>
<td>LSTSK Tcb Address 007E1700</td>
</tr>
<tr>
<td>LSTSK Request Que 05823B20</td>
</tr>
<tr>
<td>Processing work or initializing</td>
</tr>
</tbody>
</table>

Figure 61. Example: LOGGER report
THE Following Requests Are Queue to ALLOC
REQUEST: 05823880
  Function. 00000004 STOKEN... 00000050 00000001 STATE.... 00000000
  ASID(X'0014')

THE Following Requests Are Queue to INVENTORY
REQUEST: 05824840
  Function. 0000002B STOKEN... 00000000 00000000 STATE.... 00000000
REQUEST: 05822E00
  Function. 00000001 STOKEN... 00000080 00000001 STATE.... 22222222
  ASID(X'0020')

THE Following Requests Are Queue to LSTSK
REQUEST: 05823B20
  Function. 00000006 STOKEN... 00000000 00000000 STATE.... 00000000

Report for Connection subtask:
-----------------------------------
CTA: 05800008
  Structure Latch 05A50CE8
  Tcb Address 007E1408
  Connection Sequence 00000001
  Failure Count 00000000
  Structure Sequence 00000000
  Initialized
  Allocated
  TaskAttached
  Associated

Figure 62. Example: LOGGER report, continued
System logger

<table>
<thead>
<tr>
<th>Register Information for Stack Entry 01 of 02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ep Name: IXGW1TSK addr: 03D17368 in Module: IXGW1TSK addr: 03D17368</td>
</tr>
<tr>
<td>GENERAL PURPOSE REGISTER VALUES</td>
</tr>
<tr>
<td>0-3 05858ABC 05A5215C 0000058 00000000</td>
</tr>
<tr>
<td>4-7 05A51F1E 01599228 058230A0 05000000</td>
</tr>
<tr>
<td>8-11 01599000 00000058 00000000 03D18367</td>
</tr>
<tr>
<td>12-15 03D17368 05A52018 83D18264 83D1C810</td>
</tr>
<tr>
<td>ACCESS REGISTER VALUES</td>
</tr>
<tr>
<td>0-3 007E2B68 00000000 00000000 00000000</td>
</tr>
<tr>
<td>4-7 00000000 00000000 00000000 00000000</td>
</tr>
<tr>
<td>8-11 00000000 00000000 00000000 00000000</td>
</tr>
<tr>
<td>12-15 00000000 00000000 00000000 00000001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Register Information for Stack Entry 02 of 02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ep Name: IXGC4DIS addr: 03D1C810 in Module: IXGC4DIS addr: 03D1C810</td>
</tr>
<tr>
<td>GENERAL PURPOSE REGISTER VALUES</td>
</tr>
<tr>
<td>0-3 06050003 83D20766 83BD8360 00000000</td>
</tr>
<tr>
<td>4-7 05A52A0C 03D20E48 05A52AE4 05A52DE4</td>
</tr>
<tr>
<td>8-11 015A08C0 03D1F80D 03D2080C 0301E80E</td>
</tr>
<tr>
<td>12-15 015A28C0 00FD2330 03D1D80F 03D1C810</td>
</tr>
<tr>
<td>ACCESS REGISTER VALUES</td>
</tr>
<tr>
<td>0-3 007E2B68 00000000 00000000 00000000</td>
</tr>
<tr>
<td>4-7 00000000 00000000 00000000 00000000</td>
</tr>
<tr>
<td>8-11 00000000 00000000 00000000 00000000</td>
</tr>
<tr>
<td>12-15 00000000 00000000 00000000 00000001</td>
</tr>
<tr>
<td>EcbList: 05A50B60</td>
</tr>
<tr>
<td>Count.... 0000002</td>
</tr>
<tr>
<td>Ecb@..... 05800028 Ecb@..... 0582509C</td>
</tr>
</tbody>
</table>

Figure 63. Example: LOGGER report, continued
System logger

| ECB: 05800028 | 00000000 |
| ECB: 0582509C | 40000000 |

Is being processed

Is being processed

Report For Structure: LIST03 Conname: IXGLOGR_SY2

STACB: 0581C0F8

Structure Information:
- Asynchronous Write Count: 0000
- Current Connect Token: C9E7C3D3 D6F0F0F2 7F69308 00010004
- Saved rebuild Conn Token: C9E7C3D3 D6F0F0F2 7F69308 00010004

Structure Status:
- Structure is connected
- Structure is allocated
- Structure is failure isolated
- Structure FULL
- Non-Volatile
- PreRebuild was failure Independent
- Structure is failure Independent
- Disconnect Normal

Rebuild Status:
- A rebuild is not in progress

Report for Logstream: IXJME36.STREAM3

LCB: 05806998

DSSEQ.... A0000000

Config2 Logstream

Logstream Available
DUPLEx=Yes
DUPLEXMODE=COND
SMF Buffer Available
RMNAME specified on define
Resource manager connected
Structure Full
Store In mode

Figure 64. Example: LOGGER report, continued
Relevant MVS system commands

The following list provides a subset of MVS system commands that can be useful diagnostic aids when the system logger encounters a problem. For a full description of these commands, and a complete list of all MVS system commands, see the following resource:

- D GRS,Latch,Jobname=IXGLOGR to show all latches held by logger address space.

---

Figure 65. Example: LOGGER report, continued
System logger

- D GRS,ANALYZE,LATCH,DEPENDENCY,JOBNAME=IXGLOGR,DETAIL to show the dependencies of all latch sets created in the logger address space. See “System logger latch conventions” on page 695 for a description of logger latches.
- D GRS,RES=(SYSZLOGR,*) to show ENQs that are held by the logger. The major name is SYSZLOGR. The minor name contains the log stream name.
- D GRS,Ct o show any latch or ENQ contention.

Tip: The preferred method of trying to determine ENQ contention is D GRS,ANALYZE,BLOCKER and latch contention is D GRS,ANALYZE,LATCH,BLOCKER,DETAIL.
- D GRS,RNL=A to show additional RNL information.
- D XCF,STR to display summary information about all coupling facility structures that are in the sysplex.
- D XCF,STR,STRNAME=logger_structure to show details of the specified logger structure.
- D XCF,COURPLETE,TYPE=LOGR to display LOGR couple data set details.
- D TRACE,COMP=SYSLOGR to display the component trace status of system logger.
- D LOGGER,options to display information about the system logger. For details on the options that can be specified, see z/OS MVS System Commands. To interpret the output of the D LOGGER command, see message IXG601I in z/OS MVS System Messages, Vol 10 (IXC-IZP).
- SETLOGR FORCE to clean up logstream resources related to a system logger logstream when the logstream becomes unusable. Logger will attempt to release all the related resources for the logstream based on the request.
- FORCE IXGLOGR,ARM to take down the logger address space. Do not use CANCEL or FORCE without specifying ARM.
- START IXGLOGRS to bring up the system logger address space.
- D A,IXGLOGR to display the system logger address space.
- D LOGREC to display information about the logrec log stream.
- D C,HC to display information about the operlog log stream.

Relevant IPCS commands

The following IPCS commands can be particularly useful for displaying the information in a system logger dump. For a full description of these commands, see z/OS MVS IPCS Commands.
- IP CTRACE COMP(SYSLOGR) FULL OPTIONS(options) to format LOGR ctrace, if the dataspace was dumped and ctrace was running.
- IP ANALYZE RESOURCE to identify Latch or ENQ contention.
- IP VERBX LOGDATA to format the logrec buffer records that were in storage when the dump was generated.
- IP LOGGER to format data in the system logger address space.
- IP CBF address STR(control block) to format and display any of the following logger control blocks:
  - IXGACNTL
  - IXGARTE
  - IXGBFTOK (BufferTOK instance in IXGLBCB)
  - IXGBLKID
  - IXGCTA
System logger

- IXGDIRCT
- IXGDMTOK
- IXGINV
- IXGLBBCE
- IXGLBBLS
- IXGLBCB
- IXGLBBCS
- IXGLBELS
- IXGLBLB
- IXGLCB
- IXGLCBIT
- IXGLCCB
- IXGLSAB
- IXGPCNTL
- IXGVTCT
- IXGRQE
- IXGSTAB
- IXGSTRCB
- IXGWOWE

- IP CBF address STR(LSE) to format linkage stack entries.
- IP CBF address FORMAT(IXGIPSTK) to format a logger stack address. IP LOGGER uses this command internally.
Chapter 25. Subsystem Interface (SSI)

This topic contains diagnosis information for the subsystem interface (SSI).

Formatting SSI Dump Data

Format the SVC or stand-alone dump with the IPCS SSIDATA subcommand to produce diagnostic reports about the SSI. [z/OS MVS IPCS Commands] gives the syntax of the SSIDATA subcommand.

SSIDATA subcommand output

The SSIDATA subcommand displays the following information about subsystems defined to the SSI. [Figure 66 on page 708] is an example of an SSIDATA report.

- The number of subsystems defined to the SSI
- The subsystem name
- Whether the subsystem is the primary subsystem
- Whether the subsystem is dynamic
- The status of the subsystem
- Whether the subsystem accepts or rejects the SETSSI command
- Whether the subsystem has an event notification routine
- The function routines that the subsystem supports
Summary Report for SSIDATA
---------------------------------
NUMBER OF DEFINED SUBSYSTEMS = 4
ADDRESS OF SUBSYSTEM REQUEST ROUTER = 80B75038

<table>
<thead>
<tr>
<th>SUBSYS</th>
<th>DYNAMIC</th>
<th>STATUS</th>
<th>COMMANDS</th>
<th>EVENTRTN</th>
<th>SUBSYSTEM DEFINITION DATA</th>
<th>SUBSYSTEM VECTOR TABLE DATA</th>
<th>SUBSYSTEM DEFINITION DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>XYZ</td>
<td>YES</td>
<td>ACTIVE</td>
<td>NO</td>
<td>NO</td>
<td>SSCVT ADDRESS = 00B25C2C</td>
<td>ADDRESS = 00B08270</td>
<td>TOKEN = N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>USER FIELD 1 = 0080B7D0</td>
<td>USER FIELD 2 = 0080B7C0</td>
<td>FUNC = 1</td>
</tr>
<tr>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>FUNC = 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FUNC = 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FUNC = 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FUNC = 5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FUNC = 6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUBSYS</th>
<th>DYNAMIC</th>
<th>STATUS</th>
<th>COMMANDS</th>
<th>EVENTRTN</th>
<th>SUBSYSTEM DEFINITION DATA</th>
<th>SUBSYSTEM VECTOR TABLE DATA</th>
<th>SUBSYSTEM DEFINITION DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEW1</td>
<td>YES</td>
<td>ACTIVE</td>
<td>YES</td>
<td>YES</td>
<td>SSCVT ADDRESS = 00B25C0</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>USER FIELD 1 = 00000000</td>
<td>USER FIELD 2 = 00000000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>SUBSYS</th>
<th>DYNAMIC</th>
<th>STATUS</th>
<th>COMMANDS</th>
<th>EVENTRTN</th>
<th>SUBSYSTEM DEFINITION DATA</th>
<th>SUBSYSTEM VECTOR TABLE DATA</th>
<th>SUBSYSTEM DEFINITION DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABC</td>
<td>NO</td>
<td>ACTIVE</td>
<td>N/A</td>
<td>N/A</td>
<td>SSCVT ADDRESS = 00B25C08</td>
<td>USER FIELD 1 = 00000000</td>
<td>TOKEN = N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>USER FIELD 2 = 00000000</td>
<td></td>
<td>FUNC = 4</td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td>FUNC = 5</td>
</tr>
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<td></td>
<td>FUNC = 6</td>
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<td>FUNC = 8</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
<td>FUNC = 9</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FUNC = 10</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SUBSYS</th>
<th>DYNAMIC</th>
<th>STATUS</th>
<th>COMMANDS</th>
<th>EVENTRTN</th>
<th>SUBSYSTEM DEFINITION DATA</th>
<th>SUBSYSTEM VECTOR TABLE DATA</th>
<th>SUBSYSTEM DEFINITION DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>EFGH</td>
<td>NO</td>
<td>INACTIVE</td>
<td>N/A</td>
<td>N/A</td>
<td>SSCVT ADDRESS = 00B25C74</td>
<td>USER FIELD 1 = 00000000</td>
<td>TOKEN = N/A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>USER FIELD 2 = 00000000</td>
<td></td>
<td>FUNC = 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FUNC = 5</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>FUNC = 6</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>FUNC = 8</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>FUNC = 9</td>
</tr>
</tbody>
</table>

Figure 66. Example: SSIDATA report

The following fields appear in the output:

**SUBSYS=subsysname**

The subsystem name. It is 1- to 4-characters long. The first reported subsystem is normally the primary subsystem.

**DYNAMIC=ddd**

Indicate is the subsystem responds to dynamic SSI service requests. To be dynamic, the subsystem must have been added using the dynamic SSI services.

*ddd* is one of the following:

- **YES** The subsystem responds to dynamic SSI service requests.
- **NO** The subsystem does not respond to dynamic SSI service requests.

See [z/OS MVS Using the Subsystem Interface](z/OS MVS Using the Subsystem Interface) for information on dynamic SSI service requests.

**STATUS=ssssssss**

The status of the subsystem, which is one of the following:

- **ACTIVE**
  The subsystem is active. It accepts function requests directed to it by the SSI.
INACTIVE

The subsystem is inactive. It does not accept function requests directed to it by the SSI.

COMMANDS=ccc

Indicates if the subsystem accepts dynamic SSI commands. A dynamic subsystem can enable or disable all SSI commands, except the ADD command. ccc is one of the following:

YES The subsystem accepts SETSSI commands.
NO The subsystem rejects SETSSI commands (with the exception of the add command).
N/A The subsystem is not dynamic.

EVENTRTN=eee

Indicates whether the subsystem has a subsystem event notification routine. eee is one of the following values:

YES The subsystem has an event notification routine.
NO The subsystem does not have an event notification routine.
N/A The subsystem is not dynamic. EVENTRTN is only supported for dynamic subsystems.

USER FIELD1=uuuuuuuu

User field that contains stored information about the associated subsystem. This field corresponds to the SUBDATA1 field that is used by the IEFSSI PUT and GET macro services. If the user field is not set, it contains hexadecimal zeros.

USER FIELD2=uuuuuuuu

User field that contains stored information about the associated subsystem. This field corresponds to the SUBDATA2 field that is used by the IEFSSI PUT and GET macro services. If the user field is not set, it contains hexadecimal zeros.

ADDRESS=aaaaaaaa

Address of the active subsystem vector table (SSVT). If the SSVT is not active, the address is not displayed.

FUNC=ff

A list of all the function codes to which the subsystem responds. The function codes are separated by blanks. If there are too many function codes in the list to fit on the line, the list is continued on the next line.

This field contains NONE if no function codes are supported by the subsystem or if the subsystem is inactive.

SSIDATA subcommand messages

The following messages may be issued in response to the SSIDATA subcommand:

• SSIDATA warning conditions detected
• SSIDATA processing terminated - necessary storage not in dump
• SSIDATA processing terminated - internal error
• Subsystem information incomplete - storage not in dump
• Subsystem added out of sequence - appears before the primary subsystem
• Errors found in subsystem data - possible storage overlay
Subsystem Interface
Chapter 26. Workload Manager (WLM)

This topic contains the following diagnosis information for the workload manager (WLM):

- "Requesting WLM dump data."
- "Formatting WLM dump data."
- "WLMDATA report header" on page 712
- "WLMDATA status report" on page 713
- "WLMDATA policy report" on page 729
- "WLMDATA WORKMANAGER report" on page 734
- "WLMDATA queue manager report" on page 739
- "WLMDATA server manager report" on page 751
- "WLMDATA scheduling environment report" on page 768
- "WLMDATA Coupling Facility manager report" on page 779
- "WLMDATA contention report" on page 796

Requesting WLM dump data

Format an SVC or stand-alone dump.

Formatting WLM dump data

Format the SVC or stand-alone dump with the IPCS WLMDATA subcommand to produce diagnostic reports about WLM. z/OS MVS IPCS Commands gives the syntax of the WLMDATA subcommand and z/OS MVS IPCS User’s Guide explains how to use the WLMDATA option.

WLMDATA divides information about WLM into three reports. Each report corresponds to the WLMDATA keywords in Table 57.

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Report Displays:</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATUS</td>
<td>Information about WLM status for systems in the sysplex.</td>
<td>&quot;WLMDATA status report&quot; on page 713</td>
</tr>
<tr>
<td>POLICY</td>
<td>Information about the service policy</td>
<td>&quot;WLMDATA policy report&quot; on page 729</td>
</tr>
<tr>
<td>WORKMANAGER</td>
<td>Information about work associated with the work managers using workload management services.</td>
<td>&quot;WLMDATA WORKMANAGER report&quot; on page 734</td>
</tr>
<tr>
<td>QUEUEMANAGER</td>
<td>Information about work associated with the queue managers using workload management services.</td>
<td>&quot;WLMDATA queue manager report&quot; on page 739</td>
</tr>
<tr>
<td>SERVERMANAGER</td>
<td>Information about work associated with the server managers using workload management services.</td>
<td>&quot;WLMDATA server manager report&quot; on page 751</td>
</tr>
<tr>
<td>SCHENV</td>
<td>Information about scheduling environments.</td>
<td>&quot;WLMDATA scheduling environment report&quot; on page 768</td>
</tr>
<tr>
<td>CFMANAGER</td>
<td>Information about Coupling Facility Manager processing.</td>
<td>&quot;WLMDATA Coupling Facility manager report&quot; on page 779</td>
</tr>
</tbody>
</table>
Workload Manager

Table 57. Summary: WLMDATA keywords (continued)

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Report Displays:</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTENTION</td>
<td>Information about resource contention topology function.</td>
<td>“WLMDATA contention report” on page 796</td>
</tr>
</tbody>
</table>

All WLMDATA reports contain a standard header: “WLMDATA report header” describes the information contained in the header.

For each report type, you can select one or more of the following levels:

**SUMMARY**
Displays summary information for each requested report type. SUMMARY is the default if no level is specified.

**EXCEPTION**
Displays diagnostic information for error or exceptional conditions for each requested report type.

**DETAIL**
Displays detailed information for each requested report type.

**WLMDATA report header**

The Header Report is a prefix to all other reports provided by the WLMDATA command. It appears regardless of the WLMDATA options that are selected. As Figure 67 shows, the selected WLMDATA options are displayed, followed by various status pertinent to all reports.

```
***** WLMDATA (WORKLOAD MANAGEMENT) REPORT *****
Options selected:
Report(s).............. STATUS
                    POLICY
                    WORKMANAGER
                    SERVERMANAGER
                    QUEUENAME
                    SCHENV
                    CFMANAGER
                    CONTENTION

Level(s) of detail..... SUMMARY
Filter(s) in use....... NONE
                    SYSNAME
                    ASID
                    SUBSYSTYPE
                    SUBSYSNAME

WLM address space ID...... X'000B'
Sysplex name............... PLEX1
System name............... ENTWIS1
```

Figure 67. Example: WLMDATA report header

**Report(s)**
One or more of the following report types:
- STATUS
- POLICY
Level(s) of detail
The level of detail in the report. Each report type is processed at each of the
selected levels of detail. Level is one or more of the following:
• SUMMARY
• DETAIL
• EXCEPTION

WLM address space ID
The address space identifier (ASID) of the WLM address space, displayed in
hexadecimal. This field contains the contents of the WMVTASID field.

Sysplex name
The name of the sysplex in which the system was running. This field contains
the contents of the ECVTSPLX field.

System name
The name of the system on which the dump was taken.

WLMDATA status report
The Status Report provides an overview of information that is pertinent to sysplex
processing for WLM; this information is returned when the STATUS keyword is
given on the WLMDATA subcommand. Various refinements of the Status Report
information can be done by specifying either SUMMARY, DETAIL or EXCEPTION.
For display processing the Status Report information can be displayed in any
particular order. When selecting the Status Report, further filtering of the data can
occur using the sysname keyword, which can filter the Status Reports down to a
specific system name.
**STATUS summary report**

<table>
<thead>
<tr>
<th>----- STATUS SUMMARY REPORT -----</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Global WLM Sysplex Manager Information</strong></td>
</tr>
<tr>
<td>------------------------------------------</td>
</tr>
<tr>
<td>Maximum number of systems.................. 32</td>
</tr>
</tbody>
</table>

**WLM Function Information**

- **Sysplex Communications Management**
  - Status.................................... Open
- **Administrative Policy Management**
  - Status.................................... Open
- **Performance Data Management**
  - Status.................................... Open
- **Device Clustering Management**
  - Status.................................... Open
- **Server Environment Management**
  - Status.................................... Open
- **Workload Balancing Management**
  - Status.................................... Open
- **Scheduling Environment Management**
  - Status.................................... Open

**WLM System Information**

- **System....................................... DAVEB9**
  - Status Data
    - WLM state.............................. Active
    - Mode................................... Goal
    - Policy name............................ POLICY2
    - Policy activation time................. 08/04/1996 14:29:14
- **System....................................... DAVEB2**
  - Status Data
    - WLM state.............................. Active
    - Mode................................... Goal
    - Policy name............................ POLICY2
    - Policy activation time................. 08/04/1996 14:29:14

*Figure 68. Example: STATUS summary report*

**Global WLM Sysplex Manager Information**

The global sysplex management information section represents data that is global to all sysplex processing done by the WLM sysplex manager.

**Maximum number of systems**

This value represents the maximum number of systems that can exist in the sysplex.

**WLM Function Information**

The function information section represents data that is unique for a WLM subcomponent that is using the WLM sysplex manager services.

- **Sysplex Communications Management**
- **Administrative Policy Management**
- **Performance Data Management**
- **Device Clustering Management**
- **Server Environment Management**
- **Workload Balancing Management**
- **Scheduling Environment Management**

The status for each function is one of the following:
Status
In the above example the parameter value for the status item is Open. The parameter value for status can be any of the following:

CLOSED
Indicates that the function is not operational.

OPEN
Indicates that the function has initialized and is fully operational.

QUIESCING
Indicates that the function is OPEN, however the function has been notified to quiesce further multisystem activities.

QUIESCED
Indicates that the function is not operational, i.e. CLOSED, due to quiescing of multisystem activities.

SUSPENDED
Indicates that the function is not operational, i.e. CLOSED, and that the task associated with the function has been placed into a wait because the function has attempted an OPEN.

WLM System Information
The system information section represents data that is unique for each system that is being handled by the WLM sysplex manager.

System
The value of this field is the name of the system being displayed. Note that starting at the system name field each system name section is duplicated for every system known to WLM.

Status Data
Header displayed that groups related information for a system concerning status data.

WLM state
The value of this field is one of the following:

Undefined
Indicates that no WLM state exists.

Initializing
Indicates that WLM is in the process of initializing; cross-system communications capability exists, however, WLM is not fully functional yet.

Active
Indicates that WLM has completed initialization and is fully functional, operating in the workload management mode contained in the checkpointed information associated with the member; this state also indicates that all other instances of WLM are aware of this member and using the same active service policy.

Independent
Indicates that WLM has completed initialization and is fully functional, operating in the workload management mode contained in the checkpointed information associated with the member; this state also indicates that this instance of WLM is not synchronized with other instances of WLM within the sysplex, either because
- There is no couple data set for WLM,
Workload Manager

- There is no connectivity to the couple data set for WLM in use by WLM on other systems,
- There is connectivity to the couple data set for WLM, however the data set does not contain a valid active service policy record, or
- Instantiation of the active service policy failed.

Quiescing
Indicates that WLM is in the process of an orderly shutdown on behalf of XCF sysplex partitioning; further communication with WLM from other systems should be suspended.

In_xsr
Indicates that WLM is inactive, that the termination was not orderly, and that some other instance of WLM is currently performing recovery actions on behalf of this instance of WLM; while in this state, the name of the WLM instance performing cross-system recovery may be found in the checkpointed information associated with this member.

Reset
Indicates that WLM is inactive and that it either terminated through an orderly shutdown (previous state was QUIESCING) or that cross-system recovery actions have been completed (previous state was IN-XSR); this state indicates that no recovery latches are held by this member.

Unknown
Indicates that invalid state information about a given WLM instance was presented to other active WLM instances; this state indicates that state error processing has been initiated to determine the true state.

Incorrect
Indicates an incorrect WLM state. If this is shown, the WLM state is in error.

Mode
The value of this field is the WLM mode in effect.

Goal
Indicates that goal mode is set.

Incorrect
Indicates that the mode is incorrect.

Policy name
The name of the service policy in effect on this system. This field contains blanks if the WLM mode is not available (UNDEFINED).

Policy activation date and time
The date and time when the service policy went into effect is represented by this item. Use date and time of policy activation in MM/DD/YYYY and HH:MM:SS format.

STATUS exception report
This report displays dump output messages and a hexadecimal dump of each data area that received a validity check, failure, or warning. IBM might request this information for problem determination. Fields displayed in the report include:

reason
The reason code associated with the error. The format of the reason code is
aaxxbcc where aa is the control block ID for the data area in error, xx is the ID of the module that detected the error, bb is not used, and cc identifies the error detected.

**Control block address**
The address of the control block in error.

**ASID**
The address space identifier (ASID) in hexadecimal where the control block exists.

**STATUS detail report**
This report is explained in the following parts:
- Global WLM Sysplex Manager Information
- WLM Function Information
- WLM System Information.

```
***** STATUS DETAIL REPORT *****
Global WLM Sysplex Manager Information
--------------------------------------
Maximum number of systems................. 32
Global Sysplex Manager Flags
  Quiesce in progress
  Quiesce completed
  Maintenance timer set
  Monitor timer set
Time that this member joined the WLM group... 08/04/1996 18:02:05
Cross System Recovery Data
  Cross System Recovery flags
    Cross system recovery in progress
    Cross system recovery time interval set
    Cross system recovery has issued successful ENQ for another system
  System..........................
Latches being handled........................ 00000000
Policy activation in progress latch
  being handled
```

Figure 69. Example: STATUS detail report

**Global WLM sysplex manager information**
The global sysplex management information section represents data that is global to all sysplex processing done by the WLM sysplex manager. The fields in this part of the report include:

**Maximum number of systems**
This value represents the maximum number of systems that can exist in the sysplex.

**Global Sysplex Management Flags**
This header is displayed if any of the global sysplex management flags are set. The possible flags are:
- **Quiesce in progress** - Indicates that the current system's WLM member is in the process of quiescing due to XCF determining that the member should be placed into a XCF quiesce state.
- **Quiesce completed** - Indicates that the current system's WLM member has completed the quiesce process.
Workload Manager

- **Maintenance timer set** - Indicates that the Sysplex Communications Management maintenance timer is in effect.
- **Monitor timer set** - Indicates that the Sysplex Communications Management monitor timer is in effect.

**Time that this member joined the WLM group**
This value represents the time that this system’s WLM joined the WLM XCF group. The time is displayed as:
- mm/dd/yyyy hh:mm:ss
  - mm - month
  - dd - day
  - yyyy - year
  - hh - hours (Hours presented from 01 to 24.)
  - mm - minutes
  - ss - seconds

**Cross System Recovery Data**
This header is displayed if cross system recovery processing is in effect.

**Cross System Recovery flags**
This header is displayed if any of the cross system recovery flags are set. The possible flags are:

- **Cross system recovery in progress**
  Cross system recovery process has been started for system specified by **System** field below.

- **Cross system recovery time interval set**
  Cross system recovery time interval set to check for cross system recovery concerns at a later time.

- **Cross system recovery has issued successful ENQ for another**
  Cross system recovery has issued a successful ENQ for the system specified by the **System** field below.

**System**
This value indicates which system is being processed for cross system recovery.

**Latches being handled**
This value represents in hexadecimal the recovery latches that are being handled by WLM cross system recovery on the current system.

**Policy activation in progress latch being handled**
This line indicates that the policy activation in progress latch is being handled during cross system recovery processing.

**WLM function information**
The function information section represents data that is unique for a WLM subcomponent that is using the WLM sysplex manager services. The example shows the information displayed for the Sysplex Communication Management subcomponent, the same information is also displayed for:

- Administrative Policy Management
- Performance Data Management
- Device Clustering Management
- Server Environment Management
- Workload Balancing Management
- Scheduling Environment Management
Sysplex Communications Management Status

Header displayed for the Sysplex Communications Management function in WLM.

Status

In the above example the parameter value for the status item is Open. Status can be any of the following:

- CLOSED
  Indicates that the function is not operational.
- OPEN
  Indicates that the function has initialized and is fully operational.
- QUIESCING
  Indicates that the function is OPEN, however the function has been notified to quiesce further multisystem activities.
- QUIESCED
  Indicates that the function is not operational, i.e. CLOSED, due to quiescing of multisystem activities.
- SUSPENDED
  Indicates that the function is not operational, i.e. CLOSED, and that the task associated with the function has been placed into a wait because the function has attempted an OPEN.

Time that this function had state set

This value represents the time that this function had its state set. The state that is set is represented by the Status field that precedes this line. The time is displayed as:

- mm/dd/yyyy hh:xx:ss
  - mm - month
  - dd - day
  - yyyy - year
  - hh - hours (Hours presented from 01 to 24.)
  - xx - minutes
  - ss - seconds

Message Object Anchors

This header indicates that the following anchor fields represent pointers to message objects. The pointer fields are:

First pending response object

Represents the pointer to the first pending response object for this function.
Last pending response object
Represents the pointer to the last pending response object for this function.

First message object
Represents the pointer to the first message object for this function.

Last message object
Represents the pointer to the last message object for this function.

Message Counts
This header indicates that the following fields represent counts of messages being sent or received

Number of messages sent
Represents the number of messages sent by this function to its corresponding function on another WLM in the system.

Number of messages received
Represents the number of messages received by this function from its corresponding function on another WLM in the system.

Number of acknowledgements received
Represents the number of acknowledgement type messages received by this function from its corresponding function on another WLM in the system.

Administrative Policy Management
Header displayed for the Administrative Policy Management function in WLM.

Status
In the above example the parameter value for the status item is Open. Status can be any of the following:

- CLOSED
  Indicates that the function is not operational.
- OPEN
  Indicates that the function has initialized and is fully operational.
- QUIESCING
  Indicates that the function is OPEN, however the function has been notified to quiesce further multisystem activities.
- QUIESCED
  Indicates that the function is not operational, i.e. CLOSED, due to quiescing of multisystem activities.
- SUSPENDED
  Indicates that the function is not operational, i.e. CLOSED, and that the task associated with the function has been placed into a wait because the function has attempted an OPEN.

Time that this function had state set
This value represents the time that this function had its state set. The state that is set is represented by the Status field that precedes this line. The time is displayed as:

- mm/dd/yyyy hh:xx:ss
  - mm - month
  - dd - day
  - yyyy - year
  - hh - hours (Hours presented from 01 to 24.)
  - xx - minutes
  - ss - seconds
Message Object Anchors
This header indicates that the following anchor fields represent pointers to message objects.

First pending response object
Represents the pointer to the first pending response object for this function.

Last pending response object
Represents the pointer to the last pending response object for this function.

First message object
Represents the pointer to the first message object for this function.

Last message object
Represents the pointer to the last message object for this function.

Message Counts
This header indicates that the following fields represent counts of messages being sent or received:

Number of messages sent
Represents the number of messages sent by this function to its corresponding function on another WLM in the system.

Number of messages received
Represents the number of messages received by this function from its corresponding function on another WLM in the system.

Number of acknowledgements received
Represents the number of acknowledgement type messages received by this function from its corresponding function on another WLM in the system.

Performance Data Management
Header displayed for the Performance Data Management function in WLM.

Status
In the above example the parameter value for the status item is Open. Status can be any of the following:

- CLOSED
  Indicates that the function is not operational.

- OPEN
  Indicates that the function has initialized and is fully operational.

- QUIESCING
  Indicates that the function is OPEN, however the function has been notified to quiesce further multisystem activities.

- QUIESCED
  Indicates that the function is not operational, i.e. CLOSED, due to quiescing of multisystem activities.

- SUSPENDED
  Indicates that the function is not operational, i.e. CLOSED, and that the task associated with the function has been placed into a wait because the function has attempted an OPEN.

Time that this function had state set
This value represents the time that this function had its state set. The state that is set is represented by the Status field that precedes this line. The time is displayed as:

- mm/dd/yyyy hh:mm:ss
  - mm - month
Message Object Anchors
This header indicates that the following anchor fields represent pointers to
message objects.

First pending response object
Represents the pointer to the first pending response object for this function.

Last pending response object
Represents the pointer to the last pending response object for this function.

First message object
Represents the pointer to the first message object for this function.

Last message object
Represents the pointer to the last message object for this function.

Message Counts
This header indicates that the following fields represent counts of messages
being sent or received:

Number of messages sent
Represents the number of messages sent by this function to its corresponding
function on another WLM in the system.

Number of messages received
Represents the number of messages received by this function from its
corresponding function on another WLM in the system.

Number of acknowledgements received
Represents the number of acknowledgement type messages received by this
function from its corresponding function on another WLM in the system.

WLM system information
The system information section represents data that is unique for each system that
is being handled by the WLM sysplex manager.
**Figure 71. Example: WLM system information**

**System**

The value of this field is the name of the system that is being displayed. Starting at the system name field each system name section is duplicated for every system that is known to WLM.

**System Data**

Header that is displayed to group related information for the system data.

**Time of last system state change**

This value represents the last time that the WLM state changed on this system. The time is displayed as:

```plaintext
WLM System Information
----------------------
System.................. DAVEB9

System Data
Time of last system state change.... 08/04/1996 18:02:06
Time of last member communications.. 08/04/1996 18:35:06
System token.................... 02000003
System state.................... Active

System Data Flags
System section in use
Member section in use

Member Data
Member name.................... DAVEB9
Member token................... 0200000300040002
Time of last member state change... 08/04/1996 18:35:06
Member state................... Active

Member Data Flags
Error encountered for member state resynchronization
IXCTERM issued for this system as part of resynch
state resynchronization processing
Cross system recovery in progress

Resynchronization Action Flags
WLM state query is required for this system
WLM state verification is required for this system
WLM resynch state resynchronization is required for
this system

Resynch State Resynchronization Service Flags
Message send processing reached retry limit
Member information could not be resynched
Third interval processing of pending objects occurred

WLM Reset Service Flags
System reset due to system partitioning
System reset due to initializing first time processing
System reset due to reinitialization processing
System reset due to cross system recovery processing

MVS Level............. xx
Service Level.......... xx

Status Data
WLM state.................... Active
Mode.......................... Goal

Cross System Recovery Information
Copy of state prior to recovery..... Independent
Name of system performing recovery:
Recovery Latches..................... 0000000000000000
Policy name...................... POLICY2
Policy activation time........... 08/04/1996 14:29:14

Communications Data
Message Object Anchors
First pending object............. 00000000
Last pending object............... 00000000
First message object............ 00000000
Last message object............. 00000000

Message Counts
Number of messages sent.......... 33
Number of messages received...... 0
Number of acknowledgements received. 0
```
Workload Manager

- mm/dd/yyyy hh:xx:ss
  - mm - month
  - dd - day
  - yyyy - year
  - hh - hours (Hours that are presented from 01 to 24.)
  - xx - minutes
  - ss - seconds

**Time of last member communications**
This value represents the last time that this member communicated with the system. The time is displayed as:

- mm/dd/yyyy hh:xx:ss
  - mm - month
  - dd - day
  - yyyy - year
  - hh - hours (Hours that are presented from 01 to 24.)
  - xx - minutes
  - ss - seconds

**System token**
This value represents the system token that is assigned to this system.

**System state**
This value represents the current state for this system. The possible values for the state are:

- **Not defined**
  Indicates that no information about the system exists, because either the system name is not valid or the system is not active.

- **Active**
  Indicates that the system is part of the sysplex.

- **Inactive**
  Indicates that the system is not currently part of the sysplex.

- **Quiescing**
  Indicates that XCF sysplex partitioning started to remove a system from the sysplex.

- **Unknown**
  Indicates that there is some doubt as to the true state of the system.
  Actions began (by Sysplex Communications Manager) to determine the true state of the system.

- **Incorrect**
  Indicates an incorrect system state. When shown, the system state is in error.

This header is displayed if any of the system data flags are set. The following lists the possible flags that can be set under the system data flags header line.

**System section in use**
Indicates that system section portion of the system entry is correct and in use.

**Member section in use**
Indicates that member section portion of the system entry is correct and in use.

**Member Data**
The following member information:
Member name
This value represents the member name for the current system entry. The member name is the same as the system name (as displayed by the System value above).

Member token
This value represents the member token that is assigned to this member.

Time of last member state change
This value represents the last time that this member sections state changed. The members state is represented by the Member state value that follows this line. The time is displayed as:
- mm/dd/yyyy hh:xx:ss
  - mm - month
  - dd - day
  - yyyy - year
  - hh - hours (Hours are from 01 to 24.)
  - xx - minutes
  - ss - seconds

Member state
One of the following:

Not defined
Indicates that no information about the WLM member exists because
- the member name is not valid
- the member has yet to initialize (and never has before)
- the member was inactive for at least three consecutive days and the member information is deleted from XCF

Created
Indicates that the member is in a create state.

Active
Indicates that communications with the WLM member (from some other WLM member) is permitted because the Sysplex Communications Manager is functional.

Quiesced
Indicates that the WLM member is inactive and that it terminated in an orderly fashion; communications with the member (through XCF) is not permitted.

Failed
Indicates that the WLM member is inactive and that it terminated abnormally; communications with the member (through XCF) is not permitted. The failure could be that of the Sysplex Communications Manager, the WLM address space, or the system upon which the member was previously active.

Incorrect
Indicates an incorrect member state. If this is shown, the member state is in error.

Member Data Flags
This header is displayed if any of the member data flags are set. The following lists the possible flags that can be set under the member data flags header line.
Workload Manager

**Error encountered for member state resynchronization**
Indicates that during resynchronization processing for this member an error occurred.

**IXCTERM issued for this system as part of resynch state resynchronization processing**
Indicates that an XCF terminate (IXCTERM) was issued for this system as part of the process to resynchronize this system.

**Cross system recovery in progress**
Cross system recovery processing is currently being done for this system.

**Resynchronization Action Flags**
This header is displayed if any of the resynchronization action flags are set. The following lists the possible flags that can be set under the resynchronization action flags header line.

- **WLM state query is required for this system**
  Indicates that a WLM state query (XCF IXCQUERY) must be performed for this system.

- **WLM state verification is required for this system**
  Indicates that a WLM state verification request must be sent to this system so that it can check the member information between the two systems.

- **WLM resynch state resynchronization is required for this system**
  Indicates that a WLM resynchronization must occur for this system. This causes the current system to XCF terminate (IXCTERM) this system.

**Resynch State Resynchronization Service Flags**
This header is displayed if any of the Resynch state resynchronization service flags are set. The following lists the possible flags that can be set under the resynch state resynchronization service flags header line.

- **Message send processing reached retry limit**
  A message was being sent and XCF was unable to send the message and the retry limit was reached.

- **Member information could not be resynched**
  During WLM state query processing for this system it was determined that we could not synch to the information in the XCF CDS.

- **Third interval processing of pending objects occurred**
  A pending message object remained around for as long as the third interval time period.

**WLM Reset Service Flags**
This header is displayed if any of the WLM reset service flags are set. The flags are:

- **System reset due to system partitioning**
  System state changed to WLM reset because XCF system partitioning.

- **System reset due to initializing first time processing**
  System state changed to WLM reset because the Sysplex Communications Manager is starting for the first time.

- **System reset due to reinitialization processing**
  System state changed to WLM reset because the Sysplex Communications Manager reinitialization has some type of failure condition.
**System reset due cross system recovery processing**
System state changed to WLM reset because the Sysplex Communications Manager is processing cross system recovery.

**MVS Level**
Represents the MVS level.

**Service Level**
Represents the Service level.

**Status data:** Header displayed that groups related information for a system concerning status data.

**WLM state**
The value of this field is one of the following:

**Undefined**
Indicates that no WLM state exists.

**Initializing**
Indicates that WLM is in the process of initializing; cross-system communications capability exists, however, WLM is not fully functional yet.

**Active**
Indicates that WLM has completed initialization and is fully functional, operating in the workload management mode contained in the checkpointed information associated with the member; this state also indicates that all other instances of WLM are aware of this member and using the same active service policy.

**Independent**
Indicates that WLM has completed initialization and is fully functional, operating in the workload management mode contained in the checkpointed information associated with the member; this state also indicates that this instance of WLM is not synchronized with other instances of WLM within the sysplex, either because

- there is no couple data set for WLM,
- there is no connectivity to the couple data set for WLM in use by WLM on other systems,
- there is connectivity to the couple data set for WLM, however the data set does not contain a valid active service policy record, or
- instantiation of the active service policy failed.

**Quiescing**
Indicates that WLM is in the process of an orderly shutdown on behalf of XCF sysplex partitioning; further communication with WLM from other systems should be suspended.

**In_xsr**
Indicates that WLM is inactive, that the termination was not orderly, and that some other instance of WLM is currently performing recovery actions on behalf of this instance of WLM; while in this state, the name of the WLM instance performing cross-system recovery may be found in the checkpointed information associated with this member.

**Reset**
Indicates that WLM is inactive and that it either terminated through an orderly shutdown (previous state was QUIESCING) or that cross-system
recovery actions have been completed (previous state was IN-XSR); this state indicates that no recovery latches are held by this member.

**Unknown**
Indicates that invalid state information about a given WLM instance was presented to other active WLM instances; this state indicates that state error processing has been initiated to determine the true state.

**Incorrect**
Indicates an incorrect WLM state. If this is shown, the WLM state is in error.

**Mode**
**Goal**
Indicates that goal mode is set.

**Cross System Recovery Information**
This header is displayed to show the cross system recovery information that may exist in the status data. The following lists the information that exists under the cross system recovery information section of the status area.

**Copy of state prior to recovery**
Shows what the WLM member state was prior to the current state definition.

**Name of system performing recovery**
Shows the name of the system that is performing cross system recovery for this system if cross system recovery is occurring. If cross system recovery processing is not occurring then system name is ******** (asterisks).

**Recovery latches**
Shows what WLM recovery latches may be set for this system.

**Policy name**
The name of the service policy in effect on this system. This field contains blanks if the WLM mode is not available (UNDEFINED).

**Policy activation time**
The time when the service policy went into effect is represented by this item.

**Communications data:** Header displayed that groups related information for a system concerning communications data.

**Message Object Anchors**
This header indicates that the following anchor fields represent pointers to message objects:

**First pending response object**
Represents the pointer to the first pending response object for this system.

**Last pending response object**
Represents the pointer to the last pending response object for this system.

**First message object**
Represents the pointer to the first message object for this system.

**Last message object**
Represents the pointer to the last message object for this system.
WLMDATA policy report

This report provides information of the service policy in effect on the system when the dump was taken. See the IWMSVPOL mapping macro for more specific information about the attributes and data displayed for the service policy.

POLICY summary report

***** POLICY SUMMARY REPORT *****

Active Policy summary
----------------------
Active Policy information
Policy name .................. CAPPING4
Policy description .......... VICOM1 with capping ResGrp
Time of Activation .......... 02/08/1996 08:23:14
Userid of activator ......... TSOUSER
System on which activation was initiated . ENTWIS1
Classification Sequence number ............... 00000013

Service Definition from which policy came
Service Definition name ....... COEFFS
Service definition description Service coefficients
Time of installation .......... 02/08/1996 08:12:10
Userid of installer .......... TSOUSER
System on which installation was done .... ENTWIS1
System on which installation was done .... ENTWIS1

Number of workload entries .......... 2 (incl. EWLM workloads)
Number of service class entries ...... 20 (incl. EWLM service classes)
Number of service class period entries . 22 (incl. EWLM service class periods)
Number of resource group entries ...... 4
Number of report class entries ........ 0

Embedded EWLM policy information
EWLM Policy name ................ Policy-With-ZOS-Attributes
Time of activation............. 03/29/2006 10:39:11
EWLM Policy UUID ............... POLICY-UUID--xyz
EWLM Management Server UUID ... DOMAIN-4711-UUID
EWLM Policy ID .................. 4
EWLM Server ID ................. 1
Number of EWLM workload entries .... 1
Number of EWLM service class entries ... 2
Number of EWLM service class periods .... 2
Policy in effect on this system matches the active policy.

No exceptional conditions were found by the POLICY SUMMARY report.

Figure 72. Example: POLICY summary report

Policy Name
The value of this field is a Policy name.

Policy description
Service policy description.

Policy Timestamp
Time/Date of policy activation in MM/DD/YYYY HH:MM:SS format.

Userid
User ID of the system operator or service administrator who activated the service policy.

System name
Name of the system on which policy activation was initiated.
Workload Manager

Classification sequence number
Classification sequence number in hex.

Service definition name
Name of the service definition from which the service policy was extracted.

Description
Description of service definition from which the service policy was extracted.

Service definition timestamp
Date/Time in MM/DD/YYYY HH:MM:SS format that the service definition was installed.

Userid
User ID of the system operator or service administrator who installed the service definition.

System name
Name of the system on which the service definition was installed.

Number of workload entries
Number of workload entries in the workload definition section.

Number of service class entries
Number of service class entries in the service class definition section.

Number of service class period entries
Number of service class period entries in the service class period definition section.

Number of resource group entries
Number of resource group entries in the resource group definition section.

Number of report class entries
Number of report class entries in the report class definition section.

POLICY exception report
This report displays dump output messages and a hexadecimal dump of each data area that received a validity check, failure, or warning. IBM might request this information for problem determination. Fields displayed in the report include:

reason
The reason code associated with the error. The format of the reason code is aaxxbbcc where aa is the control block ID for the data area in error, xx is the ID of the module that detected the error, bb is not used, and cc identifies the error detected.

Control block address
The address of the control block in error. The control blocks reported by the Policy exception report are the SVPOLHD, SVPOLSP, SVPOLWD, SVPOLCD, SVPOLPD, SVPOLRG, and the SVPOLRD mapped by IWMSVPOL.

POLICY detail report
The following is an example of the POLICY detail report:

***** POLICY DETAIL REPORT *****
Active Policy summary
---------------------
Active Policy information
Policy name .................. CAPPING4
Policy description ............... VICOMI with capping ResGrp
Time of Activation ................ 02/08/1996 08:23:14
Userid of activator ................ TSOUSER
Workload Manager

System on which activation was initiated . ENTWIS1
Classification Sequence number ........... 00000013

Service Definition from which policy came
Service Definition name .................. COEFFS
Service definition description ........... Service coefficients
Time of installation ..................... 02/08/1996 08:12:10
Userid of installer ...................... TSOUUSER
System on which installation was done .... ENTWIS1
System on which installation was done .... ENTWIS1

Number of workload entries ............. 2
Number of service class entries ......... 20
Number of service class period entries . 22
Number of resource group entries ....... 4
Number of report class entries .......... 0

Policy in effect on this system matches the active policy on the

Detailed Policy Information

---------------------------------------------
Service Coefficients
- Main storage occupancy (CPU) ........ 10.0
- I/O coefficient (IOC) ............... 5.00
- Main storage occupancy (MSO) ........ 3.0000
- SRB coefficient (SRB) ............... 10.0

Service Definition Options
- I/O priority management: YES

Workloads and their service classes

---------------------------------------------
Workload VICOM - "VICOM workload" has 8 service classes.
- Service Class CICSUSER - "CICS transactions"
  Service class is CPU critical.
  CICS/IMS regions serving this service class will be treated as "storage critical=yes."
- Goals
  # Duration Imp Goal description
  1 2 Average response time of 00:00:01.000

Resource groups

---------------------------------------------
Resource group BATCHVEL - "Velocity and resptime batch work"
- Minimum capacity is 2000
- Maximum capacity is 2500

Report classes

None

No exceptional conditions were found by the POLICY DETAIL report.

Policy Name
- The value of this field is a Policy name.

Policy description:
- Service policy description.

Policy Timestamp
- Time/Date of policy activation in MM/DD/YYYY HH:MM: SS format.

Userid
- User ID of the system operator or service administrator who activated the service policy.

System name
- Name of the system on which policy activation was initiated.
**Workload Manager**

**Classification sequence number**
Classification sequence number.

**Service definition name**
Name of the service definition from which the service policy was extracted.

**Description**
Description of service definition from which the service policy was extracted.

**Service definition timestamp**
Time/Date in MM/DD/YYYY HH:MM:SS format that the service definition was installed.

**Userid**
User ID of the system operator or service administrator who installed the service definition.

**System name**
Name of the system on which the service definition was installed.

**Number of workload entries**
Number of workload entries in the workload definition section.

**Number of service class entries**
Number of service class entries in the service class definition section.

**Number of service class period entries**
Number of service class period entries in the service class period definition section.

**Number of resource group entries**
Number of resource group entries in the resource group definition section.

**Number of report class entries**
Number of report class entries in the report class definition section.

**CPU service coefficient**
EBCDIC representation of CPU service coefficient - the number by which accumulated CPU service units will be multiplied (weighted).

**I/O service coefficient**
EBCDIC representation of I/O service coefficient - the number by which accumulated I/O service units will be multiplied (weighted).

**MSO service coefficient**
EBCDIC representation of storage service coefficient - the number by which accumulated storage service units will be multiplied (weighted).

**SRB service coefficient**
EBCDIC representation of SRB service coefficient - the number by which accumulated SRB service units will be multiplied (weighted).

**I/O priority management: xxx**
Indicates if I/O delays should be included in the denominator of the execution velocity equation. xxx can be either Yes or No.

**Workload name**
Workload name.

**Description**
Workload description.

**Number of service classes**
Number of service classes belonging to the owning workload. This number is obtained by scanning the service policy.
## Workload Manager

### Service class name
Service class name.

### Description
Service class description.

'Service class is CPU critical.'
Flag denoting that this service class has been assigned long-term CPU protection. See the “CPU Protection” section of the “Workload Management Participants” chapter in [z/OS MVS Planning: Workload Management](#).

'CICS/IMS regions serving this service class will be treated as "storage critical=yes."'
Flag denoting that this service class has been assigned long-term storage protection. See the “Storage Protection” section of the “Workload Management Participants” chapter in [z/OS MVS Planning: Workload Management](#).

### Number of service class periods
Number of service class periods for this service class.

### Associated resource group name
Name of the resource group this service class is associated with. If there is no associated resource group, this line will not appear.

### Period number
Index of period.

### Goal percentile value
Goal percentile value.

### Response time goal value
Response time goal value in HH:MM:SS.nnn format.

### Execution velocity
Execution velocity.

### Importance level
Importance level ranging from 1 to 5 where 1 is most important.

### Duration
Service class period duration in service units, or blanks for last period.

### Resource group name
Resource group name.

### Description
Resource group description.

### Minimum capacity
This field contains the minimum capacity in unweighted CPU service units per second. This field contains the phrase “not specified” if no minimum capacity was specified.

### Maximum capacity
This field contains the maximum capacity in unweighted CPU service units per second. This field contains the phrase “not specified” if no maximum capacity was specified.

### Report class name
Report class name.

### Description
Report class description.
WLMDATA WORKMANAGER report

This report provides an overview of connections from a work manager to WLM and the monitoring environments associated with each work manager. WORKMANAGER information is ordered by ASID. For more specified information about the attributes and data displayed for each work manager, see the IWMPB mapping macro. The values displayed for each numeric field in the workmanager report are in hexadecimal unless otherwise noted.

You can filter the WORKMANAGER report by:

- ASID
- SUBSYSTYPE
- SUBSYSNAME

WORKMANAGER summary report

```
 ***** WORKMANAGER SUMMARY REPORT *****
 SUMMARY OF WORK REQUEST ACTIVITIES
 ----------------------------------
 Total number of associated address spaces.. 7
 Total number of monitoring envs in system.. 10
 ASID....................................... X'0005'
 Total number of monitoring envs owned... 3
 ASCB address............................ ffffffff
 Connect token......................... 99999999
 SUMMARY OF CONNECTION SUB-REPORT
 ----------------------------------
 Subsystem type......................... hhhh
 Connection flags
 xxxxxxxxxxxxxx
 Subsystem name....................... iiiiiiii
 Number of associated ASCBs............ jjjjjjjj
 Number of associated ASEBs............ jjjjjjjj
 Connector's TCB address................ kkkkkk

No connection to report on
```

Figure 73. Example: WORKMANAGER summary report

Total number of associated address spaces
Decimal value indicates total number of address spaces associated with WLM in the system. This field represents the number of outstanding address spaces which have either created a PB (IWMMCREA) or connected to WLM (IWMCONN) at some point.

Total number of monitoring envs in system
Decimal value indicates total number of PBs in the system. This field represents the number of outstanding PBs created via IWMMCREA which are still in existence.

ASID
The value of this field is the ASID of the address space that owns the XDAT.

Total number of monitoring envs owned
Decimal value indicates total number of PBs currently owned by the address space.
ASCB address
The value of this field is the ASCB address associated with the address space.

Connect token
The value of this field is the connect token associated with the work manager who has connected to WLM. This field will be zero when there is no associated connect token.

Subsystem Type
The value of this field is the subsystem type specified on the connect service. This is the generic product identifier associated with the code which connected to WLM.

Connection flags
Specifies the connection flags. The xxxxxxxxxxxxx flag is one of the following. If no flag is set, the header for the connection flags is not displayed.
- Used by SRM for system managed subsystem type
- Connection uses WLM work management services
- Connection uses WLM work queuing services
- Connection uses WLM work balancing services
- Connection uses WLM work execution services
- Connection uses WLM routing services
- Associated server is WLM started

Subsystem name
The value of this field is the subsystem name specified on the connect service. This is the identifier of the specific instance associated with the code which connected to WLM.

Number of associated ASCBs
This represents the number of address spaces associated with this subsystem which are not associated with PBs and which provide service to work running within the subsystem.

Connector's TCB address
The value of this field is the TCB address associated with the connector.

No connection to report on
There is no connection to report on for this address space.

WORKMANAGER exception report
This report displays dump output messages and a hexadecimal dump of each data area that received a validity check, failure, or warning. IBM might request this information for problem determination.

WORKMANAGER detail report
The following is an example of the WORKMANAGER detail report:

***** WORKMANAGER DETAIL REPORT *****
DETAIL OF WORK REQUEST ACTIVITIES
---------------------------------  
Total number of associated address spaces.. 6
Total number of monitoring envs in system.. 885
ASID....................................... X'0032'
Total number of monitoring envs owned... 0
ASCB Address................................  00F5ED00
Connect token................................ 07CE0158
DETAIL OF CONNECTION SUB-REPORT
<table>
<thead>
<tr>
<th>Subsystem type</th>
<th>IMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection flags</td>
<td>xxxxxxxx</td>
</tr>
<tr>
<td>Subsystem name</td>
<td>IMSU</td>
</tr>
<tr>
<td>Number of associated ASCBs</td>
<td>3</td>
</tr>
<tr>
<td>Connector's TCB address</td>
<td>006EE848</td>
</tr>
<tr>
<td>Connector's protect key</td>
<td>07</td>
</tr>
<tr>
<td>Associated ASCB address</td>
<td>00F5ED00</td>
</tr>
<tr>
<td>Associated ASCB address</td>
<td>00F4C700</td>
</tr>
<tr>
<td>Associated ASCB address</td>
<td>00F77E80</td>
</tr>
<tr>
<td>ASID</td>
<td>X'0033'</td>
</tr>
<tr>
<td>Total number of monitoring envs owned</td>
<td>166</td>
</tr>
<tr>
<td>ASCB Address</td>
<td>00F5EB80</td>
</tr>
<tr>
<td>Connect token</td>
<td>07CE00D8</td>
</tr>
</tbody>
</table>

#### DETAIL OF CONNECTION SUB-REPORT

<table>
<thead>
<tr>
<th>Subsystem type</th>
<th>CICS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsystem name</td>
<td>CICSDAU1</td>
</tr>
<tr>
<td>Number of associated ASCBs</td>
<td>0</td>
</tr>
<tr>
<td>Connector's TCB address</td>
<td>006D8B00</td>
</tr>
<tr>
<td>Connector's protect key</td>
<td>08</td>
</tr>
</tbody>
</table>

#### DETAIL OF MONITORING ENVIRONMENT SUB-REPORT

<table>
<thead>
<tr>
<th>Monitoring token</th>
<th>FF70BDA8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control token</td>
<td>06DFD2C0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Owner's TCB address</th>
<th>006D8B00</th>
</tr>
</thead>
</table>

Total number of associated address spaces

Decimal value indicating the total number of address spaces associated with WLM in the system. This field represents the number of outstanding address spaces which have either created a PB (IWMMCREA) or connected to WLM (IWMCONN) at some point.

Total number of monitoring envs in system

Decimal value indicating total number of PBs in the system. This field represents the number of outstanding PBs created via IWMMCREA which are still in existence.

ASID

The value of this field is the ASID of the address space that owns the XDAT.
**Workload Manager**

**Total number of monitoring envs owned**
Decimal value indicating total number of PBs currently owned by the address space.

**ASCB address**
The ASCB address associated with the address space.

**Connect token**
The connect token associated with the work manager who has connected to WLM. This field is zero when there is no associated connect token.

**Subsystem Type**
The subsystem type specified on the connect service. This is the generic product identifier associated with the code which connected to WLM.

**Connection flags**
Specifies the connection flags. The xxxxxxxxxxxxx flag is one of the following. If no flag is set, the header for the connection flags is not displayed.
- *Used by SRM for system managed subsystem type*
- *Connection uses WLM work management services*
- *Connection uses WLM work queuing services*
- *Connection uses WLM work balancing services*
- *Connection uses WLM work execution services*
- *Connection uses WLM routing services*
- *Associated server is WLM started*

**Subsystem name**
The subsystem name specified on the connect service. This is the identifier of the specific instance associated with the code which connected to WLM.

**Number of associated ASCBs**
The number of address spaces associated with this subsystem which are not associated with PBs and which provide service to work running within the subsystem.

**Connector's TCB address**
The TCB address associated with the connector.

**Connector's protect key**
The key for connector.

**Associated address space ASCB address**
The ASCB address in the topology list. This represents an address space which is part of the subsystem servicing work which would not be visible through monitoring environments.

**Monitoring token**
The value of this field is the PB address in storage.

**Control token**
The PBDE address in storage.

**Owner's TCB address**
The TCB address associated with the owner of the performance block.

**Subsystem Type**
The subsystem type associated with the performance block. This is the generic product identifier associated with the code which obtained the PB.
Subsystem name
The subsystem name associated with the performance block. This is the identifier of the specific instance associated with the code which obtained the PB.

State of work request
The state of the work request as shown in the performance block. This field can be: FREE, ACTIVE, READY, IDLE, WAIT DISTRIBUTED, WAIT CONVERSATION, WAIT SESSION LOCALMVS, WAIT SESSION SYSPLEX, WAIT SESSION NETWORK, WAIT OTHER PRODUCT, WAIT MISCELLANEOUS, WAIT LOCK, WAIT I/O, or UNKNOWN.

Switch continuation information
The switch information about the work request in the performance block. This field can be: N/A(not switched), LOCALMVS, SYSPLEX, or NETWORK. The latter three refer to the expectation of where the continuation of the work request will be found.

Abnormal condition
One of the following:
• NONE - indicates that there exists no abnormal condition.
• SYSPLEX - indicates that abnormality affects all MVS images in sysplex.
• LOCALMVS - indicates that abnormality restricted to current MVS image.

Service class token status
One of the following:
• N/A - indicates that the service definition did not define a service class for this work request.
• NORMAL - indicates that service class token is valid.
• OLD - indicates that service class token is not associated with the current policy.
• NOT VALID - indicates that service class token is not valid.

Service class
If the service class token status is NORMAL then this is the service class name associated with the work request. Otherwise this field contains "********".

Report class
If the service class token status is NORMAL then this field is the report class name associated with the work request. Otherwise this field contains "********".

Protect key
The key in which the user of the monitoring environment runs.

Owner data
The value of this field is data specified by the owner/user. The format of this data is unknown to MVS.

Owner token
The value of this field is token specified by the owner/user. The format of this data is unknown to MVS.

Work request arrival time
Arrival time for work request in MM/DD/YYYY HH:MM:SS format. This field contains all asterisks if the arrival time is not available.

Work request execution start time
Execution start time for work request in MM/DD/YYYY HH:MM:SS format. This field contains all asterisks if the start time is not available.
Workload Manager

**Dispatchable unit TCB**
Address of the TCB associated with the dispatchable unit serving the work request attributes or character string “SRB” signifying an SRB.

**Dispatchable unit ASCB**
Address of the ASCB associated with the dispatchable unit serving the work request.

**Parent monitoring token**
The token for the parent monitoring environment or ASID for parent when parent is an address space, which is set as a result of IWMMRELA FUNCTION(CONTINUE).

**Parent control token**
The value of this field is token for the parent control environment, which is set as a result of IWMMRELA FUNCTION(CONTINUE).

**Parent token ASID**
This message is issued when the parent control token is non-zero and the ASID of the owning address space can be obtained to display the ASID of the owner.

**Dependent monitoring token**
The token for the dependent monitoring environment related to this environment, which is set as a result of IWMMXFER FUNCTION(CONTINUE).

**Dependent control token**
The token for the dependent control environment, which is set as a result of IWMMXFER FUNCTION(CONTINUE).

**Dependent token ASID**
This message is issued when the dependent control token is non-zero and the ASID of the owning address space can be obtained to display the ASID of the owner.

**Userid**
The user ID associated with the work request. This field contains all asterisks if the user ID is not available.

**Transaction name**
The transaction name associated with the work request. This field contains all asterisks if the transaction name is not available.

**Transaction class**
The transaction class associated with the work request. This field contains all asterisks if the transaction class is not available.

**Source LU name**
The source LU name associated with the work request. This field contains all asterisks if the source lu name is not available.

**No monitoring environment to report on**
This message is issued when there is no PB to report on for this address space.

---

**WLMDATA queue manager report**

The Queue Manager Report provides an overview of information that is pertinent to queue manager processing for WLM. The Queue Manager Report information is returned when the QUEUEMANAGER keyword is given on the WLMDATA subcommand. Various refinements of the Queue Manager Report information can be obtained by specifying either SUMMARY, DETAIL or EXCEPTION.
Workload Manager

“QUEUEMANAGER summary report,” “QUEUEMANAGER exception report” on page 743, and “QUEUEMANAGER detail report” on page 743 show example SUMMARY, DETAIL, and EXCEPTION reports. Note that for the SUMMARY or DETAIL reports the displays show all possible sections that could appear. In reality if certain information does not exist then those sections are not displayed. For example, if no queued work exists then only the global information is shown for the SUMMARY report and for the DETAIL report only information up to the queue manager information is shown.

QUEUEMANAGER summary report

Figure 74. Example: QUEUEMANAGER summary report

Global Information
The global environment management information section represents data that is global to all system processing done by the WLM Server Environment Manager.
Server Manager mode
 Represents the WLM mode that the server environment manager is using. A value of Goal corresponds directly with the goal mode of WLM.

Work Manager Information
 The work manager section shows each work manager that is using Server Environment Manager services in the system. Note that if no work manager information exists then this section is not shown (also applicable sections under it are not shown since they do not exist).

Subsystem type
 The work manager's WLM subsystem type.

Subsystem name
 The work manager's WLM subsystem name.

Work Manager State
 The work manager's state.
   • Active
     Indicates a work manager that is connected to WLM and has not terminated.
   • Inactive
     Indicates a work manager that is terminating or has terminated, and may no longer be connected to WLM.

Application Environment Information
 The application environment section shows each application environment that is in use by the work manager above.

Application Environment Name
 The application environment's name.

Application Environment State
 Specifies the application environment's state.
   • Available
     Indicates that the application environment is defined to WLM and that it is ready for the associated subsystem(s) to connect to it.
   • Quiesced
     Indicates that the application environment was quiesced by the operator issuing the V WLM,APPLENV=xxxxx,QUIESCE command.
   • Stopped
     Indicates that WLM stopped starting new servers in this application environment because WLM detected a problem with the JCL procedure of the application environment or the server code.
   • Deleting
     Indicates that WLM is in the process of deleting this application environment.
   • Refreshing
     Indicates that WLM is in the process of refreshing all the servers in this application environment.
   • Quiescing
     Indicates that WLM is in the process of quiescing all the servers in this application environment.

Application Environment Counts
 Describes the number of server address spaces in the following categories;
Workload Manager

- **Total target**
  Represents the total number of server address spaces requested by SRM on the local system for all transaction environments in this application environment. This is a total of all want counts in the transaction environments under this application environment.

- **Total bound**
  Represents the number of servers that WLM has bound to transaction environments in this application environment. This is a total of all have counts in the transaction environments under this application environment.

- **Total number of starting servers**
  Represents the number of servers that WLM has started, but have not yet connected to WLM.

- **Total number of connected servers**
  Represents the number of servers that have connected to WLM, but have not selected any work in this application environment.

**Transaction Environment Information**
The transaction environment section describes a unique queue of work that is known to WLM.

**Transaction Environment Service Class**
Names the external service class to which the queued work has been classified. If the transaction environment is not associated with one service class, then this field may contain '********' to indicate that the transaction environment may contain more than one service class.

**Transaction Environment Counts**
Represents the number of server address spaces in the following categories.

  - **Target**
    Represents the number of servers on the local system that SRM wants bound to this transaction environment.

  - **Bound**
    Represents the number of servers that WLM has bound to this transaction environment.

**Transaction Environment Work Queue**
Describes the Empty/Not Empty state of the transaction environment’s work queue.

**Work Queue Information**
The work queue section describes each unique work unit that has been inserted to WLM but not yet selected for execution.

**Work Unit User Data**
Represents the work unit as it is known by the subsystem that inserted the work.

**Application Environment Table Information**
The application environment table information section describes all the application environments known to WLM. The application environments are defined using the WLM ISPF application or through the IWMDINS(install)/IWMPACT(activate) interfaces. Note that if no application environments exist then only the header is shown.

**Application Environment name**
Names the application environment.
Subsystem Type
Names the subsystem type that is assigned to this application environment.

Procedure Name
Names the JCL procedure used for this application environment.

**QUEUEMANAGER exception report**

```
***** QUEUEMANAGER EXCEPTION REPORT *****
QUEUEMANAGER RELATED EXCEPTIONS
-------------------------------
IWMO004I Validity check failure, reason aaxxbbcc, for WLM data area
  at address zzzzzzzz in ASID X'gggg'.
zzzzzzzz XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
  +0010 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
  +0020 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
  +0030 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
  +0040 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
IWMO005I Validity check warning, reason aaxxbbcc, for WLM data area
  at address zzzzzzzz in ASID X'gggg'.
zzzzzzzz XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
  +0010 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
  +0020 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
  +0030 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
  +0040 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
```

Figure 75. Example: QUEUEMANAGER exception report

Error/Warning control block record

**reason: aaxxbbcc**

This field contains the reason code associated with the error. The format of
the reason code is aaxxbbcc where aa is the control block ID for the data
area in error, xx is the ID of the module that detected the error, bb is not
used, and cc identifies the error detected.

**Control block address: zzzzzzzz**

This field contains the address of the control block in error.

**ASID: X'gggg'**

The address space identifier (ASID) in hexadecimal of the address space
where the control block exists.

**QUEUEMANAGER detail report**

The following is an example of the QUEUEMANAGER detail report:

```
***** QUEUEMANAGER DETAIL REPORT *****
Global Information
-------------------------------
Application Environment Table Object........... xxxxxxxx
Server Manager Mode......................... Goal
Queue Manager Information
-------------------------------
QEB CELL POOL ID ......................... xxxxxxxx
Last Transaction Environment Sequence Number. xxxxxxxx
```
Workload Manager

Last Work Unit Sequence Number.............. xxxxxxxx
Dynamic Area CPOOL For PC Services........... xxxxxxxx
TCB Defined For WLM QM Initialization Task... xxxxxxxx

Work Manager Information
-------------------------

Subsystem Type................. DB2
Subsystem Name.................. DB2A
Work Manager State............... Active
Work Manager Flags

Work Manager Queues
First application environment........... xxxxxxxx
Last application environment........... xxxxxxxx
XDAT Connection................... xxxxxxxx

Application Environment Information
----------------------------------

Application Environment Name....... PAYROLL
Application Environment State........ Active
Application Environment Counts
  Total target........................ xxxxxxxx
  Total bound........................ xxxxxxxx
  Number of starting servers........ xxxxxxxx
  Number of connected servers........ xxxxxxxx
Application Environment Flags

Application Environment Queues
  First server........................ xxxxxxxx
  Last server........................ xxxxxxxx
  First transaction environment...... xxxxxxxx
  Last transaction environment...... xxxxxxxx

Transaction Environment Information
----------------------------------

Transaction Environment Service Class.... AQISLOW
Transaction Environment Counts
  Target................................ xxxxxxxx
  Bound................................ xxxxxxxx
Transaction Environment Work Queue...... Empty
Transaction Environment Flags

Transaction Environment Queues
  First work unit..................... xxxxxxxx
  Last work unit..................... xxxxxxxx
  First suspended server.............. xxxxxxxx
  Last suspended server.............. xxxxxxxx
  Work Queue Information
    Work Unit User Data .... xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx
    Work unit Flags
      xxxxxxxxxxxxxxxxxxxxx
    Work Unit Etoken................ xxxxxxxx xxxxxxxx
    Work Unit Userid................ xxxxxxxx

Application Environment Table Information
----------------------------------

Application Environment Name....... PAYROLL
Subsystem Type.................. DB2
Procedure Name.................. PAYROLL
Start Parameters
Workload Manager

Limit on starting server address spaces
   Single address space per sysplex

Local System Data
   System State.............................. Available
   Time Of Last State Change................ 05/10/1996 09:37:08
   Name Of System Coordinating System State. ******
   Local Work Unit ID....................... xxxxxxxx xxxxxxxx

Server Failure Data
   Number of unexpected server failures..... 00000002
   Server Failure Flags
      xxxxxxxxxxxxxxxxxxxxxxxxxxx
   Server Failure Times
      Most Recent Failure Time............... 05/10/1996 10:52:36
      ... .................................. 05/10/1996 10:52:13
      ... .................................. None
      ... .................................. None
      Oldest Failure Time.................... None

Global Information
   The global environment management information section represents data that
   is global to all system processing done by the WLM Server Environment
   Manager.

   Application environment table object
      Represents the pointer to the Application Environment Table (AET).

   Server Manager mode
      Represents the WLM mode that the server environment manager is using.
      A value of Goal corresponds directly with the goal mode of WLM.

Queue Manager Information
   The queue manager section shows global data used by the WLM queue
   manager to manage the function.

   QEB CELL POOL ID
      The CELL POOL ID of the queue manager's work unit pool.

   Last transaction environment sequence number
      Represents the last sequence number assigned to a new transaction
      environment.

   Last work unit sequence number
      Represents the last sequence number assigned to a new work unit.

   Dynamic Area CPOOL ID For PC Services
      Represents the id of the dynamic area used by queue manager service
      routines.

   TCB Defined For WLM QM Initialization Task
      The TCB address of the task that initialized the queue manager function.

Work Manager Information
   The work manager section shows each work manager that is using Server
   Environment Manager services in the system. Note that if no work manager
   information exists then this section is not shown (also applicable sections
   under it are not shown).

   Subsystem Type
      The work manager’s WLM subsystem type.

   Subsystem Name
      The work manager’s WLM subsystem name.
Workload Manager

**Work Manager State**
The work manager's state.
- **Active**
  Indicates a work manager that is connected to WLM and has not terminated.
- **Inactive**
  Indicates a work manager that is terminating or has terminated, and may no longer be connected to WLM.

**Work Manager Flags**
Flags representing work manager status. If none of the flags that are of interest are set then this header is not shown.
- **Operator Started**
  Indicates that the existence of this work manager was indicated to WLM by an operator command starting a server address space.
- **Queue Manager**
  Indicates that the work manager is a queue manager.
- **Router**
  Indicates that the work manager is a sysplex routing manager.

**Work Manager Queues**
The queues of objects which are anchored by the work manager
- **First application environment**
  Represents the first application environment in use by this work manager.
- **Last application environment**
  Represents the last application environment in use by this work manager.

**XDAT Connection**
Represents the XDAT object to which the work manager is connected.

**Application Environment Information**
The application environment section shows each application environment that is in use by the work manager above.

**Application Environment Name**
The application environment's name.

**Application Environment State**
Specifies the application environment's state.
- **Available**
  Indicates that the application environment is defined to WLM and that it is ready for the associated subsystem(s) to connect to it.
- **Quiesced**
  Indicates that WLM stopped starting new servers in this application environment because the operator issued the V WLM,APPLENV=xxxxx,QUIESCE command.
- **Stopped**
  Indicates that WLM stopped starting new servers in the application environment because WLM detected a problem with the JCL procedure of the application environment or the server code.
- **Deleting**
Indicates that WLM is in the process of deleting this application environment.

- Refreshing
  Indicates that WLM is in the process of refreshing all the servers in this application environment.
- Quiescing
  Indicates that WLM is in the process of quiescing all the servers in this application environment.

**Application Environment Counts**
Describes the number of server address spaces in the following categories;

- Total target
  Represents the total number of server address spaces requested on the local system by SRM for all transaction environments in this application environment. This is a total of all want counts in the transaction environments under this application environment.

- Total bound
  Represents the number of servers that WLM has bound to transaction environments in this application environment. This is a total of all have counts in the transaction environments under this application environment.

- Total number of starting servers
  Represents the number of servers that WLM has started, but have not yet connected to WLM.

- Total number of connected servers
  Represents the number of servers that have connected to WLM, but have not selected any work in this application environment.

**Application Environment Flags**
Describes the flags which are set in the application environment. If none of the flags that are of interest are set then this header is not shown.

- Operator started
  Indicates that the server was started by the operator (or some process other than WLM).

- Logically deleted
  Indicates that the application environment is logically deleted.

**Application Environment Queues**
Describes the queues anchors in the application environment object.

- First server
  Describes the first server object in this application environment.

- Last server
  Describes the last server object in this application environment.

- First transaction environment
  Describes the first transaction environment object in the application environment.

- Last transaction environment
  Describes the last transaction environment object in the application environment.
Workload Manager

Transaction Environment Information
The transaction environment section describes a unique queue of work that is known to WLM.

Transaction environment service class
Names the external service class to which the queued work has been classified. If the transaction environment is not associated with one service class, then this field may contain '********' to indicate that the transaction environment may contain more than one service class.

Transaction environment counts
Represents the number of server address spaces in the following categories.
- Target
  Represents the number of servers on the local system that SRM wants bound to this transaction environment.
- Bound
  Represents the number of servers that WLM has bound to this transaction environment.

Transaction Environment Work Queue
Describes the Empty/Not Empty state of the transaction environment's work queue.

Transaction Environment Flags
Describes the flags which are set in the transaction environment. If none of the flags that are of interest are set then this header is not shown.
- Deleting
  Indicates that this transaction environment is being deleted.
- Service class based
  Indicates that this transaction environment is serving only one service class.

Transaction Environment Queues
Describes the queues anchors in the application environment object.
- First work unit
  Describes the first work unit to be executed.
- Last work unit
  Describes the last work unit to be executed.
- First suspended server
  Describes the first server object with suspended server tasks.
- Last suspended server
  Describes the last server object with suspended server tasks.

Work Queue Information
The work queue section describes each unique work unit that has been inserted to WLM but not yet selected for execution.

Work Unit User Data
Represents the work unit as it is known by the subsystem that inserted the work.

Work Unit Flags
Describes the flags which are set in the work unit. If none of the flags that are of interest are set then this header is not shown.
**Userid is valid**
Indicates that the work unit user ID was supplied when the work unit was inserted.

**Work unit EToken**
A token representing the enclave token under which the work is executing.

**Userid**
The user ID that owns the work unit.

**Application Environment Table Information**
The application environment table information section describes all the application environments known to WLM. The application environments are defined using the WLM ISPF application or through the IWMDINS(install)/IWMPACT(activate) interfaces. Note that if no application environments exist then only the header is shown.

**Application Environment name**
Names the application environment.

**Subsystem Type**
Names the subsystem type that is assigned to this application environment.

**Procedure Name**
Names the JCL procedure used for this application environment.

**Start Parameters**
Shows the start parameter information used by WLM when starting a server environment address space in this application environment.

**Limit on starting server address spaces**
A header line that indicates that one of the subsequent lines is a limit for the current application environment.

- No limit
- Single address space per system
- Single address space per sysplex

**Local System Data**
A header line that indicates that information indented under this line is used by the local/current system to manage the application environment.

**System State**
Indicates the application environment state as known by the current system.

- Available
  Indicates that the application environment is defined to WLM and that it is ready for the associated subsystem to connect to it.
- Refreshing
  Indicates that the application environment is being refreshed because the operator issued a V WLM,APPLENV=xxxxx,REFRESH command.
- Quiescing
  Indicates that this system has finished working on an operator issued V WLM,APPLENV=xxxxx,QUIESCE command.
- Quiesced
Workload Manager

Indicates that this system has finished working on an operator issued V WLM,APPLENV=xxxxx,QUIESCE command.

- Resuming
  Indicates that this system is working on an operator issued V WLM,APPLENV=xxxxx,RESUME command.
- Internally-Refreshing
  Indicates that this system is working on an internally generated refresh action.
- Internally-Stopping
  Indicates that this system is working on an internally generated stop action.
- Internally-Stopped
  Indicates that this system has finished working on an internally generated stop action.
- Deleting
  Indicates that WLM is in the process of deleting this application environment.
- Deleted
  Indicates that WLM has finished the process of deleting an application environment.
- No State
  Indicates that the application environment state does not exist.
- Unknown
  Indicates that the application environment state is not any of the above, therefore it is unknown. For this case we most likely have bad data.

Time Of Last State Change
The last time the application environment state was changed.

Name Of System Coordinating Application Environment State
Indicates which system in the sysplex is coordinating the application environment state that is shown. Coordination is required for any transitional state such as deleting/quiescing and possibly the 'no state' condition. Note that if no system is coordinating the system state then ******** is shown.

Local Work Unit ID
The work-unit-id of the current action (if application environment state is transitional, like deleting) or the last action that was performed for this application environment

Server Failure Data
A header line that groups data collected by Server Environment Manager relating to unexpected server terminations in this application environment. If there is no failure data to display, this entire section will be skipped by the IPCS formatter.

Number of unexpected server failures
The number of unexpected server terminations detected by Server Environment Manager on this system in this application environment

Server Failure Flags
Groups flags that are set in this section of the AET.
Workload Manager

**Internal Stop has been initiated**
Indicates that Server Environment Manager has detected 5 unexpected terminations within 10 minutes of each other and that Server Environment Manager has initiated an internal-stop of the application environment.

**Server Failure Times**
Displays the date and time of the most recent unexpected termination to the oldest unexpected termination (maximum of 5 in the history). If the most recent and the oldest are within 10 minutes of each other then Server Environment Manager will initiate an internal-stop of the application environment.

---

**WLMDATA server manager report**
The Server Manager Report provides an overview of information that is pertinent to Server Environment Manager processing for WLM. This information is returned when the SERVERMANAGER keyword is given on the WLMDATA subcommand. Various refinements of the Server Manager Report information can be obtained by specifying either SUMMARY, DETAIL or EXCEPTION.

"SERVERMANAGER summary report" on page 752,"SERVERMANAGER exception report" on page 756, and "SERVERMANAGER detail report" on page 757 show example SUMMARY, DETAIL, and EXCEPTION reports. Note that for the SUMMARY or DETAIL reports the displays show all possible sections that could appear. In reality, if certain information does not exist then those sections are not displayed. For example, if no servers exist then only the global information is shown and no information past this section is shown.
***** SERVERMANAGER SUMMARY REPORT *****

Global Information
-----------------------------------------------

Server Manager Mode......................... Goal

Work Manager Information
-----------------------------------------------

Subsystem Type............................... DB2
Subsystem Name............................... DB2A
Work Manager State......................... Active

Application Environment Information
-----------------------------------------------

Application Environment Name........ PAYROLL
Application Environment State........... Available
Application Environment Counts
- Total target......................... xxxxxxxx
- Total bound........................ xxxxxxxx
- Number of starting servers............. xxxxxxxx
- Number of connected servers.......... xxxxxxxx
Application Environment Limits
- Maximum.............................. xxxxxxxx
- Minimum.............................. xxxxxxxx
- Spread minimum across transaction env... YES|NO

Server Information
------------------

Server ASID.............................. X'002F'
Server Jobname........................... PAYROLL
Server State............................. Bound
Time of Last Server State Change........ 08/18/1995 17:20:25
Server Binding............................ AQISSLOW
Server Address Space Counts
- Temporal Affinities.................... xxxxxxxx

Selected Work Table
-------------------

Number Of Entries In Use............... xxxxxxxx
Selected Work Entries
- User Data.................. xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx
- User Data.................. xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx

Transaction Environment Information
-----------------------------------------------

Transaction Environment Service Class.... AQISSLOW
Transaction Environment Counts
- Target................................. xxxxxxxx
- Bound.................................. xxxxxxxx
Transaction Environment Work Queue...... Empty

Application Environment Table Information
-----------------------------------------------

Application Environment Name........ PAYROLL
Subsystem Type............................. DB2
Procedure Name............................ DB2PAY

Figure 76. Example: SERVERMANAGER summary report
Global Information
The global environment management information section represents data that is global to all system processing done by the WLM Server Environment Manager.

Server Manager mode
Represents the WLM mode that the server environment manager is using. A value of Goal corresponds directly with the goal mode of WLM.

Work Manager Information
The work manager section shows each work manager that is using Server Environment Manager services in the system. Note that if no work manager information exists then this section is not shown (also applicable sections under it are not shown since they do not exist).

Subsystem Type
The work manager’s WLM subsystem type.

Subsystem Name
The work manager’s WLM subsystem name.

Work Manager State
The work manager’s state.
- Active
  Indicates a work manager that is connected to WLM and has not terminated.
- Inactive
  Indicates a work manager that is terminating or has terminated, and may no longer be connected to WLM.

Application Environment Information
The application environment section shows each application environment that is in use by the work manager above.

Application Environment Name
The application environment’s name.

Application Environment State
Specifies the application environment’s state.
- Available
  Indicates that the application environment is defined to WLM and that it is ready for the associated subsystem(s) to connect to it.
- Quiesced
  Indicates that the application environment was quiesced because the operator issued the V WLM,APPLENV=xxxxx,QUIESCE command.
- Stopped
  Indicates that WLM stopped starting new servers in this application environment because WLM detected a problem with the JCL procedure of the application environment or the server code.
- Deleting
  Indicates that WLM is in the process of deleting this application environment.
- Refreshing
  Indicates that WLM is in the process of refreshing all the servers in this application environment.
- Quiescing
Indicates that WLM is in the process of quiescing all the servers in this application environment.

**Application Environment Counts**
Describes the number of server address spaces in the following categories;
- **Total target**
  Represents the total number of server address spaces requested on the local system by SRM for all transaction environments in this application environment. This is a total of all want counts in the transaction environments under this application environment.
- **Total bound**
  Represents the number of servers that WLM has bound to transaction environments in this application environment. This is a total of all have counts in the transaction environments under this application environment.
- **Total number of starting servers**
  Represents the number of servers that WLM has started, but have not yet connected to WLM.
- **Total number of connected servers**
  Represents the number of servers that have connected to WLM, but have not selected any work in this application environment.

**Application Environment Limits**
Describes the limits existing for the application environment.
- **Maximum**
  Represents the maximum number of servers WLM is allowed to start for all transaction environments in this application environment.
- **Minimum**
  Represents the minimum number of servers which should be up and running all the time for this application environment.
- **Spread minimum across transaction env**
  YES - indicates that the minimum number of servers will be distributed as evenly as possible to all service classes being used to execute work requests.
  NO - indicates that the minimum number of servers will be distributed to service classes as needed in order to meet goals.

**Server Information**
The server information section describes a specific server that is managed by Server Environment Manager. Note that if no server information exists then this section is not shown.

**Server ASID**
The ASID of the server environment address space.

**Server Jobname**
The jobname of the server environment address space.

**Server State**
The current state of the server: Undefined, Starting, Initializing, Connected, Bound, Unbound, Terminating, Disconnected, A/S Termed, ASCRE Retry, or Routing Ready.

**Time of last server state change**
The time when the server changed into the current state.
Server Binding
The service class of the transaction environment to which the server is bound. If the server is bound to a transaction environment that is not associated with one service class, then this field will contain '********' to indicate that the transaction environment may contain work classified to more than one service class. The transaction environment is considered to be non-partitioned in this case.

Server Address Space Counts
Describes further properties of the server address space.

Temporal Affinities
Represents the number of temporal affinities which exist for the server address space.

Selected Work Table Information
The selected work table section describes the work which has been selected by a server, to be executed by that server. Note that if no selected work table information exists then this section is not shown. For sysplex routing servers, there is no Selected Work Table.

Number of entries in use
Represents the number of work units currently being executed in parallel by the server. If 0 is shown then no entries are currently in use which means there are no server tasks between IWMSTBGN and IWMSTEND.

Selected work entries
Describes each slot in the table.

User data
Represents the work unit (USERDATA on IWMQINS) as it was provided to WLM by the inserting subsystem. WLM does not use this information, but it has been provided for assistance in debugging problems on the exploiting subsystem’s side of the interfaces.

Transaction Environment Information
The transaction environment section describes a unique queue of work that is known to WLM.

Transaction environment service class
Names the external service class to which the queued work has been classified. If the transaction environment is not associated with one service class, then this field may contain '********' to indicate that the transaction environment may contain more than one service class.

Transaction environment counts
Represents the number of server address spaces in the following categories.
• Target
  Represents the number of servers on the local system that SRM wants bound to this transaction environment.
• Bound
  Represents the number of servers that WLM has bound to this transaction environment.
• Server Instance Target
  Represents the number of clients which route their work requests directly to this server region.
Workload Manager

Transaction environment work queue
Describes the Empty/Not Empty state of the transaction environment's work queue.

Application Environment Table Information
The application environment table information section describes all the application environments known to WLM. The application environments are defined using the WLM ISPF application or through the IWMDINS(install)/IWMPACT(activate) interfaces. Note that if no application environments exist then only the header is shown.

Application Environment name
Names the application environment.

Subsystem Type
Names the subsystem type that is assigned to this application environment.

Procedure Name
Names the JCL procedure used for this application environment.

SERVERMANAGER exception report

**** SERVERMANAGER EXCEPTION REPORT ****
SERVERMANAGER RELATED EXCEPTIONS
--------------------------------------
IWM0004I Validity check failure, reason aaxxbbcc, for WLM data area at address zzzzzzzz in ASID X'gggg'.
zzzzzzzz XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
+0010 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
+0020 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
+0030 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
+0040 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
IWM0005I Validity check warning, reason aaxxbbcc, for WLM data area at address zzzzzzzz in ASID X'gggg'.
zzzzzzzz XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
+0010 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
+0020 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
+0030 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
+0040 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |

Figure 77. Example: SERVERMANAGER exception report

Error/Warning control block record

reason: aaxxbbcc
This field contains the reason code associated with the error. The format of the reason code is aaxxbbcc, where aa is the control block ID for the data area in error, xx is the ID of the module that detected the error, bb is not used, and cc identifies the error detected.

Control block address: zzzzzzzz
This field contains the address of the control block in error.

ASID: X'gggg'
The address space identifier (ASID) in hexadecimal of the address space where the control block exists.
SERVERMANAGER detail report

The following is an example of the SERVERMANAGER detail report:

***** SERVERMANAGER DETAIL REPORT *****

Global Information
-----------------------------

Application Environment Table Object....... xxxxxxxx
Server Manager Mode........................ Goal

Global Server Manager Counts
Total Number Of Servers Starting........... xxxxxxxx

Starting Server Queues
First starting server object............... xxxxxxxx
Last starting server object............... xxxxxxxx

Work Manager Queues
First active work manager object.......... xxxxxxxx
Last active work manager object.......... xxxxxxxx
First inactive work manager object......... xxxxxxxx
Last inactive work manager object......... xxxxxxxx

SRM Recommendations Queues
First SRM Order............................ xxxxxxxx
Last SRM Order............................. xxxxxxxx

New Address Space Table
Slot 1..................................... xxxxxxxx
Slot 2..................................... xxxxxxxx
Slot 3..................................... xxxxxxxx

EM CSC Information
CSC Flags
xxxxxxxxxxxxxxxxxxxxxxxx
CSC Work Structure......................... xxxxxxxx
Internal SVCAE............................. xxxxxxxx

Work Manager Information
------------------------

Subsystem Type............................ DB2
Subsystem Name............................ DB2A
Work Manager State........................ Active

Work Manager Flags
xxxxxxxxxxxxxxxxxxxxxxxx

Work Manager Queues
First application environment.............. xxxxxxxx
Last application environment............... xxxxxxxx

Application Environment Information
-----------------------------------

Application Environment Name........ PAYROLL
Application Environment State.............. Available

Application Environment Counts
Total target............................. xxxxxxxx
Total bound................................ xxxxxxxx
Number of starting servers................ xxxxxxxx
Number of connected servers.............. xxxxxxxx

Application Environment Limits
Maximum.................................. xxxxxxxx
Minimum.................................. xxxxxxxx

Spread minimum across transaction env.... YES\NO
Application Environment Flags
xxxxxxxxxxxxxxxxxxxxxx

Application Environment Queues
First server................................ xxxxxxxx
Last server................................ xxxxxxxx
First transaction environment............ xxxxxxxx
Workload Manager

Last transaction environment........... xxxxxxxx

Server Information
---------------------

Server ASID............................ X'002F'
Server Jobname........................ PAYROLL
Server State............................ Bound
Time Of Last Server State Change....... 05/10/1996 10:52:38
Server Binding........................ AQISSLOW
Server Address Space Counts
  Temporal Affinities................. xxxxxxxx
Server Flags
xxxxxxxxxxxxxxxxxxxxx
Selected Work Table.................... xxxxxxxx
Server Subqueue ID..................... x
Server Queues
  First server task................... xxxxxxxx
  Last server task.................... xxxxxxxx
  First suspended server task......... xxxxxxxx
  Last suspended server task.......... xxxxxxxx
  First resuming suspended server task... xxxxxxxx
  Last resuming suspended server task... xxxxxxxx
Number Of ASCRE Tries.................. xxxxxxxx

Selected Work Table
-------------------

Number Of Entries In Use............. xxxxxxxx
Selected Work Entries
  User Data................... xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx
  Execution TCB................... xxxxxxxx
  Execution Unit Token............. xxxxxxxx xxxxxxxx
  Enclave Token.................... xxxxxxxx xxxxxxxx
  userid............................ xxxxxxxx
  Selected from.................... $REGION$

  User Data................... xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx
  Execution TCB................... xxxxxxxx
  Execution Unit Token............. xxxxxxxx xxxxxxxx
  Enclave Token.................... xxxxxxxx xxxxxxxx
  userid............................ xxxxxxxx
  Selected from.................... AQISSLOW

  Maximum Number Of Entries........... xxxxxxxx
  Selected Work Free Queue............ xxxxxxxx

Server Task Information
------------------------

Server Task TCB...................... xxxxxxxx
Server Task Suspend Sequence Number.. xxxxxxxx
Server Task Subqueue ID.............. x
Server Task ECB....................... xxxxxxxx
Server Task Last Enclave Token........ xxxxxxxx

Transaction Environment Information
------------------------------------

Transaction Environment Service Class.. AQISSLOW
Transaction Environment Counts
  Target............................. xxxxxxxx
  Bound............................. xxxxxxxx
Transaction Environment Work Queue..... Empty

Application Environment Table Information
------------------------------------------
Global Information

The global environment management information section represents data that is global to all system processing done by the WLM Server Environment Manager.

Application environment table object

Represents the pointer to the Application Environment Table (AET).

Server Manager mode

Represents the WLM mode that the server environment manager is using. A value of Goal corresponds directly with the goal mode of WLM.

Global server manager counts

Describes global counters used by the Server Environment Manager to manage the servers and application environments.

Total number of servers starting

Represents the number of WLM started servers that are being started concurrently across all work managers known to WLM. The servers counted here are in the STARTING, INITIALIZING or ASCRE_RETRY state.

Starting Server Queues

Describes the servers that are being started by WLM. These are the same servers as those included in the starting server count.

• First starting server object
  Represents the first server object that is currently being started by WLM.

• Last starting server object
  Represents the last server object that is currently being started by WLM.

Work Manager Queues

Represents the work managers known to WLM.

• First active work manager object
  Represents the first active work manager object (which specified IWMCONN QUEUE_MANAGER=YES) known to WLM.

• Last active work manager object
  Represents the last active work manager object (which specified IWMCONN QUEUE_MANAGER=YES) known to WLM.
**Workload Manager**

- **First inactive work manager object**
  Represents the first work manager object (which specified IWMCONN QUEUE_MANAGER=YES) known to WLM which has disconnected (IWMDISC) and is being cleaned up by the Server Environment Manager.

- **Last inactive work manager object**
  Represents the last work manager object (which specified IWMCONN QUEUE_MANAGER=YES) known to WLM which has disconnected (IWMDISC) and is being cleaned up by the Server Environment Manager.

**SRM Recommendation Queues**
Represents QMPL orders from SRM, which the Server Environment Manager has yet to act upon.

- **First SRM order**
  Represents the first SRM QMPL order which the Server Environment Manager has yet to act upon. to WLM.

- **Last SRM order**
  Represents the last SRM QMPL order which the Server Environment Manager has yet to act upon. to WLM.

- **SRM order stack**
  Represents a list of SRM QMPL orders that Server Environment Manager has yet to act upon. This is the list where SRM queues new QMPL orders.

**New Address Space Table**
Represents the list of slots containing server objects to be started by WLM. Server objects in this table should be in the STARTING (or possibly TERMINATING, but not likely) state and should also be in the Starting Server Queue.

**EM CSC Information**
Header that indicates information defined under this header is related to the EM cross-system coordination process.

- **CSC flags**
  Header that specifies that the flags related to the EM command processing coordinator are to be shown. If none of the flags that are of interest are set then this header is not shown.

- **CSC in progress**
  Indicates that EM command processor is currently trying to complete a command.

- **CSC Work structure**
  Represents the EM command coordinator work structure.

- **EM Internal SVCAE**
  Represents the EM command coordinator checkpoint area.

**Work Manager Information**
The work manager section shows each work manager that is using Server Environment Manager services in the system. Note that if no work manager information exists then this section is not shown (also applicable sections under it are not shown).

**Subsystem Type**
The work manager's WLM subsystem type.
**Subsystem name**
The work manager's WLM subsystem name.

**Work Manager State**
The work manager's state.
- Active
  Indicates a work manager that is connected to WLM and has not terminated.
- Inactive
  Indicates a work manager that is terminating or has terminated, and may no longer be connected to WLM.

**Work Manager Flags**
Flags representing work manager status. If none of the flags that are of interest are set then this header is not shown.
- Operator Started
  Indicates that the existence of this work manager was indicated to workload management by an operator command starting a server address space.
- Queue Manager
  Indicates that the work manager is a queue manager.
- Router
  Indicates that the work manager is a sysplex routing manager.

**Work Manager Queues**
The queues of objects which are anchored by the work manager
- First application environment
  Represents the first application environment in use by this work manager.
- Last application environment
  Represents the last application environment in use by this work manager.

**XDAT connection**
Represents the XDAT object to which the work manager is connected.

**Application Environment Information**
The application environment section shows each application environment that is in use by the work manager above.

**Application Environment Name**
The application environment's name.

**Application Environment State**
Specifies the application environment's state.
- Available
  Indicates that the application environment is defined to workload management and that it is ready for the associated subsystem(s) to connect to it.
- Quiesced
  Indicates that the application environment was quiesced because the operator has issued the V WLM,APPLENV=xxxxx,QUIESCE command.
- Stopped
Indicates that workload management has stopped starting new servers in this application environment because workload management has detected a problem with the application environment's JCL procedure or the server code.

- Deleting
  Indicates that WLM is in the process of deleting this application environment.

- Refreshing
  Indicates that WLM is in the process of refreshing all the servers in this application environment.

- Quiescing
  Indicates that WLM is in the process of quiescing all the servers in this application environment.

**Application Environment Counts**
Describes the number of server address spaces in the following categories;

- Total target
  Represents the total number of server address spaces requested on the local system by SRM for all transaction environments in this application environment. This is a total of all want counts in the transaction environments under this application environment.

- Total bound
  Represents the number of servers that WLM has bound to transaction environments in this application environment. This is a total of all have counts in the transaction environments under this application environment.

- Total number of starting servers
  Represents the number of servers that WLM has started, but have not yet connected to WLM.

- Total number of connected servers
  Represents the number of servers that have connected to WLM, but have not selected any work in this application environment.

**Application Environment Limits**
Describes the limits existing for the application environment.

- Maximum
  Represents the maximum number of servers WLM is allowed to start for all transaction environments in this application environment.

- Minimum
  Represents the minimum number of servers which should be up and running all the time for this application environment.

- Spread minimum across transaction env
  YES - indicates that the minimum number of servers will be distributed as evenly as possible to all service classes being used to execute work requests.
  NO - indicates that the minimum number of servers will be distributed to service classes as needed in order to meet goals.

**Application Environment Flags**
Describes the flags which are set in the application environment. If none of the flags that are of interest are set then this header is not shown.

- Operator started
Indicates that the server was started by the operator (or some process other than WLM).

- Logically deleted
  Indicates that the application environment is logically deleted.

**Application Environment Queues**
Describes the queues anchors in the application environment object.

- First server
  Describes the first server object in this application environment.

- Last server
  Describes the last server object in this application environment.

- First transaction environment
  Describes the first transaction environment object in the application environment.

- Last transaction environment
  Describes the last transaction environment object in the application environment.

**Server Information**
The server information section describes a specific server that is managed by Server Environment Manager. Note that if no server information exists then this section is not shown.

**Server ASID**
The ASID of the server environment address space.

**Server Jobname**
The jobname of the server environment address space.

**Server state**
The current state of the server. Could be Undefined, Starting, Initializing, Connected, Bound, Unbound, Terminating, Disconnected, A/S Termed, or ASCRE Retry.

**Time of last server state change**
The time when the server changed into the current state.

**Server Binding**
The service class of the transaction environment to which the server is bound. If the server is bound to a transaction environment that is not associated with one service class, then this field will contain '********' to indicate that the transaction environment may contain work classified to more than one service class. The transaction environment is considered to be non-partitioned in this case.

**Server Address Space Counts**
Describes further properties of the server address space.

**Temporal Affinities**
Represents the number of temporal affinities which exist for the server address space.

**Server flags**
Represents flags that are set in the server object. If none of the flags that are of interest are set then this header is not shown.

- Work manager terminating
Workload Manager

Indicates that the work manager which owns this server is terminating. Could be as a result of the work manager disconnecting from WLM or going through MEMTERM.

- Adjustment
  Indicates that the server is being told to terminate as the result of a downward QMPL adjustment from SRM.

- Must terminate
  Indicates that the server is being told to terminate and that it will not be allowed to reconnect to WLM. It must go through MEMTERM.

- Operator started
  Indicates that the server was started by the operator (or some process other than WLM).

- Queuing server
  Indicates that the server is a queuing server.

- Routing server
  Indicates that the server is a sysplex routing server.

Server subqueue id

Describes the subqueue where the server object currently resides.

- S
  Identifier for a SEAS on a suspended SEAS subqueue. This indicates that the server environment address space has at least one task suspended inside IWMSSEL (IWME2SEL).

- N
  Identifier for a SEAS on a starting SEAS subqueue ("N" for new).

- U
  Identifier for a SEAS not on a subqueue.

Server queues

Describes the queues which are anchored in this server object.

- First server task
  Represents the first server task object which is known to WLM.

- Last server task
  Represents the last server task object which is known to WLM.

- First suspended server task
  Represents the first server task object which is suspended inside the IWMSSEL service routine, waiting for work.

- Last suspended server task
  Represents the last server task object which is suspended inside the IWMSSEL service routine, waiting for work.

- First resuming server task
  Represents the first server task object which is about to be resumed after being suspended inside the IWMSSEL service routine, waiting for work.

- Last resuming server task
  Represents the last server task object which is about to be resumed after being suspended inside the IWMSSEL service routine, waiting for work.

- First secondary suspended server task
  Represents the first secondary server task object for tasks suspended within IWMSSEM service for secondary work requests.
Workload Manager

- Last secondary suspended server task
  Represents the last secondary server task object for tasks suspended
  within IWMSSEM service for secondary work requests.

- Number of ASCRE Tries
  Represents the number of times that WLM attempted to restart a server
  environment address space which failed before connecting to WLM.

**Selected Work Table Information**

The selected work table section describes the work which has been selected by
a server, to be executed by that server. Note that if no selected work table
information exists then this section is not shown. For sysplex routing servers,
there is no Selected Work Table.

**Number of entries in use**

Represents the number of work units currently being executed in parallel
by the server. If 0 is shown then no work units are currently in use which
means there are no server tasks between IWMSTBGN and IWMSTEND.

**Selected work entries**

Describes each slot in the table.

- User data
  Represents the work unit (USERDATA on IWMQINS) as it was provided
to WLM by the inserting subsystem. WLM does not use this
information, but it has been provided for assistance in debugging
problems on the exploiting subsystem’s side of the interfaces.

- Execution TCB
  TCB address of the task which is executing the work represented by this
  entry.

- Execution unit token
  A token representing a work unit.

- Enclave token
  A token representing the enclave under which the work is executing.

- Userid
  The user ID that owns the work unit. When the user ID is present, WLM
  will initialize a security environment during IWMSTBGN processing.

- Selected from
  The service class of the transaction environment that the selected work
  entry is associated with. If the server is bound to a transaction
  environment that is not associated with one service class, then this field
  will contain ‘********’ since the selected work entry cannot be associated
  with a particular service class. If the work entry is selected from a region
  queue, then this field will contain ‘$REGION$’ to indicate that the work
  entry is not associated with a service class.

**Maximum number of entries**

Represents the maximum number of work units that may be executed in
parallel by the server.

**Selected work free queue**

The head of the queue of free slots in the selected work table.

**Server Task Information**

The server task information section describes a specific task in the server
address space that is known by Server Environment Manager because it has
issued the IWMSSEL service at least once in its lifetime.
Workload Manager

**Server Task TCB**
The TCB address of the server task.

**Server Task suspend token**
A token used to identify a suspend instance.

**Server Task subqueue ID**
Represents the current state of the server task, such as:
- S: Server task is suspended.
- R: Server task is about to be resumed.
- U: Server task is not suspended.

**Server Task ECB**
The ECB used by WLM for batch initiators.

**Server Task Last Enclave Token**
Enclave token from the last work request selected by the server.

**Transaction Environment Information**
The transaction environment section describes a unique queue of work that is known to WLM.

**Transaction environment service class**
Names the external service class to which the queued work has been classified. If the transaction environment is not associated with one service class, then this field may contain '********' to indicate that the transaction environment may contain more than one service class.

**Transaction environment counts**
Represents the number of server address spaces in the following categories.
- **Target**
  Represents the number of servers on the local system that SRM wants bound to this transaction environment.
- **Bound**
  Represents the number of servers that WLM has bound to this transaction environment.

**Transaction environment work queue**
Describes the Empty/Not Empty state of the transaction environment's work queue.

**Application Environment Table Information**
The application environment table information section describes all the application environments known to WLM. The application environments are defined using the WLM ISPF application or through the IWMDINS(install)/IWMPACT(activate) interfaces. Note that if no application environments exist then only the header is shown.

**Application Environment name**
Names the application environment.

**Subsystem Type**
Names the subsystem type that is assigned to this application environment.

**Procedure Name**
Names the JCL procedure used for this application environment.

**Start Parameters**
Shows the start parameter information used by WLM when starting a server environment address space in this application environment.
Limit on starting server address spaces
A header line that indicates that one of the subsequent lines is a limit for
the current application environment.
- No limit
- Single address space per system
- Single address space per sysplex

Local System Data
A header line that indicates that information indented under this line is
used by the local/current system to manage the application environment.

System State
Indicates the application environment state as known by the current
system.
- Available
  Indicates that the application environment is defined to WLM and that it
  is ready for the associated subsystem to connect to it.
- Refreshing
  Indicates that the application environment is being refreshed because the
  operator issued a V WLM,APPLENV=xxxxx,REFRESH command.
- Quiescing
  Indicates that this system is working on an operator issued V
  WLM,APPLENV=xxxxx,QUIESCE command.
- Quiesced
  Indicates that this system has finished working on an operator issued V
  WLM,APPLENV=xxxxx,QUIESCE command.
- Resuming
  Indicates that this system is working on an operator issued V
  WLM,APPLENV=xxxxx,RESUME command.
- Internally-Refreshing
  Indicates that this system is working on an internally generated refresh
  action.
- Internally-Stopping:
  Indicates that this system is working on an internally generated stop
  action.
- Internally-Stopped
  Indicates that this system has finished working on an internally
generated stop action.
- Deleting
  Indicates that WLM is in the process of deleting this application
  environment.
- Deleted
  Indicates that WLM has finished the process of deleting an application
  environment.
- No State
  Indicates that the application environment state does not exist.
- Unknown
  Indicates that the application environment state is not any of the above,
  therefore it is unknown. For this case we most likely have bad data.
**Workload Manager**

**Time Of Last State Change**
The last time the application environment state was changed.

**Name Of System Coordinating Application Environment State**
Indicates which system in the sysplex is coordinating the application environment state that is shown. Coordination is required for any transitional state such as deleting/quiescing and possibly the ‘no state’ condition.

Note that if no system is coordinating the system state then ****** is shown.

**Local Work Unit ID**
The work-unit-id of the current action (if application environment state is transitional, like deleting) or the last action that was performed for this application environment.

**Server Failure Data**
A header line that groups data collected by Server Environment Manager relating to unexpected server terminations in this application environment. If there is no failure data to display, this entire section will be skipped by the IPCS formatter.

**Number of unexpected server failures**
The number of unexpected server terminations detected by Server Environment Manager on this system in this application environment.

**Server Failure Flags**
Groups flags that are set in this section of the AET.

- **Internal Stop has been initiated**
  Indicates that Server Environment Manager has detected 5 unexpected terminations within 10 minutes of each other and that Server Environment Manager has initiated an internal-stop of the application environment.

**Server Failure Times**
Displays the date and time of the most recent unexpected termination to the oldest unexpected termination (maximum of 5 in the history). If the most recent and the oldest are within 10 minutes of each other then Server Environment Manager will initiate an internal-stop of the application environment.

---

**WLMDATA scheduling environment report**

The Scheduling Environment Report provides an overview of information that is pertinent to scheduling environment processing for WLM. This information is returned when the SCHENV keyword is given on the WLMDATA subcommand. Various refinements of the Scheduling Environment Report information can be done by specifying either SUMMARY, DETAIL or EXCEPTION.
### SCHENV summary report

#### Scheduling Environment Table Information

A header line indicating that the following information comes from the Scheduling Environment Table (IWMSET).

If no scheduling environments and resources exist then the *No Scheduling Environment Information Exists* line is displayed. If the no scheduling information exists line is displayed then no further information is shown.

#### Scheduling Environments

A header line indicating that the following information represents scheduling environments.

If no scheduling environments exist then the *No Scheduling Environments Exist* line is displayed.

If scheduling environments exist the following is displayed for each scheduling environment.

- **Scheduling Environment Name**
  - Specifies the 1-16 character long scheduling environment name.

- **Description**
  - Specifies the 1-32 character long description for the scheduling environment.

#### Resources

A header line indicating that the following information represents resources.

If no resources exist then the *No Resources Exist* line is displayed.

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRYPTO</td>
<td>CRYPTO required</td>
</tr>
<tr>
<td>DB2</td>
<td>DB2 required</td>
</tr>
<tr>
<td>DB2_NOT_V4</td>
<td>DB2 V4 NOT required</td>
</tr>
<tr>
<td>IMS</td>
<td>IMS required</td>
</tr>
<tr>
<td>OS390R3</td>
<td>release/version identifier</td>
</tr>
<tr>
<td>OS390R4</td>
<td>release/version identifier</td>
</tr>
</tbody>
</table>

---

Figure 78. Example: SCHENV summary report

---

**Workload Manager**

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Workload Manager

If resources exist then the following is displayed. Note that each item described below is defined under the column name that is associated with the item.

Resource Name
Specifies the 1-16 character long resource name.

Description
Specifies the 1-32 character long description for the resource.

**SCHENV exception report**
This report displays dump output messages and a hexadecimal dump of each data area that received a validity check failure or warning. IBM might request this information for problem determination. Fields displayed in the report include:

**Error/Warning control block record**

reason: aaxxbbcc
This field contains the reason code associated with the error. The format of the reason code is aaxxbbcc where aa is the control block ID for the data area in error, xx is the ID of the module that detected the error, bb is not used, and cc identifies the error detected.

Control block address: zzzzzzzz
This field contains the address of the control block in error. The control blocks reported by the SCHENV exception report is the SECT mapped by IWMSECT.

ASID: X'gggg'
The address space identifier (ASID) in hexadecimal where the control block exists.

**SCHENV detail report**
The following is an example of the SCHENV detail report:

****** SCHENV DETAIL REPORT ******

Global SCHENV Manager Information
-----------------------------------------------

Global SCHENV Manager Flags
SE Control Flag
SE Active
SE Quiesced
Action Processor Flag
Action Processor In Progress
Action Processor Allowed To Abend
Topology Processor Flag
Topology Processor In Progress
Topology Processor Allowed To Abend
Topology Processor Allowed To Send Null Topology
Timer Flag
Action Processor Timer Set
Topology Processor Timer Set
RESYNC Processor Timer Set
RESYNC Processor Flag
RESYNC Processor In Progress

Time We Did Things
Topology Processor Last Time Sent...... xx/xx/xxxx xx:xx:xx
RESYNC Processor Last Time Sent....... xx/xx/xxxx xx:xx:xx
RESYNC Started Time.................... xx/xx/xxxx xx:xx:xx
Last Time IWMSAVEL Issued............. xx/xx/xxxx xx:xx:xx
## Workload Manager

Last Time IWMSEDES Issued.............. xx/xx/xxxx xx:xx:xx
Last Time IWMSEALP Entered............. xx/xx/xxxx xx:xx:xx

### SCHENV Counts
- SE Task Action Processor Restart Counter: xxxxxxxx
- SE RESYNC Timer Count Retries: xxxxxxxx
- SE RESYNC Timer Count: xxxxxxxx
- SE Allocation Sequence Number: xxxxxxxx
- SE Topology Processor Restart Counter: xxxxxxxx

### Object Anchors
- Active Scheduling Environment Table (SET): xxxxxxxx
- Policy Activation SET: xxxxxxxx
- Action Work Structure: xxxxxxxx
- Action Processor External Stack: xxxxxxxx
- Action Processor Internal Head: xxxxxxxx
- Action Processor Internal Tail: xxxxxxxx
- Topology Processor External Stack: xxxxxxxx
- Topology Processor Internal Head: xxxxxxxx
- Topology Processor Internal Tail: xxxxxxxx
- RESYNC System List: xxxxxxxx
- CID Head: xxxxxxxx
- CID Tail: xxxxxxxx

### Scheduling Environment Table Information

### Header Information

<table>
<thead>
<tr>
<th>Size Of Header</th>
<th>Size Of Scheduling Environment Table</th>
<th>Header TOD Value</th>
<th>Size Of System Status Area</th>
<th>Number Of Scheduling Environment Entries</th>
<th>Number Of SR Entries</th>
<th>Number Of Resource Entries</th>
<th>Number Of System Status Area Entries</th>
</tr>
</thead>
<tbody>
<tr>
<td>xxxxxxxx</td>
<td>xxxxxxxx</td>
<td>xx/xx/xxxx xx:xx:xx</td>
<td>xxxxxxxx</td>
<td>xxxxxxxx</td>
<td>xxxxxxxx</td>
<td>xxxxxxxx</td>
<td>xxxxxxxx</td>
</tr>
</tbody>
</table>

### Scheduling Environments

#### Scheduling Environment Name: CRYPTO

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Required State</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRYPTO</td>
<td>ON</td>
</tr>
</tbody>
</table>

#### Scheduling Environment Name: DB2

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Required State</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2</td>
<td>ON</td>
</tr>
<tr>
<td>OS390R4</td>
<td>ON</td>
</tr>
</tbody>
</table>

### Resources

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Resource Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRYPTO</td>
<td>CRYPTO required</td>
</tr>
<tr>
<td>DB2</td>
<td>DB2 required</td>
</tr>
<tr>
<td>DB2_NOT_4</td>
<td>DB2 V4 NOT required</td>
</tr>
<tr>
<td>IMS</td>
<td>IMS required</td>
</tr>
</tbody>
</table>
**Scheduling Environments**

**Scheduling Environment Name**: CRYPTO
Description: CRYPTO Environment

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Required State</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRYPTO</td>
<td>ON</td>
</tr>
</tbody>
</table>

**Scheduling Environment Name**: DB2
Description: DB2 Environment

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Required State</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2</td>
<td>ON</td>
</tr>
<tr>
<td>OS390R4</td>
<td>ON</td>
</tr>
</tbody>
</table>

**Resources**

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Resource Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRYPTO</td>
<td>CRYPTO required</td>
</tr>
<tr>
<td>DB2</td>
<td>DB2 required</td>
</tr>
<tr>
<td>DB2_NOT_V4</td>
<td>DB2 V4 NOT required</td>
</tr>
<tr>
<td>IMS</td>
<td>IMS required</td>
</tr>
<tr>
<td>OS390R3</td>
<td>release/version required</td>
</tr>
<tr>
<td>OS390R4</td>
<td>release/version required</td>
</tr>
</tbody>
</table>

**Scheduling Environments System Status Information**

**System**: SY1

**Header Information**
- Header TOD Value: xx/xx/xxxx xx:xx:xx
- Last Time Section Modified: xx/xx/xxxx xx:xx:xx
- Size Of Header: xxxxxxxxx
- Size Of System Status Area: xxxxxxxxx
- Number Of SES Entries: xxxxxxxxx
- Number Of RES Entries: xxxxxxxxx

**Scheduling Environment**: CRYPTO
Index: xxxxxxxxx
Status Flag: Available
Control Flag: Requires Normal ENF
Requires Recovery ENF

**Scheduling Environment**: DB2
Index: xxxxxxxxx
Status Flag: Available
Control Flag: Requires Normal ENF
Requires Recovery ENF

**Resource**: CRYPTO
Index: xxxxxxxxx
State: xxxxx
Workload Manager

Control Flag
Modification In Progress

System....................... SY2

Header Information
Header TOD Value................... xx/xx/xxxx xx:xx:xx
Header TOD Value................... xx/xx/xxxx xx:xx:xx
Last Time Section Modified.......... xx/xx/xxxx xx:xx:xx
Size Of Header..................... xxxxxxxxx
Size Of System Status Area......... xxxxxxxxx
Number Of SES Entries.............. xxxxxxxxx
Number Of RES Entries............. xxxxxxxxx

Scheduling Environment............... CRYPTO
Index................................ xxxxxxxxx

Status Flag
Available
Control Flag
Requires Normal ENF
Requires Recovery ENF

Scheduling Environment............... DB2
Index................................ xxxxxxxxx
Status Flag
Available
Control Flag
Requires Normal ENF
Requires Recovery ENF

Resource............................ CRYPTO
Index................................ xxxxxxxxx
State................................. xxxx

Control Flag
Modification In Progress

Global SCHENV Manager Information
This line represents a header line that indicates that the following information comes from the Scheduling Environment Control Table (IWMSECT).

Global SCHENV Manager Flags
This line represents a header line that indicates that the following information represents the global scheduling environment manager flags.

If no flags are set then No Global SCHENV Flags Set is displayed.

If flags exist then the appropriate Flag header and flag information is displayed. The following lists what can be displayed:

SE Control Flag
• SE Active — Indicates WLM SE subcomponent active
• SE Quiesced — Indicates WLM SE subcomponent quiesced

Action Processor Flag
• Action Processor In Progress
• Action Processor Allowed To Abend

Topology Processor Flag
• Topology Processor In Progress
• Topology Processor Allowed To Abend
• Topology Processor Allowed To Send Null Topology
Workload Manager

Timer Flag
- Action Processor Timer Set
- Topology Processor Timer Set
- RESYNC Processor Timer Set

RESYNC Processor Flag
- RESYNC Processor In Progress

Time we did things
This line represents a header line that indicates that the following information represents times things occurred.

If no time fields have time values then No Time Fields Set is displayed.
If time fields are set then the appropriate time field row is displayed. The following lists what is displayed:

Topology processor last time sent
Identifies the last time the scheduling environment manager sent topology information to other systems in the sysplex.

RESYNC Processor Last Time Sent
Identifies the last time the scheduling environment manager attempted to RESYNC with other systems in the sysplex.

RESYNC Start Time
Identifies when the scheduling environment manager started RESYNC processing.

Last Time IWMSEVAL Issued
Identifies when the module that handles IWMSEVAL handled a request.

Last Time IWMSEDES Issued
Identifies when the module that handles IWMSEDES handled a request.

Last Time IWMSEALP Entered
Identifies when the module that performs local processing last processed a action (F WLM,RESOURCE= or IWMSESET) against the IWMSET.

SCHENV Counts
This line represents a header line that indicates that the following information represents the global scheduling environment counts. The following lists what is displayed:

SE Task Action Processor Restart Counter
Count represents the number of time the scheduling environment manager has restarted while the action processing function was still in control or zero.

Normally the scheduling environment manager should not fail while doing anything. If this is the case then zero should exist normally.

If a count exists then the scheduling environment manager was handling a F WLM,RESOURCE= command (this system or another) or a IWMSESET invocation. In any case a non-zero count indicates failure while handling the above mentioned work.
Workload Manager

SE RESYNC Timer Count Retries
Count represents the maximum number of times the scheduling environment manager RESYNC processing is allowed to retry.

SE RESYNC Timer Count
Count represents the number of times the scheduling environment manager has performed RESYNC processing. Once this count reaches the SE RESYNC Timer Count Retries then the RESYNC processing is terminated.

SE Allocation Sequence Number
A sequence number that is incremented every time the scheduling environment table or a system area is freed. IWMSEQRY uses this to determine if storage was freed while it tried to copy it.

SE Topology Processor Restart Counter
Count represents the number of time the scheduling environment manager has restarted while the topology processing function was still in control or zero.

Normally the scheduling environment manager should not fail while doing anything. If this is the case then zero should exist normally.

If a count exists then the scheduling environment manager was attempting to send a topology request to another system. In any case a non-zero count indicates a failure while creating and sending a topology request to another system.

Object Anchors
This line represents a header line that indicates that the following information represents the global scheduling environment object anchors. The following lists what is displayed:

Active Scheduling Environment Table (SET)
Pointer to the active scheduling environment table.

Policy Activation SET
Pointer to the scheduling environment table that exists during policy activation processing.

Action Work Structure
Pointer to the action work structure.

Action Processor External Stack
Pointer to the action processor external stack.

Action Processor Internal Head
Pointer to the beginning of the action processor internal queue.

Action Processor Internal Tail
Pointer to the end of the action processor internal queue.

Topology Processor External Stack
Pointer to the topology processor external stack.

Topology Processor Internal Head
Pointer to the beginning of the topology processor internal queue.

Topology Processor Internal Tail
Pointer to the end of the topology processor internal queue.

RESYNC System List
Pointer to the RESYNC processor’s system list.
Workload Manager

CID Head
Pointer to the beginning of the CID queue.

CID Tail
Pointer to the end of the CID queue.

Scheduling Environment Table Information
This line represents a header line that indicates that the following information comes from the Scheduling Environment Table (IWMSET).

If no scheduling environments and resources exist then the *No Scheduling Environment Information Exists* line is displayed. If the no scheduling information exists line is displayed then no further information is shown.

Header Information
This line represents a header line that indicates that the following information represents header information in the IWMSET.

Size Of Header
Represents the size of the IWMSET header area.

Size Of Scheduling Environment Table
Represents the size of the whole scheduling environment table (IWMSET).

Header TOD Value
Represents the install time stamp of a service definition.

Size Of System Status Area
Represents the size of a system status area.

Number Of Scheduling Environment Entries
Number of scheduling environments in the IWMSET.

Number Of SR Entries
Number of scheduling environment/resource entries in the IWMSET. The scheduling environment/resources entries represent relationships of scheduling environments to resources. Once entry exists for each resource that is defined under a scheduling environment.

Number Of Resource Entries
Number of resources in the IWMSET.

Number Of System Status Area Entries
Number of systems that are known to scheduling environment manager.

Scheduling Environments
This line represents a header line that indicates that the following information represents scheduling environments.

If no scheduling environments exist then the *No Scheduling Environments Exist* line is displayed.

If scheduling environments exist the following is displayed for each scheduling environment.

Scheduling Environment Name
Specifies the 1-16 character long scheduling environment name.

Description
Specifies the 1-32 character long description for the scheduling environment.
List of all resources defined for this scheduling environment

This list is defined in a table that has the following items as the column definitions.

**Resource Name**
Name of resource for this scheduling environment.

**Required State**
Defines the state the resource must be in to make this scheduling environment available.

Resources
This line represents a header line that indicates that the following information represents resources.

If no resources exist then the *No Resources Exist* line is displayed.

If resources exist then the following is displayed. Note that each item described below is defined under the column name that is associated with the item.

**Resource Name**
Specifies the 1-16 character long resource name.

**Description**
Specifies the 1-32 character long description for the resource.

Scheduling Environments System Status Information
This line represents a header line that indicates that the following information represents scheduling environment system status information. For each system in the sysplex known to this system the following information is displayed.

**System**
This line represents the header line that defines the system that the following information pertains too.

**Header Information**

**Header TOD Value**
Represents the install timestamp of a service definition.

**Last Time Section Modified**
Represents a time stamp of when the last time an update was made to the system status area.

**Size Of Header**
Represents the size of the header section of the system status areas.

**Size Of System Status Area**
Represents the size of the whole of the system status areas.

**Number Of SES Entries**
Number of scheduling environments entries in the system status area.

**Number Of RES Entries**
Number of resource entries in the system status area.

Scheduling Environment Information
This line represent the scheduling environment entry name that exists in the system status area. For this scheduling environment entry the following is displayed.
Index
Represents a numeric number that identifies the scheduling environment.

Status Flag
Represents a header line that identifies flags set for this scheduling environment. The following flags exist.

Available
Indicates that the scheduling environment is available.

Control Flag
Represents a header line that identifies control flags set for this scheduling environment. The following flags exist.

Normal ENF
Indicates that a normal type ENF 57 must be issued.

Recovery ENF
Indicates that a recovery type ENF 57 must be issued.

The preceding scheduling environment information is repeated for each scheduling environment that exists in the system status area.

Resource Information
This line represents the resource entry name that exists in the system status area. For this resource entry the following is displayed.

Index
Represents a numeric number that identifies the resource.

State
Represents the state the resource is in. The state was set via the F WLM,RESOURCE= command or the IWMSESET API.

On
Indicates resource set to ON state.

Off
Indicates resource set to OFF state.

Reset
Indicates resource set to RESET state.

Control Flag
Represents a header line that identifies control flags set for this resource. The following flags exist.

Modification In Progress
Indicates that a F WLM,RESOURCE= command or IWMSESET API invocation is being performed for this resource.

The preceding resource information is repeated for each resource that exists in the system status area.
WLMDATA Coupling Facility manager report

The Coupling Facility manager report provides an overview of Coupling Facility Manager processing information relating to WLM. This report is returned when the CFMANAGER keyword is given on the WLMDATA subcommand. Variations of this information can be obtained by specifying either SUMMARY, DETAIL, or EXCEPTION.

"CFMANAGER summary report, “CFMANAGER exception report” on page 781, and "CFMANAGER detail report” on page 782 show sample the SUMMARY, DETAIL, or EXCEPTION reports. Note that for the SUMMARY and DETAIL reports, the displays show all possible sections that could appear. In reality, if certain information does not exist, those sections are not displayed. For example, if no multisystem enclaves exist, then only the global information is shown and no information past that section is shown.

CFMANAGER summary report

```
***** CFMANAGER SUMMARY REPORT *****

Global CF Manager Information
----------------------------------
CF Manager Control Table Anchor.............. 057749D0
   Task Control Flags
      Local Mode
      Connection Made
      VCP Allowed To Abend
      CST Allowed To Abend
      DST Allowed To Abend
   Update Processor Flags
      Update Processor Timer Set

Structure Definition Information
----------------------------------
   Structure........................................ SYSZWLW_WORKUNIT
      Type........................................... CACHE
   Connect/Disconnect Flags
      Connected
      Connect Failed
      Disconnected
      Disconnect Failed
```

Figure 79. Example: CFMANAGER summary report

Global CF manager information

The global coupling facility manager information section represents data that is global to all CF processing done by the Coupling Facility Manager. The following appears under this header:

CF Manager Control Table Anchor

Represents the address to the IWMCFCT (CFCT - Coupling Facility Control Table) table.

Task Control Flags or No Task Control Flags Set

Header line indicating that Task Control Flags exist or do not exist. If Task Control Flags is displayed then any of the following information may be displayed:
Workload Manager

Local Mode
Indicates local mode designation from the IXCQUERY LOCAL(XXXX) invocation

Connection Made
Indicates that the Coupling Facility Manager has made a successful connection to a structure at least once. Once set it remains on for IPL duration.

VCP Allowed To Abend
There are some situations that require IWMC3VCP to take an abend. An example would be IWMC3VCP finding a bad CFRB. (You should never encounter a bad CFRB unless there is an internal problem.)

When this indicator is set module IWMC3VCP is allowed to abend. Prior to IWMC3VCP taking the abend the indicator is reset and IWMC3VCP does not take those abends again. Doing this prevents IWMC3VCP from going into a recursive abend condition.

CST Allowed To Abend
There are some situations that require IWMC3CST to take an abend. An example would be issuing IXLCN and getting a bad parameter return code. (You should never encounter a bad parameter return code unless there is an internal problem.)

When this indicator is set module IWMC3CST is allowed to abend. Prior to IWMC3CST taking the abend the indicator is reset and IWMC3CST does not take those abends again.

DST Allowed To Abend
There are some situations that require IWMC3DST to take an abend. An example would be issuing IXLDISC and getting a bad parameter return code. (You should never encounter a bad parameter return code unless there is an internal problem.)

When this indicator is set module IWMC3DST is allowed to abend. Prior to IWMC3DST taking the abend the indicator is reset and IWMC3DST does not take those abends again.

Update Processor Flags or No Update Processor Flags Set
Header line indicating that Update Processor Flags exist or do not exist. If Update Processor Flags is displayed then any of the following information may be displayed:

Update Processor Timer Set
When set, indicates that a timer has been created to allow the update processor (IWMC3UDP) to get control again.

Structure definition information
The structure definition information section represents an entry for each WLM structure that is supported by the Coupling Facility Manager. The following appears under this header:

Structure
Defines the structure name. The following structure names are supported by the Coupling Facility Manager:

- SYSZWLWLM_WORKUNIT (legacy product)
- SYSZWLWLM_xxxxxxxx (z/OS Release 1 or later)

Type
Defines the type of structure. The type can be:
Connect/Disconnect Flags

Defines connect (IXLCONN) and disconnect (IXLDISC) indicators that are used as footprints to indicate what was done by connect or disconnect processing:

- Connected
- Connect Failed
- Disconnected
- Disconnect Failed

Note that the CONTOKEN field in the structure definition of the DETAIL report defines if a structure is really connected or not. These indicators exist to show what IWMC3CST or IWMC3DST may have done during connect processing. For example, if it connected correctly and then disconnected (due to some IWMC3CST validation problem) and the disconnect failed then the Disconnect Failed indicator is set. The CONTOKEN field in the structure definition will show a CONTOKEN of zero indicating that it is disconnected.

CFMANAGER exception report

***** CFMANAGER EXCEPTION REPORT *****

CFMANAGER RELATED EXCEPTIONS
-----------------------------------

IWM0004I Validity check failure, reason aaxxbbcc, for WLM data area at address zzzzzzzz in ASID X'gggg'.

zzzzzzzz XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX │ ................ │
+0010 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX │ ................ │
+0020 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX │ ................ │
+0030 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX │ ................ │
+0040 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX │ ................ │

IWM0005I Validity check warning, reason aaxxbbcc, for WLM data area at address zzzzzzzz in ASID X'gggg'.

zzzzzzzz XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX │ ................ │
+0010 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX │ ................ │
+0020 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX │ ................ │
+0030 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX │ ................ │
+0040 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX │ ................ │

Figure 80. Example: CFMANAGER exception report

Error/Warning control block record

reason: aaxxbbcc

This field contains the reason code associated with the error. The format of the reason code is aaxxbbcc where aa is the control block ID for the data area in error, xx is the ID of the module that detected the error, bb is not used, and cc identifies the error detected. The control block identifiers and modules IDs are defined in IWMZCONS.

Control block address: zzzzzzzz

This field contains the address of the control block in error. The control blocks reported by the CFMANAGER exception report is the:

- CFCT mapped by IWMCFCT,
- and CFSD mapped by IWMCFSD
Workload Manager

**ASID: X'ggg'**
The address space identifier (ASID) in hexadecimal where the control block exists.

**CFMANAGER detail report**
The following is an example of the CFMANAGER detail report:

```
***** CFMANAGER DETAIL REPORT *****

Global CF Manager Information
--------------------------------
CF Manager Control Table Anchor.............. 057749D0

Task Control Flags
Local Mode
Connection Made
VCP Allowed To Abend
CST Allowed To Abend
DST Allowed To Abend

Update Processor Flags
Update Processor Timer Set

Timer Information
Time Interval For System Processor........... 00004650

Counts
System Processor Restart Counter.............. 00000000
Event Processor Restart Counter............... 00000001

Anchors
Structure Definition Anchor.................. 057748C8
Event Processor Anchors
Head Of External CFRB Stack.................. 01FBEB50
First CFRB On Internal Work Queue............. 01DEEA50
Last CFRB On Internal Work Queue............... 01DEEA50
System Processor Anchors
Head Of External CFRB Stack.................. 00000000
First CFRB On Internal Work Queue............. 05774A24
Last CFRB On Internal Work Queue............... 05774A24

Multisystem Enclave Anchors
Name Table.................................... 7FFFF000

Cell Pool IDs
Dynamic Area Cell Pool ID..................... 0227AF00

Miscellaneous
Last Export Sequence Number.................. 00000001

Latches
Global Latch Set Token......................... 7FFCAEA000000002
Entry Latch Set Token.......................... 7F72EF8000000003

Structure Definition Information
----------------------------------
Global Information
Size Of Structure Definition Header........... 002C
Size Of Whole Structure Definition............ 0108
Version....................................... 08
Number Of Structures.......................... 01
Level Information............................. 08000000
Version Number................................ 08

Structure....................................................... SYSZNLM_WORKUNIT
Type......................................................... CACHE
Connect/Disconnect Flags
```
Workload Manager

Connected
Connect Failed
Disconnected
Disconnect Failed

Connection Information
CONTOKEN ...................... C9E7C3D36F6F3F27F6D32B00010039
Connect Version ...................... 0010039
Structure Version ...................... B01079758459807
CONID ............................ 01
Connect Name ........................... #SYS1

Control Information
CONDATA ...................... 0208000000000000
Functionality Level ...................... 02
Type ................................ 08
Vector Token ........................ 022724B065B7A0010100002
Vector Length ........................ 00000020
DISCDATA ........................ 0000000000000000
Functionality Level ...................... 00
Reason ................................ 00
Specific Information ...................... 0000

Service Information
Connect Information
Connect Return Code ...................... 00000000
Connect Reason Code ...................... 00000000
Connect Reason/Return Code Who .......... XES

Disconnect Information
Disconnect Return Code ...................... 00000000
Disconnect Reason Code ...................... 00000000

Structure .......................... SYSZLWM_76854381
Type .................................. CACHE

Connect/Disconnect Flags
Connected

Connection Information
CONTOKEN ...................... C9E7C3D36F6F3F27F6D32B00010039
Connect Version ...................... 0010039
Structure Version ...................... B2FC12B84625BB42
CONID ............................ 01
Connect Name ........................... #SYS1

Control Information
CONDATA ...................... 0208000000000000
Functionality Level ...................... 02
Type ................................ 08
Vector Token ........................ 022724B065B7A0010100002
Vector Length ........................ 00000020
DISCDATA ........................ 0000000000000000
Functionality Level ...................... 00
Reason ................................ 00
Specific Information ...................... 0000

Service Information
Connect Information
Connect Return Code ...................... 00000000
Connect Reason Code ...................... 00000000
Connect Reason/Return Code Who .......... XES

Disconnect Information
Disconnect Return Code ...................... 00000000
Disconnect Reason Code ...................... 00000000

LPAR Information
LPAR Anchors
CF Cache Identifier Table .................. 05F5CC18
Head Of External CFRB Stack .................. 00000000
First CFRB On Internal Work Queue ........... 0225B20C
Last CFRB On Internal Work Queue ........... 0225B20C

LPAR Sizes
LDE Structure Size ...................... 00004000
CDE Structure Size ...................... 00000800
Workload Manager

XDE Structure Size.......................... 00010000
IWM053 DOMID................................. 00000001

Multisystem Enclaves Information
----------------------------------

System Table Slot 01
Export Table Slot 01

Multisystem Enclave Local Data
Queue ID................................... D8
Export Token............................... C9E6DAE7010100000100001000001600
Enclave Token.............................. 00000000000000000000000000000000
Multisystem Enclave....................... 08DBA000
Update Version Number.................... 0000000000000000
Exporter Queue Head....................... 08DBAF2B
Exporter Queue Tail....................... 08DAA400
Importer Queue Head....................... 08DBAF80
Importer Queue Tail....................... 08DBAF80

Flags
Cache Entry Exists In The Cache Structure
Undo Processing Has Started
Import Service Successfully Updated MSE In CF
Update Processor Currently Working On MSE
Export/Import Processing Complete

Error Reason Code from XES.................. 00000000
Time This System Last Read MSE............ 02/08/1999 20:09:24
Time This System Last Wrote MSE........... 02/08/1999 20:09:24
Previous CPU Time.......................... None
Entry Number In FEAD Vector................ 00000000

Multisystem Enclave
Header Section
Functionality Level....................... 01
MSE Length................................. 08BC
Cache Entry Length In Bytes.............. 1000
Export Token............................... C9E6DAE7010100000100001000001600
Enclave Token.............................. 00000000000000000000000000000000
Originating System Name.................. SYS1
Update Version Number.................... 0000000000000000
Control Section Offset................... 0054
Control Section Length................... 0054
Participant Section Offset............... 00A8
Participant Section Length............... 008C
Participant Section Number.............. 0020
Classify Section Offset.................. 0228
Classify Section Length.................. 0244
FEAD Section Offset....................... 046C
FEAD Section Length....................... 0420

Control Section
Service..................................... 00000000
Arrival Time............................... 02/08/1999 20:09:20
Service Class Name....................... SYSOTHER
Classification Token....................... 36028000
Policy Activate Time...................... 12/03/1998 11:35:44
Stoken..................................... 00000000000000000000000000000000
Jobname.................................... EIBC1C11
Transaction Trace Token................. 00000000000000000000000000000000

Control Section Flags
Original Enclave Is Dependent
Owner Was Reset To New Service Class Or Quiesced
Owner Is Reset Quiesced
Owner Was Created With The ASCRE HIPRI Attribute
Owner Is Or Was Privileged
Global CF manager information

The global coupling facility manager information section represents data that is global to all CF processing done by the Coupling Facility Manager. The following appears under this header:

**CF Manager Control Table Anchor**
Represents the address to the IWMCFCT (CFCT - Coupling Facility Control Table) table.

**Task Control Flags or No Task Control Flags Set**
Header line indicating that Task Control Flags exist or do not exist. If Task Control Flags is displayed then any of the following information may be displayed:

**Local Mode**
Indicates local mode designation from the IXCQUERY LOCAL(xxxx) invocation.

**Connection Made**
Indicates that the Coupling Facility Manager has made a successful connection to a structure at least once. Once set it remains on for IPL duration.

**VCP Allowed To Abend**
There are some situations that require IWMC3VCP to take an abend. An example would be IWMC3VCP finding a bad CFRB. (You should never encounter a bad CFRB unless there is an internal problem.)

When this indicator is set module IWMC3VCP is allowed to abend. Prior to IWMC3VCP taking the abend the indicator is reset and IWMC3VCP does not take those abends again. Doing this prevents IWMC3VCP from going into a recursive abend condition.
CST Allowed To Abend
There are some situations that require IWMC3CST to take an abend. An example would be issuing IXLCONN and getting a bad parameter return code. (You should never encounter a bad parameter return code unless there is an internal problem.)

When this indicator is set module IWMC3CST is allowed to abend. Prior to IWMC3CST taking the abend the indicator is reset and IWMC3CST does not take those abends again.

DST Allowed To Abend
There are some situations that require IWMC3DST to take an abend. An example would be issuing IXLDISC and getting a bad parameter return code. (You should never encounter a bad parameter return code unless there is an internal problem.)

When this indicator is set module IWMC3DST is allowed to abend. Prior to IWMC3DST taking the abend the indicator is reset and IWMC3DST does not take those abends again.

Update Processor Flags or No Update Processor Flags Set
Header line indicating that Update Processor Flags exist or do not exist. If Update Processor Flags is displayed then any of the following information may be displayed:

Update Processor Timer Set
When set, indicates that a timer has been created to allow the update processor (IWMC3UDP) to get control again.

Timer Information
Header line indicating that the following information represents CF timer information:

Timer Interval For Update Processor
The timer interval for the update processor (IWMC3UDP) in hundreds of a second.

Counts
Header line indicating that the following information represents CF processor counts.

System Processor Restart Counter
Count represents the number of times the Coupling Facility Manager has restarted while the system processing function was still in control or zero.

Normally the Coupling Facility Manager should not fail while doing anything. If this is the case then zero should exist normally.

If a count exists then the Coupling Facility Manager was handling some system recovery in IWMC3SYS. In any case a non-zero count indicates failure while handling system recovery.

Event Processor Restart Counter
Count represents the number of times the Coupling Facility Manager has restarted while the event processing function was still in control or zero.

Normally the Coupling Facility Manager should not fail while doing anything. If this is the case then zero should exist normally.

If a count exists then the Coupling Facility Manager was handling some event (from XES) in IWMC3EVP. In any case a non-zero count indicates failure while handling an event.
Anchors
This section represents anchors used by the Coupling Facility Manager:

Structure Definition Anchor
 Represents the address to the IWMCFSD (CFSD - Coupling Facility Structures Definition) table.

Event Processor Anchors
 Header line indicating that the following information represents event processor (IWMC3EVP) anchors:
 Head Of External CFRB Queue
 Pointer to the head of the external CFRB queue. This is where CF functions outside of the Coupling Facility Manager task put work for the event processor (IWMC3EVP).
 First CFRB On Internal Work Queue
 Pointer to the first CFRB on an internal work queue used by module IWMC3EVP.
 Last CFRB On Internal Work Queue
 Pointer to the last CFRB on an internal work queue used by module IWMC3EVP.

System Processor Anchors
 Header line indicating that the following information represents system processor (IWMC3SYS) anchors:
 Head Of External CFRB Queue
 Pointer to the head of the external CFRB queue. This is where CF functions outside of the Coupling Facility Manager task put work for the system processor (IWMC3SYS).
 First CFRB On Internal Work Queue
 Pointer to the first CFRB on an internal work queue used by module IWMC3SYS.
 Last CFRB On Internal Work Queue
 Pointer to the last CFRB on an internal work queue used by module IWMC3SYS.

Multisystem Enclave Anchors
 Header line indicating that the following information represents multisystem enclave anchors:
 Name Table
 Pointer to the multisystem enclave name table object.

Cell Pool IDs
 Header line indicating that the following information represents cell pool IDs for the Coupling Facility Manager:
 Dynamic Area Cell Pool ID
 Represents the dynamic area cell pool used by the Coupling Facility Manager. For example, module IWMC3EXP (handles IWMEXPT) uses this cell pool to get a dynamic area for the module.

Miscellaneous
 Header line indicating that the following information represents miscellaneous that in the CFCT:
Workload Manager

**Last Export Sequence Number**
Represents the last sequence number assigned to a multisystem enclave exported by this system.

**Latches**
Header line indicating that the following information represents CF latch data:

- **Global Latch Set Token**
  Represents the CF global latch set token.

- **Entry Latch Set Token**
  Represents the CF entry latch set token.

**Structure definition information**
The structure definition information section represents an entry for each WLM structure that is supported by the Coupling Facility Manager. The following appears under this header:

- **Global Information**
  The global information area represents global data that is common to all structure definitions.

- **Size Of Structure Definition Header**
  Size of the header area for the structure definitions (IWMCFSD header size)

- **Size Of Whole Structure Definition**
  Size of the whole structure definition area (IWMCFSD) that includes the header area and each structure entry.

- **Version**
  Version number of the structure definition. The version is 1.

- **Number Of Structures**
  The number of structure entries that exist. The number is 1.

- **Level Information**
  A structure area (CFSD) version number that contains information defining the functionality level of the current Coupling Facility Manager support. Currently only 1 byte is used and the other 7 bytes are reserved.

- **Version Number**
  Represents the current Coupling Facility Manager functionality level. The level cfsd_functionality_level_jbb6609 is assigned, which is a value of 8.

- **Structure**
  Defines the structure name. The following structure names are supported by the Coupling Facility Manager:
  - **SYSZWLM_WORKUNIT** (legacy products or later)
  - **SYSZWLM_xxxxxxx** (z/OS Release 1 or later)

- **Type**
  Defines the type of structure. The type can be:
  - **CACHE**
  - **LIST** (none exists at current levels)

- **Connect/Disconnect Flags**
  Defines connect (IXLCONN) and disconnect (IXLDISC) indicators that are used as footprints to indicate what was done by connect or disconnect processing:
  - Connected
  - Connect Failed
  - Disconnected
Workload Manager

- **Disconnect Failed**

  Note that the CONTOKEN field in the structure definition of the DETAIL report defines if a structure is really connected or not. These indicators exist to show what IWMC3CST or IWMC3DST may have done during connect processing. For example, if it connected correctly and then disconnected (due to some IWMC3CST validation problem) and the disconnect failed then the Disconnect Failed indicator is set. The CONTOKEN field in the structure definition will show a CONTOKEN of zero indicating that it is disconnected.

**Connect Information**

Header line indicating that the following information represents connect information for a structure:

- **CONTOKEN**
  - Represents the CONTOKEN value from the IXLCONN invocation. (From IXLYCONA.CONACONTOKEN.)

- **Connect Version**
  - Represents the connect version value from the IXLCONN invocation. (From IXLYCONA.CONACONNECTIONVERSION.)

- **Structure Version**
  - Represents the structure version value from the IXLCONN invocation. (From IXLYCONA.CONASTRUCTUREVERSION.)

- **CONID**
  - Represents the CONID value from the IXLCONN invocation. (From IXLYCONA.CONACONID.)

- **Connect Name**
  - Represents the connection name for the IXLCONN connection. The name starts with a '#' sign and is followed by the system name.

**Control Information**

Header line indicating that the following information represents control information for a structure:

- **CONDATA**
  - Represents the CONDATA information that WLM supplies via the IXLCONN service. (From CFSD.cfsd_entry_condata.)

- **Functionality Level**
  - Represents the functionality level portion of the CONDATA. For z/OS V1R1 or later the functionality level is cfsd_functionality_level_jbb6609 (8) which should be the same as the Version Number in the Global Information section.

- **Vector Token**
  - For a CACHE structure defines the vector token.

- **Vector Length**
  - For a CACHE structure defines the number of vectors that exist.

**DISCDATA**

Header that indicates the following information is disconnect data that is presented to all connectors when a disconnect occurs.

- **Functionality Level**
  - The functionality level of the disconnector.
Workload Manager

Reason
Identifies where in the Coupling Facility Manager the disconnect occurred:
- 4 - IWMC3CST disconnecting from RECEXIT
- 8 - IWMC3CST found an invalid structure
- 12 - IWMC3EVP disconnecting from RECEXIT
- 16 - IWMC3EVP disconnecting due to lost connectivity
- 20 - IWMC3EVP disconnecting due to structure failure
- 24 - IWMC3TSK disconnecting from RECEXIT

Specific Information
Service information that can be set for the specific disconnect. The following lists what can appear according to the REASON type (see above):
- For REASON=4 no DISCDATA service information.
- For REASON=8 contains low order 2 bytes of validation reason.
- For REASON=12 no DISCDATA service information.
- For REASON=16 contains eeplfailedconnflags in first byte and eeplexistingconnflags in second byte.
- For REASON=20 contains eeplfailedconnflags in first byte and eeplexistingconnflags in second byte.
- For REASON=24 no DISCDATA service information.

Service Information
Header line indicating that the following information represents service information concerning connection/disconnection of a structure.

Connect Information
Header line for connect service information.

Connect Return Code
Return code returned from last IXLCONN request.

Connect Reason Code
Reason code returned from last IXLCONN request.

Connect Return/Reason Code Who
This defines who set the connect return/reason codes. The value can be either WLM, XES if the values are valid or N/A for not applicable if the values have not been set.

Disconnect Information
Header line for disconnect service information.

Disconnect Return Code
Return code returned from last IXLDISC request.

Disconnect Reason Code
Reason code returned from last IXLDISC request.

LPAR Information
Header line indicating that the following information represents specific LPAR clustering information.

LPAR Anchors
Header that indicates the following information represents LPAR anchors.

CF Cache Identifier Table
Pointer to the IWMCFCT table.
Head Of External CFRB Queue
Pointer to the head of the external CFRB queue. This is where SRM places a CFRB for IWMC3LMP.

First CFRB On Internal Work Queue
Pointer to the first CFRB on an internal work queue used by module IWMC3LMP.

Last CFRB On Internal Work Queue
Pointer to the last CFRB on an internal work queue used by module IWMC3LMP.

LPAR Sizes
Header that indicates the following information represents LPAR size fields.

LDE Structure Size
Size used when reading a LDE cache entry.

CDE Structure Size
Size used when reading a CDE cache entry.

XDE Structure Size
Size used when reading a XDE cache entry.

IWM053 DOMID
DOM ID that exists if message IWM053 was issued.

Multisystem enclaves information
This header indicates that the following information shows multisystem enclave information. Note that the information is presented according to the system table and export table structure, as follows:

System Table Entries
A sysplex can be comprised of up to 32 systems (1 to 32). Multisystem enclave information is presented for each system defined in a Coupling Facility Manager system table. Each system is referred to with the header System Table Slot xx where xx is the slot in the system table for a system.

Export Table Entries
An export table is comprised of 256 slot entries (0 to 255). Multisystem enclaves are distributed across the export table slots. Each export table is referred to with the header Export Table Slot xx where xx is the slot in the export table. For each export table slot that has a valid address, the related multisystem enclaves are displayed.

Here are the specific fields that appear under the Multisystem Enclaves Information header:

System Table Slot xx
Header name that indicates that the following data represents multisystem enclaves for a particular system.

Export Table Slot xx
Header name that indicates an export table slot. Only export table slot headers are shown that have valid multisystem enclaves.

Multisystem Enclave Local Data
This header indicates that the following information is local to the z/OS system.

Queue ID
Indicates whether the element is on the queue.
Workload Manager

Export Token
Unique identifier for the multisystem enclave in the parallel sysplex.

Enclave Token
Enclave token for the local enclave.

Multisystem Enclave
Address of the local cache entry buffer containing the multisystem enclave.

Update Version Number
Update version number copied from the multisystem enclave the last time it was successfully read from or written to the CF.

Exporter Queue Head
Exporter queue head.

Exporter Queue Tail
Exporter queue tail.

Importer Queue Head
Importer queue head.

Importer Queue Tail
Importer queue tail.

Flags
Header for CCB flags. The following list the flags that can be displayed.

Cache Entry Exists In The Cache Structure
The cache entry exists in the cache structure, i.e. its deletion hasn't been detected.

Undo Processing Has Started
Undo-export or undo-import processing has started.

Import Service Successfully Updated MSE In CF
The import service successfully updated the multisystem enclave in the coupling facility to show this system is a participant.

Update Processor Currently Working On MSE
The update processor is currently working on the multisystem enclave. This flag should help us not to trip over same multisystem enclave in case of bad data. If a failure occurs during update processing while the flag is on, the multisystem enclave will not be looked at during subsequent update cycles.

Export/Import Processing Complete
The export/import processing is complete. This flag is used to examine whether export/import processing has successfully created the multisystem enclave. If update processor trips over the customs block with this flag off, it will remove the customs block and other associated structures.

Error Reason Code from XES
Error reason code from last invocation of a XES service.

Time This System Last Read MSE
Time (STCK value) that this system last read the multisystem enclave from the coupling facility. If no time exists then 'None' appears.

Time This System Last Wrote MSE
Time (STCK value) that this system last wrote the multisystem enclave to the coupling facility. If no time exists then 'None' appears.
Previous CPU Time
Previous CPU Time that was accumulated on this system for this multisystem enclave (STCK value). This will occur if a work manager does multiple sequential imports. If no time exists then ‘None’ appears.

Entry Number In FEAD Vector
Entry number where the system entry for the current system is created in the Foreign Enclave Acct Data (FEAD) vector.

Multisystem Enclave
This header indicates that the following information represents a specific multisystem enclave.

Header Section
This header indicates that the following information represents the MSE header data.

Functionality Level
The functionality level identifies incompatible changes to the entry format. A downlevel system fails an import request for a cache entry that has an uplevel functionality level. The level values for a multisystem enclave have no relationship to the level values for a service definition.

MSE Length
Actual control block length in bytes.

Cache Entry Length In Bytes
Cache entry length in bytes — actual length rounded up to the next cache element boundary.

Export Token
Unique identifier for the multisystem enclave in the parallel sysplex.

Originating System Name
Originating system name.

Update Version Number
Version number incremented each time the multisystem enclave is written to the CF. Used in a compare-and-swap fashion to prevent one system from overwriting another system's updates.

Control Section Offset
Offset to the control section.

Control Section Length
Length of the control section.

Participant Section Offset
Offset to the participant section.

Participant Section Length
Length of the participant section.

Participant Section Number
Number of participant section entries.

Classify Section Offset
Offset to the classification attributes section.

Classify Section Length
Length of the classification attributes section.

FEAD Section Offset
Offset to the foreign enclave resource data section.
**Workload Manager**

**FEAD Section Length**
Length of the foreign enclave resource data section.

**Control Section**
This header indicates that the following information represents the MSE control data.

**Service**
This is the total service of the original enclave and all foreign enclaves. It is kept as a doubleword to avoid overflow. For performance reasons it is not constantly updated. It is updated only as frequently as necessary to support period switch and inflight projections.

**Arrival Time**
The original enclave's arrival time (STCK value). If no time exists then 'None' appears.

**Service Class Name**
The original enclave's service class name.

**Classification Token**
The original enclave's classification token.

**Policy Activate Time**
This is the originating system's view of the time when the current WLM service policy was activated. If no time exists then 'None' appears.

**Stoken**
Stoken of the address space which created the original enclave.

**Jobname**
Jobname of the address space which created the original enclave.

**Transaction Trace Token**
Transaction trace token.

**Control Section Flags**
Header for multisystem enclave control flags. The following list the flags that can be displayed.

**Original Enclave Is Dependent**
The original enclave is dependent.

**Owner Was Reset To New Service Class Or Quiesced**
The owner of the original enclave was reset to a new service class or quiesced — applies only if the original enclave is dependent.

**Owner Is Reset Quiesced**
The owner of the original enclave is reset quiesced — applies only if the original enclave is dependent.

**Owner Was Created With The ASCRE HIPRI Attribute**
The owner of the original enclave was created with the ASCRE HIPRI attribute, i.e. OucbxWasHiDp is on — applies only if the original enclave is dependent.

**Owner Is Or Was Privileged**
The owner of the original enclave is or was privileged, i.e. OucbxWasPriv is on — applies only if the original enclave is dependent.

**Owner Is A System Task**
The owner of the original enclave is a system task, i.e. OucbSyst is on — applies only if the original enclave is dependent.
Original Enclave Restarted By Policy Activation
The original enclave was last restarted due to a policy activation.

One or More Local Enclaves Reached Last Period
At least one of the local enclaves has reached last period.

Original Enclave Was Reset To New Service Class Or Reset Quiesced
The original enclave (of this multisystem enclave) was either reset to another service class or reset quiesced. If reset quiesced, then the message described below is also shown.

Original Enclave Was Reset Quiesced
The original enclave (of this multisystem enclave) was reset quiesced. This message is shown only in conjunction with the message described above.

Participant Section
This header indicates that the following information represents the MSE participant data.

The participant section contains information for each system that is using a multisystem enclave. It is a fixed-size array of 32 entries — the maximum number of systems in a sysplex. A system uses its XCF system number (wmvt_system_number) to index to its own entry in the array.

Only participant entries that contain information are displayed.

Participant Entry xx or No Participant Entries
This header identifies the participant entry slot number or indicates if no participant entries exist. If participant entries exist (Participant Entry xx shown) then the following is displayed.

System Token
System token of participating system. Filled in on importing systems only.

Service
Service accumulated by the enclave on this system.

Creation Time
Creation time of the local enclave in SRM format.

Classification Section
This header indicates that the following information represents the MSE classification data. The classification data represents the attributes (and possibly lengths) that can be specified via the IWMCLSFY service. See the IWMCLSFY chapter in z/OS MVS Programming: Workload Management Services for more information.

- Collection Length
- Correlation Length
- Procedure Name Length
- Process Name Length
- Subsystem Type
- Subsystem Name
- Transaction Name
- Userid
- Transaction Class
- Connection Type
- Correlation Identifier
WLMDATA contention report

The Contention Report requests information that is associated with the resource contention topology function. The resource contention topology is the workload manager’s internal view of the list of resources, work units, or transactions involved with resources that have been in contention for longer than a resource manager interval. Resource managers use the IWMCNTN service to notify WLM of changes that cause WLM to maintain or update the topology.

A detailed description of the IWMCNTN macro, resource ownership models, and a description of chronic resource contention can be found in the IWMCNTN section of z/OS MVS Programming: Workload Management Services.

This report is returned when the CONTENTION keyword is given on the WLMDATA subcommand. Variations of this information can be obtained by specifying either SUMMARY ("CONTENTION summary report"), DETAIL ("CONTENTION exception report" on page 800), or EXCEPTION ("CONTENTION detail report" on page 801).

CONTENTION summary report

The following is an example of the CONTENTION summary report:

***** CONTENTION SUMMARY REPORT *****

Resources in contention table

<table>
<thead>
<tr>
<th>RESOURCE</th>
<th>Scope</th>
<th>SS</th>
<th>SS</th>
<th>HT</th>
<th>WT</th>
<th>RID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>S/M</td>
<td>Type</td>
<td>Name</td>
<td>length</td>
<td>ResourceID (first 50 bytes)</td>
<td></td>
</tr>
</tbody>
</table>

| 7F6F123B | S     | most | TSTCNTN | 0002 | 0002 | 0108 |
|          |       |       |        |      |      | RESOURCE_START |

Transactions with contention table

<table>
<thead>
<tr>
<th>TRXNE</th>
<th>Type</th>
<th>Index Token</th>
<th>HR</th>
<th>WR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>A/E</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 7FFD7028 | A | 0028 | 00000000000000001 | 0002 | 0002 |

Resources in contention

Resource element information..........................7F6F123B Resource Description
Transactions that hold this resource

Transaction element information.................7FFD7028
Transaction identifier
Type........Address space Index.................0028
Token......000000A00000000001

Contention element information....................7F6F11B8
Entity
Type................01 AStoken...000000A0000000001
TCB address...006EC120 Etoken....0000000000000000

Transactions that are waiting for this resource

Transaction element information.................7FFD7028
Transaction identifier
Type........Address space Index.................0028
Token......000000A00000000001

Contention element information....................7F6F1178
Entity
Type................02 AStoken...000000A0000000001
TCB address...006EC120 Etoken....0000000000000000

Transactions with contention

Transaction element information.................7FFD7028
Transaction identifier
Type........Address space Index.................0028
Token......000000A00000000001

Resources the transaction is holding

Resource element information....................7F6F1238
Resource Description

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Workload Manager

Scope............Single System
Subsysytem type....most Subsysytem name...TSTCNTN
ResourceID Length...................................0108
ResourceID......RESOURCE_START
=>
=>
=>
=>
=>
=>
=>
\[\text{RESOURCE\_END}\]

Contention element information.................7F6F11B8
Entity
  Type..............01 ASToken...000000A000000001
  TCB address...006EC120  Etoken....0000000000000000

Resource element information....................7F6F1238
Resource Description
Scope............Single System
Subsysytem type....most Subsysytem name...TSTCNTN
ResourceID Length...................................0108
ResourceID......RESOURCE_START
=>
=>
=>
=>
=>
=>
=>
\[\text{RESOURCE\_END}\]

Resources the transaction is waiting for

Contention element information.................7F6F1138
Entity
  Type..............01 ASToken...000000A000000001
  TCB address...00000000  Etoken....0000000000000000

Resource element information....................7F6F1238
Resource Description
Scope............Single System
Subsysytem type....most Subsysytem name...TSTCNTN
ResourceID Length...................................0108
ResourceID......RESOURCE_START
=>
=>
=>
=>
=>
=>
\[\text{RESOURCE\_END}\]

Contention element information.................7F6F1178
Entity
  Type..............02 ASToken...000000A000000001
  TCB address...006EC120  Etoken....0000000000000000

Resource element information....................7F6F1238
Resource Description
Scope............Single System
Subsysytem type....most Subsysytem name...TSTCNTN
ResourceID Length...................................0108
ResourceID......RESOURCE_START
=>
=>
=>
=>
=>
\[\text{RESOURCE\_END}\]
## Resources in contention table

This list identifies all resources that are represented in the resource topology by a resource element.

**RSRCE address**
- Pointer to the RSRCE element of this resource.

**Scope S/M**
- Indicates the scope of resource as S = Single system or M = Multi system.

**SS type**
- Indicates the four character subsystem type.

**SS name**
- Indicates the eight character subsystem name.

**HT**
- Indicates the number of transactions that are currently holding for the transaction.

**WT**
- Indicates the number of transactions that are currently waiting for this resource.

**RID length**
- Represents the two byte length of the resourceID (fingerprint).

**Resource ID**
- Represents the first 50 bytes of the resourceID (fingerprint).

## Transactions with contention table

This list all resources that are represented in the resource topology by a transaction element.

**TRXNE address**
- Pointer to the TRXNE element of this transaction.

**Type A/E**
- Indicates if the type of transaction is A=Address Space or E=Enclave.

**Index**
- Indicates the two byte ASID or EncbSampindex depending on the transaction type.

**Token**
- Indicates the eight byte STOKEN or ETOKEN depending on the transaction type.

**HR**
- Indicates the number of resources that are currently held by this transaction.

**WR**
- Indicates the number of resources this transaction is currently waiting for.
CONTESTION exception report

***** CONTENTION EXCEPTION REPORT *****
CONTESTION RELATED EXCEPTIONS

IWM0004I Validity check failure, reason aaxxbbcc, for WLM data area at address zzzzzzzz in ASID X'gggg'.
zzzzzzzz XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
+0010 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
+0020 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
+0030 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
+0040 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |

IWM0005I Validity check warning, reason aaxxbbcc, for WLM data area at address zzzzzzzz in ASID X'gggg'.
zzzzzzzz XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
+0010 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
+0020 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
+0030 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |
+0040 XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX | ................ |

Figure 81. Example: CONTENTION exception report

This report displays dump output messages and a hexadecimal dump of each data area that received a validity check failure or warning. IBM might request this information for problem determination.

Error/Warning control block record

Reason: aaxxbbcc

This field contains the reason code associated with the error. The format of the reason code is aaxxbbcc where aa is the control block ID for the data area in error, xx is the ID of the module that detected the error, bb is not used, and cc identifies the error detected.

Control block address: zzzzzzzz

This field contains the address of the control block in error. The control blocks reported by CONTENTION exception report are:
• Resource element RSRCE mapped by class WLMRTRSC
• Transaction element TRXNE mapped by class WLMRTTRX
• Contention element CNTE mapped by class WLMRTCNT

ASID: X'gggg'

The address space identifier (ASID) in hexadecimal where the control block exists.

Validation and exception detail for each control block

• RSRCE
  – Invalid element in RSRCE chain (check eye catcher, length)
  – RSRCE element without contention element

• TRXNE
  – Invalid element in TRXNE chain (check eye catcher, length)
  – TRXNE element without contention element

• CNTE
  – Invalid CNTE element chained to either RSRCE or TRXNE chain (check eye catcher, length)
  – Invalid pointer to RSRCE (check eye catcher, length)
  – Invalid pointer to TRXNE (check eye catcher, length)
CONTENTION detail report

The following is an example of the CONTENTION detail report:

***** CONTENTION DETAIL REPORT *****

Global contention information
-------------------------------

Anchors in Resource topology control table............025C6018
Resource element anchor
First..............7F6F1238 Last..............7F6F1238
Transaction element anchor
First..............7FFD7028 Last..............7FFD7028

Cell pool IDs
Resource element Cell Pool ID.......................7F6F1210
Transaction element Cell Pool ID....................7FFD7000
Contention element Cell Pool ID.....................7F6F1110

Resources in contention
-----------------------

Resource element information..........................7F6F1238
Resource Description
Scope..............Single System
Subsytem type......most Subsytem name...TSTCNTN
ResourceId length.....................................0108
ResourceId........RESOURCE_START
==>
==>
==>
==>
==>
==>
==>
==>
 RESOURCE_END

Queue Information
Resource element links
Previous........025C6034 Next..............025C6034
Anchor of Holder contention elements
First............7F6F11B8 Last..............7F6F1138
Anchor of Waiter contention elements
First............7F6F1178 Last..............7F6E5218

Transactions that hold this resource

Transaction element information.....................7FFD7028
Transaction identifier
Type........Address space Index.................0028
Token........000000A000000001
Queue Information
Transaction element links
Previous........025C6040 Next..............025C6040
Anchor of Holder contention elements
First............7F6F11B8 Last..............7F6F1138
Anchor of Waiter contention elements
First............7F6F1178 Last..............7F6E5218

Contention element information.....................7F6F11B8
Entity
Type...............01 AS token...0000000A000000001
TCB address...006EC120 Etoken...0000000000000000
Queue Information
Contention element links
Transaction element address..................7FFD7028
Resource element address..................7F6F1238
Transaction anchored contention element queue
Previous....7F6F1138 Next..............7FFD7034
Workload Manager

Resource anchored contention element queue
  Previous........7F6F1138  Next............7F6F1248

Transaction element information....................7FFD7028
Transaction identifier
  Type........Address space  Index..................0028
  Token........000000A000000001
Queue Information
  Transaction element links
    Previous........025C6040  Next............025C6040
  Anchor of Holder contention elements
    First........7F6F11BB  Last...........7F6F1138
  Anchor of Waiter contention elements
    First........7F6F1178  Last...........7F6E5218

Contention element information....................7F6F1138
Entity
  Type..............01  AStoken...000000A000000001
  TCB address...00000000  Etoken....0000000000000000
Queue Information
  Contention element links
    Transaction element address..........7FFD7028
    Resource element address............7F6F1238
    Transaction anchored contention element queue
      Previous........7FFD7034  Next...........7F6F1188
    Resource anchored contention element queue
      Previous........7F6F1248  Next...........7F6F1188

Transactions that are waiting for this resource

Transaction element information....................7FFD7028
Transaction identifier
  Type........Address space  Index..................0028
  Token........000000A000000001
Queue Information
  Transaction element links
    Previous........025C6040  Next............025C6040
  Anchor of Holder contention elements
    First........7F6F11BB  Last...........7F6F1138
  Anchor of Waiter contention elements
    First........7F6F1178  Last...........7F6E5218

Contention element information....................7F6F1178
Entity
  Type..............02  AStoken...000000A000000001
  TCB address...006EC120  Etoken....0000000000000000
Queue Information
  Contention element links
    Transaction element address..........7FFD7028
    Resource element address............7F6F1238
    Transaction anchored contention element queue
      Previous........7F6E5218  Next...........7FDF7040
    Resource anchored contention element queue
      Previous........7F6E5218  Next...........7F6F1254

Transaction element information....................7FFD7028
Transaction identifier
  Type........Address space  Index..................0028
  Token........000000A000000001
Queue Information
  Transaction element links
    Previous........025C6040  Next............025C6040
  Anchor of Holder contention elements
    First........7F6F11BB  Last...........7F6F1138
  Anchor of Waiter contention elements
    First........7F6F1178  Last...........7F6E5218

Previous........7F6F1254  Next............7F6F1178

Previous........7F6F1138  Next............7F6F1248

Previous........7FFD7034  Next...........7F6F1188

Previous........7F6E5218  Next...........7F6F1254

Previous........7F6F1178  Next............7F6F1188
Workload Manager

Contention element information....................7F6E5218
Entity
 Type................02 ASToken...0000000000000001
 TCB address...00000000 Etoken....0000000000000000
Queue Information
 Contention element links
 Transaction element address.................7FFD7028
 Resource element address.................7F6F1238
 Transaction anchored contention element queue
 Previous........7FFD7040 Next..............7F6F1178
 Resource anchored contention element queue
 Previous........7F6F1254 Next..............7F6F1178

Transactions with contention
-----------------------------------------

Transaction element information.......................7FFD7028
Transaction identifier
 Type........02Address space Index.................0028
 Token........0000000000000001
Queue Information
 Transaction element links
 Previous.........025C6040 Next..............025C6040
 Anchor of Holder contention elements
 First............7F6F11B8 Last..............7F6F1138
 Anchor of Waiter contention elements
 First............7F6F1178 Last..............7F6F1138
Resources the transaction is holding

Resource element information........................7F6F1238
Resource Description
 Scope............Single System
 Subsystem type....most Subsystem name...TSTCNTN
 ResourceID length...................................0108
 ResourceID......RESOURCE_START
 =>
 =>
 =>
 =>
 =>
 =>
 RESOURCE_END
Queue Information
 Resource element links
 Previous........025C6034 Next..............025C6034
 Anchor of Holder contention elements
 First............7F6F11B8 Last..............7F6F1138
 Anchor of Waiter contention elements
 First............7F6F1178 Last..............7F6F1138

Contention element information....................7F6F11B8
Entity
 Type.................01 ASToken...0000000000000001
 TCB address...006EC120 Etoken....0000000000000000
Queue Information
 Contention element links
 Transaction element address.................7FFD7028
 Resource element address.................7F6F1238
 Transaction anchored contention element queue
 Previous........7F6F1138 Next..............7FFD7034
 Resource anchored contention element queue
 Previous........7F6F1138 Next..............7F6F1248
Resource element information........................7F6F1238

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Workload Manager

Resource Description
Scope...........Single System
Subsystem type....most Subsystem name...TSTCNTN
ResourceId length...................................0108
ResourceId......RESOURCE_START
==>
==>
==>
==>
==>
==>
==>
==>
==>
==>
RESOURECE_END

Queue Information
Resource element links
Previous.......025C6034 Next..............025C6034
Anchor of Holder contention elements
First.........7F6F11B8 Last..............7F6F1138
Anchor of Waiter contention elements
First.........7F6F117B Last..............7F6E5218

Contention element information.................7F6F1138
Entity
Type.................01 AStoken...0000000000000001
TCB address...00000000 Etoken....0000000000000000
Queue Information
Contention element links
Transaction element address.................7FFD7028
Resource element address.................7F6F1238
Transaction anchored contention element queue
Previous.....7F6E5218 Next..............7FFD7040
Resource anchored contention element queue
Previous.....7F6E5218 Next..............7F6F1254

Resources the transaction is waiting for

Resource element information.................7F6F1238
Resource Description
Scope...........Single System
Subsystem type....most Subsystem name...TSTCNTN
ResourceId length...................................0108
ResourceId......RESOURCE_START
==>
==>
==>
==>
==>
==>
==>
==>
==>
==>
RESOURECE_END

Queue Information
Resource element links
Previous.......025C6034 Next..............025C6034
Anchor of Holder contention elements
First.........7F6F11B8 Last..............7F6F1138
Anchor of Waiter contention elements
First.........7F6F117B Last..............7F6E5218

Contention element information.................7F6F117B
Entity
Type.................02 AStoken...0000000000000001
TCB address...006EC120 Etoken....0000000000000000
Queue Information
Contention element links
Transaction element address.................7FFD7028
Resource element address.................7F6F1238
Transaction anchored contention element queue
Previous.....7F6F1E5218 Next..............7FFD7040
Resource anchored contention element queue
Previous.....7F6E5218 Next..............7F6F1254
Resource element information

Resource Description
Scope.............. Single System
Subsystem type..... most
Subsystem name... TSTCN1N
ResourceID length.................................. 0108
ResourceID........ RESOURCE_START
==>
==>
==>
==>
==>
==>
==>
RESOUCRE_END

Queue Information
Resource element links
Previous........... 02C6034
Next.................. 02C6034
Anchor of Holder contention elements
First.............. 7F6F1188
Last.................. 7F6F1138
Anchor of Waiter contention elements
First.............. 7F6F1178
Last.................. 7F6E5218

Contention element information
Entity
Type............... 02
ASToken........... 00000000A00000000000
TCB address........... 00000000
Etken........... 0000000000000000
Queue Information
Contention element links
Transaction element address............. 7FFD7028
Resource element address............. 7F6F1238
Transaction anchored contention element queue
Previous............. 7FFD7040
Next.................. 7F6F1178
Resource anchored contention element queue

Global contention information
The Global resource contention information section shows global data used by
the WLM resource contention topology function.

Anchors in resource topology control table
Represents the address of the control structure (IWMRTCT) the anchors
reside in.

Resource element anchor
All active resource elements in the resource topology are chained in a
double headed/threaded circular queue which is addressed via:

First/Last
Represents the address of the first/last resource element in the resource
topology.

Transaction element anchor
All active transaction elements in the resource topology are chained in a
double headed/threaded circular queue which is addressed via:

First/Last
Represents the address of the first/last transaction element in the
resource topology.

Cell Pool Ids
Cell pool IDs of data structures used in the resource topology.

Resource element Cell Pool ID
Represents the ID of the dynamic area used for the resource elements.

Transaction element Cell Pool ID
Represents the ID of the dynamic area used for the transaction elements.
Contention element Cell pool ID
   Represents the ID of the dynamic area used for the contention elements.

Resources in contention
   This section and the following subsection show information about the resource in contention.

Resource element information
   This section is printed for each resource listed in the resource topology.

Resource description
   The following resource description:
   
Scope
   Represents the scope of the resource. The character will be Single System or Multi System.

Subsystem type
   Indicates the four character subsystem type.

Subsystem name
   Indicates the eight character subsystem name.

ResourceId length
   Indicates the two byte length of the fingerprint.

ResourceId
   Indicates the fingerprint of the resource, up to 264 byte.

Queue information
   This section shows all the links to other elements and element types.

Resource element links
   This section shows the chaining pointers of the resource element.

Previous/Next
   Represents the address of the next/previous element in the resource topology.

Anchor of Holder contention elements
   All transactions that are holding this resource are chained in a double headed/threaded circular queue of contention elements. This chain is addressed via:

   First/Last
   Represents the first/last element in the resource topology.

Anchor of Waiter contention elements
   All transactions that are waiting for this resource are chained in a double headed/threaded circular queue of contention elements.

Transaction that holds this resource
   This section and all subsections are printed for each transaction that is in contention hold with this resource.

Transaction element information
   This section shows the information of the transaction element and the appropriate contention element.

Transaction identifier
   Section describing the transaction.

Type
   Represents the type of the transaction. Type can be Address space or Enclave.
Index
 Represents the two byte ASID or EncbSampindex depending on the transaction type.

Token
 Represents the eight byte STOKEN or ETOKEN depending on the transaction type.

Queue information
 This section shows all links to other elements and types.

Transaction element links
 This section shows the chaining pointers of the transaction element.

Next/Previous
 Represents the address of the next/previous transaction element in the resource topology.

Anchor of Holder contention elements
 All resources the transaction is holding are chained in a double headed/threaded circular queue of contention elements.

Anchor of Waiter contention elements
 All resources the transaction is waiting for are chained in a double headed/threaded circular queue of contention elements.

Contention element information
 This section shows the information stored in the contention element.

Entity
 This section describes the entity of the resource topology entity.

Type
 Represents the one byte Waiter/Holder information. The types: 1=Holder or 2=Waiter.

ASToken
 Indicates the eight byte address space token.

TCB address
 Indicates the four byte TCB address.

EToken
 Indicates the eight byte enclave token.

Queue information
 This section shows all the links to other elements and types.

Contention element links
 This section shows the chaining pointers to non-contention element links.

Transaction element address
 Represents the address of the transaction element the contention element is chained to.

Resource element address
 Represents the address of the resource element the contention element is chained to.

Transaction anchored contention element queue
 This section shows the link of this contention element in the transaction anchored contention element queue.
Next/Previous
  Represents the address of the next/previous contention element in the resource topology.

Resource anchored contention element queue
  This section shows the link of this contention element in the resource element anchored contention element queue.

Transaction that is waiting for this resource
  This section and all subsections are printed for each transaction that is in contention hold for this resource.

Transactions with contention
  This section and the following subsections show information about the transactions that are holding or waiting for resources.

Resource the transaction is holding
  This section lists all resources the transaction is holding.

Resource the transaction is waiting for
  This section lists all resources the transaction is waiting for.
Chapter 27. Sysplex Services (XCF and XES)

This topic contains diagnosis information for XCF and XES, including coupling facility resource management (CFRM), sysplex failure management (SFM), and automatic restart management.

How to diagnose a sysplex services problem

This section contains tables to help define your problem to an area of sysplex services. All the tables have the same column names. Use the tables together to diagnose your problem.

Use Table 58 to help you narrow down what area of sysplex services your problem is in.

Table 59 on page 812 indicates what operator commands would give additional problem determination data.

Table 60 on page 814 indicates what information would be needed in a dump to assist in diagnosing the problem.

Determining the problem area

Sysplex services cover a wide range of processes. To narrow down which process is the problem area, you need to gather all the external symptoms. These include messages, dumps, and logrec information. Once you have this information, use Table 58 and the associated notes to help determine which problem areas the symptoms point to.

Table 58. Determining the problem area for sysplex services (XCF and XES)

<table>
<thead>
<tr>
<th>Problem Area</th>
<th>Symptoms</th>
<th>Connection Services</th>
<th>Rebuild Processing</th>
<th>Mainline Services</th>
<th>Coupling Facility Interface</th>
<th>Couple Dataset Services</th>
<th>CFRM</th>
<th>XCF Signaling</th>
<th>SFM</th>
<th>ARM</th>
<th>XCF Client / Server</th>
<th>XCF Note Pad</th>
</tr>
</thead>
<tbody>
<tr>
<td>XES</td>
<td>MESSAGES</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>From a subsystem</td>
<td>Note 2</td>
<td>Note 3</td>
<td>Note 5</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>From XES(DXL) to the console</td>
<td>X</td>
<td>X</td>
<td>Note 1</td>
<td>X</td>
<td>Note 2</td>
<td>Note 3</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>From XCF(IXC) to the console</td>
<td>X</td>
<td>X</td>
<td>Note 4</td>
<td>X</td>
<td>Note 5</td>
<td>Note 6</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<tr>
<td>About a policy</td>
<td>X</td>
<td>X</td>
<td>Note 7</td>
<td>X</td>
<td>Note 8</td>
<td>Note 9</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td></td>
</tr>
<tr>
<td>About GRS ring disruptions</td>
<td>X</td>
<td>X</td>
<td>Note 10</td>
<td>X</td>
<td>Note 11</td>
<td>Note 12</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>About loss of signaling connectivity</td>
<td>X</td>
<td>X</td>
<td>Note 13</td>
<td>X</td>
<td>Note 14</td>
<td>Note 15</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>In SYSLOG</td>
<td>Note 16</td>
<td>X</td>
<td>X</td>
<td>Note 17</td>
<td>X</td>
<td>Note 18</td>
<td>Note 19</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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<tr>
<td>About couple data set switch</td>
<td>X</td>
<td>X</td>
<td>Note 20</td>
<td>X</td>
<td>Note 21</td>
<td>Note 22</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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</tr>
<tr>
<td>About restarts</td>
<td>X</td>
<td>X</td>
<td>Note 23</td>
<td>X</td>
<td>Note 24</td>
<td>Note 25</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td></td>
</tr>
<tr>
<td>About CFRM policy not active</td>
<td>X</td>
<td>X</td>
<td>Note 26</td>
<td>X</td>
<td>Note 27</td>
<td>Note 28</td>
<td>X</td>
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<td>X</td>
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</tr>
</tbody>
</table>

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### Table 58. Determining the problem area for sysplex services (XCF and XES) (continued)

<table>
<thead>
<tr>
<th>Problem Area–&gt;</th>
<th>Symptoms</th>
<th>Connection Services</th>
<th>Rebuild Processing</th>
<th>Mainlining Services</th>
<th>Coupling Facility Interface</th>
<th>Couple Dataset Services</th>
<th>CTRM</th>
<th>XCF Notifying</th>
<th>XCF Signaling</th>
<th>SFM</th>
<th>ARM</th>
<th>XCF Client Server</th>
<th>XCF Note Pad</th>
</tr>
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<tbody>
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<td></td>
<td>IXLCONN</td>
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</tbody>
</table>

#### Fast path:
Explanatory notes for Table 58 on page 809.

1. Mainline services include: IXLLIST IXLCACHE IXLFCOMP IXLVECTR IXLLOCK IXLSYNCH IXLRT IXLUSYNC.
2. Messages received from a subsystem or application describing a failing connection to the coupling facility.
3. Messages received from a subsystem or application describing the success or failure of the rebuilding of a coupling facility structure.
4. Subsystem or application is stalled during rebuild of a coupling facility structure.
5. Messages from subsystems describing failing coupling facility structure operations.
6. Messages from XES (prefixed with IXL) indicating either coupling facility failures or coupling facility path failures.
7. This ABEND is recorded in the LOGREC data set for reason codes:

#### Reason code Explanation
- `x'0C010101'` Indicates that an error occurred in the user's complete exit. The connector is terminated.
- `x'0C150101'` Indicates that an error occurred in the user's contention exit. The connector is terminated.
- `x'0C3F0101'` Indicates that an error occurred in the user's notify exit. The connector is terminated.
- `x'0C680101'` Indicates that an error occurred in the user's notify exit. The connector is terminated.
- `x'0E0A0101'` Indicates that an error occurred in the user's list transition exit. The connector is terminated.

#### Note:
XES does not take a dump if a problem occurs in a user exit.
8. Excessive spin conditions may indicate that hardware interface problems exist in XES or the coupling facility hardware.

9. System performance degradation to the coupling facility may indicate that excessive storage usage has occurred due to a backlog of requests to the coupling facility.

10. XCF messages indicating path problems on the console or in the SYSLOG. Additionally, messages will describe the action being taken against the XCF signaling path (that is, starting, stopping, or restarting).

11. Removal of a system from the sysplex did not occur when it was expected. This may be indicated by the operator prompt for IXC102A when automatic sysplex partitioning was expected from sysplex failure management (SFM). IXC messages might indicate that a failure occurred while attempting to partition a system from the sysplex using SFM.

12. Sysplex failure management (SFM) couple data set switching occurred unexpectedly - note that SFM does not cause the system to enter a wait state when both SFM couple data sets are lost.

13. A symptom record is placed in the LOGREC data set when:
   - The isolation of a system from the sysplex has failed. Sysplex failure management records information indicating the results of the failure isolation.
   - A system is fenced from the sysplex. Sysplex failure management records information about the system that was fenced.

14. Message IXL012I is written to the SYSLOG only. This message contains the return code and reason code for a failed invocation of the IXLCONN sysplex service macro.

15. A symptom record is placed in the logrec data set when a failed invocation of the IXLCONN sysplex services macro occurs. The symptom record includes the following data from IXLCONN:
   - IXLCONN return code
   - IXLCONN reason code
   - JOBNAME of the issuer of the IXLCONN sysplex services macro
   - ASID of the issuer of the IXLCONN sysplex services macro
   - IXLCONN parameter list
   - IXLCONN answer area mapped by IXLYCONA
In addition, message IXL012I is found in SYSLOG.

16. This ABEND is recorded in the LOGREC data set for reason codes:

<table>
<thead>
<tr>
<th>Reason code</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>x'0E0D0001'</td>
<td>Indicates that an unexpected return code was received from the user's event exit. The connector is terminated.</td>
</tr>
<tr>
<td>x'0E0D0101'</td>
<td>Indicates that an error occurred in the user's event exit. The connector is terminated.</td>
</tr>
</tbody>
</table>

17. A hardware failure was encountered while the system was communicating with the coupling facility. A symptom record is placed in the logrec data set.

18. A dump received from ISSUER=IXLR1DIA with an ABEND026 and a reason code of x'0C1Cxxxx' (where xxxx could be anything) indicates that a mainline operation to the coupling facility failed. An entry is recorded in the LOGREC data set.

19. Automatic Restart Management couple data set switching occurred unexpectedly; note that automatic restart management does not cause the system to enter a wait state when both of the ARM couple data sets are lost.
20. Automatic Restart Management issues message IXC804I if an element was
de-registered because of a failure in its event exit.

21. A symptom record is placed in the LOGREC data set when a cross-system
restart is initiated by automatic restart management.

22. The system writes a record to the LOGREC data set when removal of a couple
data set encounters unusual conditions.

Using operator commands to gather additional data

If the previous table left you with more than one possible problem area, use
Table 59 to gather more data about the problem. Use the problem areas from
Table 58 on page 809 to determine which operator commands may provide
additional information for your problem.

Note: This data should be saved for use with service personnel.

Table 59. Operator commands to help narrow down a sysplex services problem

<table>
<thead>
<tr>
<th>Problem Area-&gt;</th>
<th>Operator command &gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>* * V</td>
<td>Connection Services IXLCONN IXLDISC IXLEERSP</td>
</tr>
<tr>
<td>*</td>
<td>Rebuild Processing</td>
</tr>
<tr>
<td>*</td>
<td>Mainline Service</td>
</tr>
<tr>
<td>*</td>
<td>Coupling Facility Interface</td>
</tr>
<tr>
<td>*</td>
<td>Couple Dataset Services</td>
</tr>
<tr>
<td>*</td>
<td>CFRM</td>
</tr>
<tr>
<td>*</td>
<td>XCF Signaling</td>
</tr>
<tr>
<td>*</td>
<td>SFM</td>
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<tr>
<td>*</td>
<td>ARM</td>
</tr>
<tr>
<td>*</td>
<td>XCF Client/Server</td>
</tr>
<tr>
<td>*</td>
<td>XCF Note Pad</td>
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</table>

<table>
<thead>
<tr>
<th>XES</th>
<th>XCF</th>
</tr>
</thead>
<tbody>
<tr>
<td>D XCFSTR</td>
<td>X</td>
</tr>
<tr>
<td>D XCFSTR,STRNAME=</td>
<td>X</td>
</tr>
<tr>
<td>D GC</td>
<td>X</td>
</tr>
<tr>
<td>D XCF,CF5</td>
<td>X</td>
</tr>
<tr>
<td>D XCF,CF5</td>
<td>X</td>
</tr>
<tr>
<td>D XCF,PATHIN/OUT</td>
<td>X</td>
</tr>
<tr>
<td>D XCF,PATHIN/OUT,STRNAME=</td>
<td>X</td>
</tr>
<tr>
<td>D XCF,ARMSTATUS</td>
<td>X</td>
</tr>
<tr>
<td>D XCF,ARMSTATUS</td>
<td>X</td>
</tr>
<tr>
<td>D XCF,SERVER</td>
<td>X</td>
</tr>
<tr>
<td>D XCF,NOTEPAD</td>
<td>X</td>
</tr>
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</table>

Subsystem Commands X X X X
Table 59. Operator commands to help narrow down a sysplex services problem (continued)

<table>
<thead>
<tr>
<th>Problem Area</th>
<th>Operator command</th>
<th>Connection Services</th>
<th>Rebuild Processing</th>
<th>Coupling Facility Interface</th>
<th>Couple Dataset Services</th>
<th>CFRM</th>
<th>XCF Signaling</th>
<th>XCF Client/Server</th>
<th>XCF Note Pad</th>
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</thead>
<tbody>
<tr>
<td>*</td>
<td>+</td>
<td>IXLCONN</td>
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<td>IXLSYNCH</td>
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<td></td>
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<td>IXLRT</td>
<td>IXLUSYNC</td>
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<tr>
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</tr>
<tr>
<td>1. Mainline Services include: IXLLIST IXLCACHE IXLFCOMP IXLVECTR IXLLOCK IXLSYNCH IXLRT IXLUSYNC.</td>
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<tr>
<td>2. D XCF,STR command will display general structure information. The operator can then determine the coupling facility structure the application is currently using.</td>
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<tr>
<td>3. D XCF,STR,STRNAME= with the structure in question relays the status of the connection. If a rebuild is in progress, the phase of the rebuild process and an indication of outstanding rebuild responses is displayed for the structure. Any connection status other than ACTIVE might indicate a problem. Note: D XCF,STR,STATUS= allows the operator to filter on a specific structure status such as ALLOCATED.</td>
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<tr>
<td>4. D CF will display the physical connectivity status to the coupling facility which might give an indication as to the nature of a problem.</td>
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<tr>
<td>5. D XCF,CF will display the connectivity status of the coupling facility as it relates to the CFRM policy and ownership of the coupling facility.</td>
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<tr>
<td>6. D R,L might display outstanding IXL messages that contain information about a failed coupling facility or coupling facility path failures.</td>
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<tr>
<td>7. D GRS displays the status of the GRS Ring. An unexpected result here could indicate that XCF signaling has not properly transported messages within the sysplex for GRS.</td>
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<tr>
<td>8. D XCF,PATHIN,STRNAME= and D XCF,PATHOUT,STRNAME= will describe the status of the XCF signaling list paths. Any status other than WORKING might indicate a problem.</td>
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<tr>
<td>9. D XCF,POLICY indicates the status of the policies, and when they were last updated.</td>
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<tr>
<td>10. The appropriate subsystem commands might give an indication that the environment has suffered an error related to a sysplex service.</td>
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<tr>
<td>11. This command could hang if there is a problem in CFRM.</td>
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<tr>
<td>12. D R,L might display outstanding IXC messages that contain information about XCF signaling.</td>
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<tr>
<td>13. D XCF,C will display sysplex control information and information about the couple data sets. This information might indicate that events, such as a couple data set switch, is in progress.</td>
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<tr>
<td>14. D XCF,ARMSTATUS provides information about jobs and tasks registered as elements of the automatic restart manager.</td>
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<tr>
<td>15. D XCF,SERVER provides information about servers that are defined in the sysplex.</td>
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<tr>
<td>16. D XCF,NOTE PAD provides information about XCF note pads that are defined in the sysplex.</td>
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</tbody>
</table>

Some notes for Table 59 on page 812:

1. Mainline Services include: IXLLIST IXLCACHE IXLFCOMP IXLVECTR IXLLOCK IXLSYNCH IXLRT IXLUSYNC.

Note: D XCF,STR,STATUS= allows the operator to filter on a specific structure status such as ALLOCATED.

4. D CF will display the physical connectivity status to the coupling facility which may give an indication as to the nature of a problem.

5. D XCF,CF will display the connectivity status of the coupling facility as it relates to the CFRM policy and ownership of the coupling facility.

6. D R,L may display outstanding IXL messages that contain information about a failed coupling facility or coupling facility path failures.

7. D GRS displays the status of the GRS Ring. An unexpected result here could indicate that XCF signaling has not properly transported messages within the sysplex for GRS.

8. D XCF,PATHIN,STRNAME= and D XCF,PATHOUT,STRNAME= will describe the status of the XCF signaling list paths. Any status other than WORKING may indicate a problem.
XCF and XES

9. D XCF,POLICY indicates the status of the policies, and when they were last updated.
10. The appropriate subsystem commands may give an indication that the environment has suffered an error related to a sysplex service.
11. This command could hang if there is a problem in CFRM.
12. D R,L may display outstanding IXC messages that contain information about XCF signaling.
13. D XCF,C will display sysplex control information and information about the couple data sets. This information may indicate that events, such as a couple data set switch, is in progress.
14. D XCF,ARMSTATUS provides information about jobs and tasks registered as elements of the automatic restart manager.

What data to gather for sysplex services problems

Now that you know what area of sysplex services your problem pertains to, the next table indicates what information you will need in a dump. Some of the information pertains only to SVC dumps, and some is for either an SVC dump or a stand-alone dump.

Note: The couple data sets are not dumped for an SVC dump or a stand-alone dump. A separate job must be run to dump this information. See the information about ADRDSSU output in Table 60.

Certain information is needed for every sysplex services problem, but they are included in the table for completeness. A quick guide to the areas that should always be dumped follows:
- XCFAS (XCF address space)
- All XCF data spaces
- SDATA options
  - XESDATA
  - COUPLE
  - RGN
  - CSA
  - SQA
  - NUC
  - LSQA
  - TRT
  - SUM

Table 60. Data to gather for sysplex services problem

<table>
<thead>
<tr>
<th>Problem Area</th>
<th>Data to Gather</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>XES</td>
</tr>
<tr>
<td></td>
<td>XCF</td>
</tr>
</tbody>
</table>

SDUMP DATA

ASID=
<table>
<thead>
<tr>
<th>Problem Area</th>
<th>Data to Gather</th>
<th>Connection Services</th>
<th>Rebuild Processing</th>
<th>Mainline Services</th>
<th>Coupling Facility Interface</th>
<th>Couple Dataset Services</th>
<th>CFRM</th>
<th>XCF Signaling</th>
<th>SFM</th>
<th>ARM</th>
<th>XCF Client/Server</th>
<th>XCF Note Pad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector’s address space (issued IXLCONN)</td>
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Table 60. Data to gather for sysplex services problem (continued)
### XCF and XES

**Table 60. Data to gather for sysplex services problem (continued)**

<table>
<thead>
<tr>
<th>Problem Area—&gt;</th>
<th>Data to Gather</th>
<th>Connection Services</th>
<th>Rebuild Services</th>
<th>Mainline Services</th>
<th>Coupling Facility Interface</th>
<th>Couple Dataset Services</th>
<th>CFM</th>
<th>XCF Signaling</th>
<th>SFM</th>
<th>XCF Client/Server</th>
<th>YCF Note Pad</th>
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**Output from IPCS Subcommand COUPLE**

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**Output from IPCS Subcommand XESDATA**

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**Other IPCS Subcommands**

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### Table 60. Data to gather for sysplex services problem (continued)

<table>
<thead>
<tr>
<th>Problem Area</th>
<th>Data to Gather</th>
<th>Connection Services</th>
<th>Rebuild Processing</th>
<th>Mainline Services</th>
<th>Coupling Facility Interface</th>
<th>Couple Dataset Services</th>
<th>CFRM</th>
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**Note:**
1. LEGEND: X=definitely trace, M=might need to be traced, use other information to determine if this is a possible problem area.
2. Mainline Services include: IXLLIST IXLCACHE IXLFCOMP IXLVECTOR IXLOCK IXLSYNCH IXLRT IXLUSYNC.
3. For signaling path and connectivity problems, historical information is vital. Therefore, the system should execute using only default XCF tracing. Do NOT explicitly request the SIGNAL option for CTRACE for SYSXCF. For message traffic, message delivery and I/O, detail SIGNAL tracing is required and should be specified.
4. Use the ADRDSSU utility to dump the contents of a couple dataset. Just taking an SVC dump or stand-alone dump will not give you the contents of the couple data sets.
   - The following sample JCL indicates how to invoke the ADRDSSU utility:
   ```agi
   //DUMP JOB MSGLEVEL=(1,1)
   //STEP1 EXEC PGM=ADRDSSU,REGION=4M
   //SYSPRINT DD SYSOUT=* 
   //DD1 DD DISP=SHR,VOL=SER=SHR001,UNIT=3380
   //SYSIN DD *
   PRINT DATASET(SYS1.PRIMARY) INDDNAME(DD1)
   /*
   See z/OS Data Facility Data Set Services Reference, SC26-4389, for more information on the ADRDSSU utility.
   5. The IODF that is defined for the coupling facility hardware might assist you in determining if connectivity problems exist due to an incorrect specification under HCD.
   6. Valid if signal structures are used for XCF signaling.

### Formatting dump data using the IPCS subcommand - COUPLE

Format the SVC or stand-alone dump with the IPCS COUPLE subcommand to produce diagnostic reports about XCF and its related subcomponents. z/OS MVS IPCS Commands gives the syntax of the COUPLE subcommand and z/OS MVS IPCS User’s Guide explains how to use the COUPLE option of the IPCS dialog.

The dump might also contain component trace data for XCF. For information about how to format this trace data, see component trace in z/OS MVS Diagnosis: Tools and Service Aids.

COUPLE divides the information about XCF into several reports. Each report corresponds to the COUPLE keywords listed in Table 61.

#### Table 61. COUPLE keywords and corresponding reports

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Report Displays</th>
<th>See topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARM</td>
<td>Information about elements and restart groups registered with the automatic restart manager.</td>
<td>“COUPLE ARM DETAIL report” on page 819</td>
</tr>
<tr>
<td>CFRM</td>
<td>Information about coupling facility resource management.</td>
<td>“COUPLE CFRM SUMMARY report” on page 822</td>
</tr>
<tr>
<td>GROUP</td>
<td>Information about the XCF groups and members defined to the sysplex, events pending delivery to group exits, and group or member requests queued for processing.</td>
<td>“COUPLE GROUP DETAIL report” on page 826</td>
</tr>
</tbody>
</table>
## XCF and XES

### Table 61. COUPLE keywords and corresponding reports (continued)

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Report Displays</th>
<th>See topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERIAL</td>
<td>Information about serialization on shared resources in the sysplex.</td>
<td>&quot;COUPLE SERIAL DETAIL report&quot; on page 829</td>
</tr>
<tr>
<td>SIGNAL</td>
<td>Information about the XCF signalling services, signalling paths defined in the sysplex, and active signalling requests.</td>
<td>&quot;COUPLE SIGNAL DETAIL report&quot; on page 834</td>
</tr>
<tr>
<td>STORAGE</td>
<td>Information about XCF dataspace usage and storage allocation.</td>
<td>None</td>
</tr>
<tr>
<td>SYSPLEX</td>
<td>Information about status and monitoring for systems and members in the sysplex.</td>
<td>&quot;COUPLE SYSPLEX DETAIL report&quot; on page 840</td>
</tr>
<tr>
<td>XCFSTACK</td>
<td>Information about cross-system coupling facility services. This report contains diagnostic information for IBM service personnel.</td>
<td>None</td>
</tr>
</tbody>
</table>

All IPCS COUPLE reports begin by presenting data that is potentially applicable to all the keywords specified. The following output shows an example of the common information in the header.

```
*** COUPLE (CROSS-SYSTEM COUPLING FACILITY) REPORT ***
Report(s): ARM
Level(s) of detail: DETAIL
Filter(s) in use: NONE
Address space ID: X'0006'
Data spaces owned: IXDSMEM, IXDSCBD, IXDSCBE, IXCARCB, IXCARDO, IXDSTKA, IXDSTKB, IXDSTKC, IXDSTKD, IXDSTKE, IXDSTKF, IXDSSGA, IXDSMUS, IXDSIKI, IXDSLOI, IXAPIIDS, IXLCAD, IXLCBCAD, IXDSMEX
Sysplex name: UTCPLXJ8
System name: JBO
CTN ID: zpet-stp-01 Clock Status: Active Timing Mode: ETR
```

Optional function status:

```
<table>
<thead>
<tr>
<th>Function Name</th>
<th>Status</th>
<th>Default</th>
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<tr>
<td>SYSSTATDETECT</td>
<td>ENABLED</td>
<td>ENABLED</td>
</tr>
<tr>
<td>USERINTERVAL</td>
<td>ENABLED</td>
<td>DISABLED</td>
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<td>CRITICALPAGING</td>
<td>DISABLED</td>
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<tr>
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</tr>
<tr>
<td>CFSTROMON</td>
<td>ENABLED</td>
<td>DISABLED</td>
</tr>
</tbody>
</table>
```

```
COUPLE DATA SET INFORMATION
--------------------
Type: SYSPLEX (IXCLKMD)
Primary Data Set: SY51.CDS00
Volume Serial: CDS00
DDName: SY500001
Device Number: 3B30
(C141B84650F650B1)
```

Additional Information
----------------------
ALL TYPES OF COUPLE DATA SETS ARE SUPPORTED
GRS STAR MODE IS SUPPORTED
XCF and XES

XCF currently has no active I/O for this data set. Permanent error processing is inactive for this data set. The data set is fully functional.

Alternate Data Set: SYS1.CDS01
   Volume Serial: CDSCDA
   DName: SYS00008
   Device Number: 5C38
   Format Time: 09/26/2007 15:25:05.394441
   (C141BBE07FB09F01)

Additional Information
----------------------------------------------
ALL TYPES OF COUPLE DATA SETS ARE SUPPORTED
GRS STAR MODE IS SUPPORTED

XCF currently has no active I/O for this data set. Permanent error processing is inactive for this data set. The data set is fully functional.

Type: CFM ([XICLOFD])

. . . (remaining couple data sets)

Maximum number of systems allowed in the sysplex: 16
Maximum number of groups allowed in the sysplex: 200
Maximum number of members for each group: 2,047

COUPLE ARM DETAIL report

The COUPLE ARM DETAIL report provides detailed information about elements that are currently defined to the sysplex. The ARM report displays:

- The current state of each element
- Any pending requests.

The following command was issued to produce the ARM report:

COMMAND==> COUPLE ARM DETAIL

**** ARM DETAIL REPORT ****

AUTOMATIC RESTART MANAGER (ARM) STATUS FOR SYSTEM: SYSTEM1
------------------------------------------------------------------------
ARM Couple Data Set Accessible: Yes Name: POLDER7
Registered Elements Pending Requests
--------------------------------- ---------------------
Starting: 0 Register: 3
Available: 2 WaitPred: 0
Available-To: 0 Ready: 0
Failed: 0 Associate: 0
Restarting: 4 De-register: 1
Recovering: 2 Element Term: 0
Unknown: 0 Policy: 0

JES: 0
Query: 0
System Gone: 0
Element Restart: 0
Cleanup: 0
Unknown: 0
Message: 0
Attach: 0

--------------------- ---------------------
Total Elements: 8 Total Pending: 4

ARM REGISTERED ELEMENT DATA FOR SYSTEM: SYSTEM1
-----------------------------------------------
Element Name State Jobname ASID Initial System Diag096
----------------- ----- -------- -------------- --------------
DERISEL6 Restarting DEU9661 0021 SYSTI1 00016598

Eastor: DEREGST
Element Type: STC
Element Association: None
JES Group Name: PLPSB
Initial Registration: 09/01/1994 08:09:02.423215
Restart in Progress: Yes Restart Group: DER15
Element Level: 0
Suspended for WaitPred: No

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XCF and XES

Total Restarts: 1
Last Three Restarts: 09/01/1994 08:11:58.251810 N/A
Event Exit In Control: No Parm List Addr: N/A Name: N/A
Restart Exit In Control: No Parm List Addr: N/A
Last Restart Action: N/A
Element Name: State Jobname ASID Initial System Diag096
----------------- ------------ -------- ---- -------------- --------
DER15ELEM7 Restarting DEU49E71 0022 SYSTEM2 00017018
Element Type: DEREGTST
Element Job Type: STC
Element Association: None
JES Group Name: PLPSB Diag994: 0000000000000000
Initial Registration: 09/01/1994 08:09:03.366300
Restart in Progress: Yes Restart Group: DER15
Element Level: 00000002
Suspended for WaitPred: No
Diag995: 00000000
Total Restarts: 1
Last Three Restarts: 09/01/1994 08:11:58.433102 N/A
Event Exit In Control: No Parm List Addr: N/A Name: N/A
Restart Exit In Control: No Parm List Addr: N/A
Last Restart Action: N/A
Element Name: State Jobname ASID Initial System Diag096
----------------- ------------ -------- ---- -------------- --------
DER14ELEM8 Available DEU49E81 012D SYSTEM2 00017590
Element Type: DEREGTST
Element Job Type: STC
Element Association: None
JES Group Name: PLPSB Diag994: 0000000000000000
Initial Registration: 09/01/1994 08:09:05.660736
Restart in Progress: No Restart Group: DER14
Element Level: 00000001
Suspended for WaitPred: No
Diag995: 00000000
Total Restarts: 1
Last Three Restarts: 09/01/1994 08:11:58.511831 N/A
Event Exit In Control: No Parm List Addr: N/A Name: N/A
Restart Exit In Control: No Parm List Addr: N/A
Last Restart Action: N/A
Element Name: State Jobname ASID Initial System Diag096
----------------- ------------ -------- ---- -------------- --------
DER14ELEM5 Available DEU49E51 001D SYSTEM2 00016018
Element Type: DEREGTST
Element Job Type: STC
Element Association: None
JES Group Name: PLPSB Diag994: 0000000000000000
Initial Registration: 09/01/1994 08:08:58.318698
Restart in Progress: Yes Restart Group: DER14
Element Level: 00000003
Suspended for WaitPred: No
Diag995: 00000000
Total Restarts: 1
Last Three Restarts: 09/01/1994 08:11:58.271718 N/A
Event Exit In Control: No Parm List Addr: N/A Name: N/A
Restart Exit In Control: No Parm List Addr: N/A
Last Restart Action: N/A
Element Name: State Jobname ASID Initial System Diag096
----------------- ------------ -------- ---- -------------- --------
DER14ELEM1 Restarting DEU49E11 001C SYSTEM2 00013018
Element Type: DEREGTST
Element Job Type: STC
Element Association: None
JES Group Name: PLPSB Diag994: 0000000000000000
Initial Registration: 09/01/1994 08:08:58.318698
Restart in Progress: Yes Restart Group: DER14
Element Level: 00000003
Suspended for WaitPred: No
Diag995: 00000000
Total Restarts: 1
Last Three Restarts: 09/01/1994 08:11:58.271718 N/A
Event Exit In Control: No Parm List Addr: N/A Name: N/A
Restart Exit In Control: No Parm List Addr: N/A
Last Restart Action: N/A
Element Name: State Jobname ASID Initial System Diag096
----------------- ------------ -------- ---- -------------- --------
DER14ELEM2 Recovering DEU49E21 0020 SYSTEM2 00013590
Element Type: DEREGTST
Element Job Type: STC
Element Association: None
JES Group Name: PLPSB Diag994: 0000000000000000
Initial Registration: 09/01/1994 08:08:58.522493
Restart in Progress: Yes Restart Group: DER14
Element Level: 00000003
Suspended for WaitPred: Yes (Explicit)
Diag995: 00000000
Total Restarts: 1
Last Three Restarts: 09/01/1994 08:11:58.228996 N/A
Event Exit In Control: No Parm List Addr: N/A Name: N/A
Restart Exit In Control: No Parm List Addr: N/A
Last Restart Action: N/A
Element Name: State Jobname ASID Initial System Diag096
----------------- ------------ -------- ---- -------------- --------
DER14ELEM4 Recovering DEU49E41 0021 SYSTEM2 00015590
Element Type: DEREGTST
Element Job Type: STC
Element Association: None
JES Group Name: PLPSB Diag994: 0000000000000000
Initial Registration: 09/01/1994 08:08:58.318698
Restart in Progress: Yes Restart Group: DER14
Element Level: 00000003
Suspended for WaitPred: No
Diag995: 00000000
Total Restarts: 1
Last Three Restarts: 09/01/1994 08:11:58.271718 N/A
Event Exit In Control: No Parm List Addr: N/A Name: N/A
Restart Exit In Control: No Parm List Addr: N/A
Last Restart Action: N/A

XCF and XES
**XCF and XES**

**Chapter 27. Sysplex Services (XCF and XES) 821**

<table>
<thead>
<tr>
<th>Element Name</th>
<th>Request Type</th>
<th>Jobname</th>
<th>ASID</th>
<th>Diag097</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td>De-register</td>
<td>DEU49E81 012D 042EB580</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Summary of ARM Restart Processing on Current System: SYSTEM1**

**Non Cross System Restart Processing:**

<table>
<thead>
<tr>
<th>Element Name</th>
<th>Last Restart Event</th>
<th>Time For Time Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no information to report.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CROSS System Restart Processing:**

<table>
<thead>
<tr>
<th>Element Name</th>
<th>Level</th>
<th>Suspended</th>
<th>Last Restart Event</th>
<th>Time For Time Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>DER14ELEM1</td>
<td>00002</td>
<td>No</td>
<td>Element Restarted</td>
<td>298 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Restart TOD: 09/01/1994 08:12:01.962066</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Re-registered: N/A</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WaitPred</td>
<td></td>
</tr>
<tr>
<td>DER15ELEM7</td>
<td>00002</td>
<td>No</td>
<td>Element Restarted</td>
<td>380 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Restart TOD: 09/01/1994 08:12:02.997678</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Re-registered: N/A</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WaitPred</td>
<td></td>
</tr>
<tr>
<td>DER14ELEM1</td>
<td>00003</td>
<td>No</td>
<td>Element Restarted</td>
<td>223 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Restart TOD: 09/01/1994 08:12:03.437495</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Re-registered: N/A</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WaitPred</td>
<td></td>
</tr>
<tr>
<td>DER14ELEM2</td>
<td>00003</td>
<td>Yes</td>
<td>Element Re-registered</td>
<td>299 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Restart TOD: 09/01/1994 08:12:04.911881</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WaitPred</td>
<td></td>
</tr>
<tr>
<td>DER14ELEM4</td>
<td>00004</td>
<td>Yes</td>
<td>Element Re-registered</td>
<td>299 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Restart TOD: 09/01/1994 08:12:05.520138</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Re-registered: 09/01/1994 08:13:19.987219</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WaitPred</td>
<td></td>
</tr>
<tr>
<td>DER14ELEM3</td>
<td>00005</td>
<td>No</td>
<td>Element Restarted</td>
<td>225 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Restart TOD: 09/01/1994 08:12:05.999556</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Re-registered: N/A</td>
<td></td>
</tr>
</tbody>
</table>

**Summary of Cross System Restart Processing:**

<table>
<thead>
<tr>
<th>Element Name</th>
<th>Level</th>
<th>Suspended</th>
<th>Last Restart Event</th>
<th>Time For Time Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>DER14ELEM1</td>
<td>00002</td>
<td>No</td>
<td>Element Restarted</td>
<td>298 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Restart TOD: 09/01/1994 08:12:01.962066</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Re-registered: N/A</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WaitPred</td>
<td></td>
</tr>
<tr>
<td>DER15ELEM7</td>
<td>00002</td>
<td>No</td>
<td>Element Restarted</td>
<td>380 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Restart TOD: 09/01/1994 08:12:02.997678</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Re-registered: N/A</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WaitPred</td>
<td></td>
</tr>
<tr>
<td>DER14ELEM1</td>
<td>00003</td>
<td>No</td>
<td>Element Restarted</td>
<td>223 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Restart TOD: 09/01/1994 08:12:03.437495</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Re-registered: N/A</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WaitPred</td>
<td></td>
</tr>
<tr>
<td>DER14ELEM2</td>
<td>00003</td>
<td>Yes</td>
<td>Element Re-registered</td>
<td>299 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Restart TOD: 09/01/1994 08:12:04.911881</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WaitPred</td>
<td></td>
</tr>
<tr>
<td>DER14ELEM4</td>
<td>00004</td>
<td>Yes</td>
<td>Element Re-registered</td>
<td>299 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Restart TOD: 09/01/1994 08:12:05.520138</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Re-registered: 09/01/1994 08:13:19.987219</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>WaitPred</td>
<td></td>
</tr>
<tr>
<td>DER14ELEM3</td>
<td>00005</td>
<td>No</td>
<td>Element Restarted</td>
<td>225 seconds</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Restart TOD: 09/01/1994 08:12:05.999556</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Re-registered: N/A</td>
<td></td>
</tr>
</tbody>
</table>
**CROSS SYSTEM COUPLING FACILITY (CFRM) SUMMARY report**

This report provides summary information about coupling facility resource management. The CFRM report displays:

- couple data set information
- coupling facility information
- structure information

The following command was issued to produce the CFRM report:

```
COMMAND ===> COUPLE CFRM SUMMARY
```

---

**System Level Information**

Structure full monitoring controls:
- Next scheduled run time: 10/06/2005 11:08:12
- Last run time: 10/06/2005 11:07:41
- Threshold: 80%
- Reclaim Threshold: 95%

Duplex enabled monitoring controls:
- Next scheduled run time: 10/06/2005 11:12:36
- Last run time: 10/06/2005 10:56:52

Active policy versions:
- Primary: 07
- Alternate: 07
- Thread seed: 00003D5A
- Requests queued for processing: Yes
- System based copy in progress: No
- LOCI Address: 02405D28
- CS Word: C0000000
- LossFail LORE Queue: 00000000

---

**Active Policy Information**

<table>
<thead>
<tr>
<th>Data Space Name</th>
<th>Structure Name</th>
<th>StblNum</th>
<th>StblSeq#</th>
</tr>
</thead>
<tbody>
<tr>
<td>IXCDSLO1</td>
<td>IXCLOTBL</td>
<td>00001020</td>
<td>0000652C</td>
</tr>
</tbody>
</table>

---

**Facility Information**

Facilities Known To System: N64

- **Facility Name: FW35CF9**
  - Coupling Facility: 002084.IBM.02.00000006ABEC
  - Partition: 9
  - CPCID: 00
  - CFLevel: 14
  - In Active Policy: Yes
  - Connected: Yes
  - In Use By System: Yes
  - In Cleanup: No
  - Monitored by system: Yes
  - Ownership: SVPLEX1 10/06/2005 09:05:56.736390
  - SYD: B08850EA B918E5F8
  - MFID: 00000003
  - HFS Index: 00000001
  - Address: 7EF4BF40 Flags: A0020000

- **Facility Name: LPF**
  - Coupling Facility: 002094.IBM.02.0000000E346C
  - Partition: F
  - CPCID: 00
  - CFLevel: 14
  - Connections: 6 11:42:06 10/27/05

- **Facility Name: SVT1**
  - Coupling Facility: 002086.IBM.02.0000000C05FD
  - Partition: 1
  - CPCID: 00
  - CFLevel: 14
  - In Active Policy: Yes
  - Connected: Yes
  - In Use By System: Yes
  - In Cleanup: No
  - Monitored by system: No
  - Ownership: SVPLEX1 10/06/2005 10:26:44.930394
XCF and XES

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XCF and XES

```
XLogbasedEvent  THRLOG_2  P  0005B018  00003C53  10/06/2005  11:07:46.597467  N66
XLogbasedEvent  THRLOG_2  P  0005D018  00003C53  10/06/2005  11:07:46.597503  N66
XLogbasedEvent  THRLOG_2  P  0005E018  00003C53  10/06/2005  11:07:46.597606  N66
XLogbasedEvent  THRLOG_2  P  0005F018  00003C53  10/06/2005  11:07:46.597665  N66
RsrConfirmSSID  THRCACDB2_1  P  0005A018  00003C49  10/06/2005  11:07:46.594202
RsrConfirmSSID  THRCACDB2_1  P  0005B018  00003C49  10/06/2005  11:07:46.594202
RsrConfirmSSID  THRCACDB2_1  P  0005C018  00003C49  10/06/2005  11:07:46.594202
RsrConfirmSSID  THRCACDB2_1  P  0005D018  00003C49  10/06/2005  11:07:46.594202
RsrConfirmSSID  THRCACDB2_1  P  0005E018  00003C49  10/06/2005  11:07:46.594202
RsrConfirmSSID  THRCACDB2_1  P  0005F018  00003C49  10/06/2005  11:07:46.594202
```

LOST CDS CONN ON N64 11:42:08 10/27/05

*
XCF and XES

01001306  Ack SsidRelNotify
XLoMsgBasedEvent  THRLSTLOG_2  R 00046808 00003023 10/06/2005 11:07:48.277464 N64
01001306  Ack SsidRelNotify
XLoMsgBasedEvent  THRLSTMQ_3  R 00046018 00003021 10/06/2005 11:07:48.277374 N64
01001306  Ack SsidRelNotify
XLoMsgBasedEvent  THRLSTMQ_2  R 00045808 0000301F 10/06/2005 11:07:48.277317 N64
01001306  Ack SsidRelNotify
XLoMsgBasedEvent  THRLCQGRS_1  R 00045018 00003010 10/06/2005 11:07:48.277256 N64
01001306  Ack SsidRelNotify
XLoMsgBasedEvent  THRLSTMQ_1  R 00044808 00003018 10/06/2005 11:07:48.277187 N64
11001306  Ack SsidRelNotify
11001306  Ack SsidRelNotify
11001306  Ack SsidRelNotify

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This report provides detailed information about groups and their members that are currently defined to the sysplex. The GROUP report displays:
XCF and XES

- the current state of each member in the group
- notifications pending delivery to group exits
- notifications in the process of being delivered to group exits
- group or member requests that are queued for processing

* * * * G R O U P  D E T A I L  R E P O R T  * * * *

GROUPS/MEMBERS DEFINED IN THE SYSPLEX

<table>
<thead>
<tr>
<th>Group: SYSMCS</th>
<th>Member: SYSMCS#MCS</th>
<th>System: N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diag021:00500200 Diag022:00540200</td>
<td>Member State: Created</td>
<td>Memtoken: 00000001 00040001</td>
</tr>
<tr>
<td>Permanent Status Recording: ON</td>
<td>ASID: N/A</td>
<td>Jobname: N/A</td>
</tr>
<tr>
<td>Address Space STOKEN: 00000028 00000001</td>
<td>User State: 04040001 00000024 A87EA568 B5F89905</td>
<td></td>
</tr>
<tr>
<td>Time stamp of last update: 12/06/93 14:11:51</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

History Data (listed in reverse chronological order):

Event: User State Event
Member State Old: Created Member State Old: Created
New: Created New: Created
Time: 12/06/93 14:11:51 Time: 12/06/93 14:11:33

Event: User State Event
Member State Old: Created Member State Old: Created
New: Created New: Created
Time: 12/06/93 14:09:52 Time: 12/06/93 14:06:41

Event: User State Event
Member State Old: Created Member State Old: Created
New: Created New: Created
Time: 12/06/93 14:06:40 Time: 12/06/93 14:06:33

Event: User State Event
Member State Old: Created Member State Old: Created
New: Created New: Created
Time: 12/06/93 14:06:19 Time: 12/06/93 14:06:16

No group exit associated with current member.

Gathered Member Information Report

- Time when data gathered: 01/15/2015 10:54:29.706670
- REAM Address: 0001AD38
- Stalled: Yes
- Causing Sympathy Sickness: No
- Deemed Impaired: No
- Confirmed Impaired: No
- Message Isolated: Yes
- Impactful MISO: Yes
- Impacted by MISO: Yes

Group: B000001D Member: SY3 System: SY3
Diag021:02400400 Diag022:02400400

Member State: Active
Member is message isolated
Member msg isolation impacting local members
Member msg isolation impact being reported
Member impacted by message isolation
Memtoken: 04000086 00230002
Member Function: TESTCASE_XCJTI1C13
Permanent Status Recording: OFF
System Cleanup Participant: NO
Critical: NO
Recovery Manager: NO
Cleanup for local SysGoing: NO
System ID: 04000020
XCF and XES

ASID: N/A
Jobname: XCATIC13
Address Space STOKEN: 000000C8 00000004
Termination level: Task
User State: 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000
Prior member deactivated: 01/15/2015 10:42:59.758975
Member defined: 01/15/2015 10:53:29.122268
Time stamp of last update: 01/15/2015 10:53:29.122268

<table>
<thead>
<tr>
<th>Time of Event</th>
<th>Member State before event</th>
<th>Member State after event</th>
<th>Event Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/15/2015 10:53:29.122268</td>
<td>Not defined</td>
<td>Active</td>
<td>Member State Event</td>
</tr>
</tbody>
</table>

Group exit information not available.

Message Isolation System Impact Report

Source of data: CURY
Isolation sequence#: 1
#Impacted members: 1
Time when window began: 01/15/2015 10:54:29.555772
Time when last delayed: 01/15/2015 10:54:29.587846
Time when last rejected: 01/15/2015 10:54:29.587312
Time when window ended: -
#Delayed during window: 60
#Rejected during window: 30
Total delayed all windows: 60
Total rejected all windows: 30

Gathered Member Information Report

Time when data gathered: 01/15/2015 10:54:29.775429
REAM Address: 0001A2B8
Stalled: Yes
Causing Sympathy Sickness: No
Deemed Impaired: No
Confirmed Impaired: No
Message Isolated: Yes
Impactful MISO: Yes
Impacted by MISO: Yes
Group: B000001D  Member: SY1  System: SY1
Diag021:02400600  Diag022:02400600

Member State: Active
Member is message isolated
Member msg isolation impact being reported
Member impacted by message isolation

Memtoken: 0200000E 00230003
Member Function: TESTCASE_XCJTIC13
Permanent Status Recording: OFF
System Cleanup Participant: NO
Critical: NO
Recovery Manager: NO
Cleanup for local SysGoing: NO
System ID: 0200001F
ASID: X'003E'
Jobname: XCATIC13
Member Association: Task
TCB: 005F8588
Address Space STOKEN: 0000000F8 0000001A
Termination level: Task
User State: 00000000 00000000 00000000 00000000
**COUPLE SERIAL DETAIL report**

This report provides detailed information about the activity associated with the couple data sets. For each type of couple data set, the SERIAL report displays:

- what data sets are in use in the sysplex
- the system's I/O activity to the couple data sets
- active requests affecting the status of the couple data sets
- which resources are being serialized

The following command was issued to produce the SERIAL report:

```
COMMAND==> COUPLE SERIAL DETAIL
          * * * SERIAL DETAIL REPORT * * *
          COUPLE DATA SET INFORMATION
          -----------------------------
Type: CFRM (IXCLOFD)
Primary Data Set: SYS1.PFUNCT.CTTEST
  Volume Serial: FDSXPK
  IOSB: 01C011B0
+0000 FLA...... 00000000 C0 FLA...... 80 FLA...... 20
  FLB...... 80 FLC...... 20
  FLA...... 44
PR. 00 DVRID.... 01 FLD...... 44
+0006 ASID..... 0006 PGAD..... FF6EA76B PKEY..... 00
  OPT...... 94 OPT2..... 80
  C0. 7F OPT...... 94 OPTZ...... 80
+0010 UCB...... 00F0E9A8 CCWAD.... 01513F48 DSTAT.... 0C
  SS. 00 CSWRC.... 0001
+001C SRB...... 01C0121C USE....... 7F56B050 IPID.... 00000000
  4007 SNS...... 0000
+002C IPIB..... 00000000 PCHN...... 00000000 ERP.... 00000000
  PC. 00000000 NRM...... FF6EA55B
+0040 ABN...... FF6E9F90 DIE....... FF6E9C80 RST.... 0163ED98
  VS. 7F56B098 DSID...... 00000000 LEVEL.... 01
```

XCF and XES
**XCF and XES**

+0055 GPMSK..... 00  DCTI..... 0000  FMSK..... 00
   CK. 00  MDB...... 00  MDM...... 00
+005C RSV...... 00000000  CTC...... 00000300  SKM...... 00
   SK. 0000  SKCC..... 0000  SKH1..... 00
+006A SKH2..... 03  SKR...... 00

Diag008: 00000000 00000000 00000000 00000000 00000000 00000000
Diag009: 00000000 00000000 00000000 7F56BE68 7F58303B
Diag047: 00000000 00 B0110000 00
Alternate Data Set: SYS1.AFUNCT.CTTEST
Volume Serial: FDSPKA

IOSB: 01C0124B
+0000 FLA....... C0  FLB....... 80  FLC....... 20
   PR. 00  DVRID.... 01  FLD...... 44
+0006 ASID..... 0006  PGAD..... FF6E7688  PKEY..... 00
   CO. 7F  OPT...... 94  OPT2...... 80
+0010 UCB....... 00F0EA28  CCWAD.... 0151E80  DSTAT.... OC
   SS. 00  CSWR.... 0001
+001C SRB....... 01C01D84  USE.... 7F56BE68  IOPID.... 00000000
   SC. 4007  SNS...... 0000
+002C IPIB....... 00000000  PCCHN..... 00000000  ERP...... 00000000
   PC. 00000000  NRM...... FF6EA558
+0040 ABN....... FF6E9F90  DIE...... FF6E9C80  RST...... 0163E0F0
   VS. 7F56BE0  DSID...... 00000000  LEVEL...... 01
+0055 GPMSK..... 00  DCTI..... 0000  FMSK..... 00
   CK. 00  MDB...... 00  MDM...... 00
+005C RSV...... 00000000  CTC...... 00000300  SKM...... 00
   SK. 0000  SKCC..... 0000  SKH1..... 00
+006A SKH2..... 03  SKR...... 00

Diag008: 00000000 00000000 00000000 00000000 00000000 00000000
Diag009: 00000000 00000000 00000000 7F56BE68 7F58304C
Diag047: 00000000 00 B01150000 00
Type: SFM (IXCAPFD)
   Primary Data Set: XCF.XCJSFT99.SFMFD01
   Volume Serial: Y36WRK

IOSB: 01C041DB
+0000 FLA....... C0  FLB....... 80  FLC....... 20
   PR. 00  DVRID.... 01  FLD...... 44
+0006 ASID..... 0006  PGAD..... FF6E7688  PKEY..... 00
   CO. 7F  OPT...... 94  OPT2...... 80
+0010 UCB....... 00F21250  CCWAD.... 0095D4F0  DSTAT.... 0C
   SS. 00  CSWR.... 0001
+001C SRB....... 01C041244  USE.... 7F56BE0  IOPID.... 00000000
   SC. 4007  SNS...... 0000
+002C IPIB....... 00000000  PCCHN..... 00000000  ERP...... 00000000
   PC. 00000000  NRM...... FF6EA558
+0040 ABN....... FF6E9F90  DIE...... FF6E9C80  RST...... 0112CD98
   VS. 7F56BE0  DSID...... 00000000  LEVEL...... 01
+0055 GPMSK..... 00  DCTI..... 0000  FMSK..... 00
   CK. 00  MDB...... 00  MDM...... 00
+005C RSV...... 00000000  CTC...... 00000300  SKM...... 00
   SK. 0000  SKCC..... 0000  SKH1..... 00
+006A SKH2..... 03  SKR...... 00

Diag008: 00000000 00000000 00000000 00000000 00000000 00000000
Diag009: 00000000 00000000 00000000 7F57D080 7F58304C
Diag047: 00000000 00 B01500000 00
Type: SFM (IXCAPFD)
   Primary Data Set: SYS1.ACOUPLE
   Volume Serial: CPLPKA
XCF and XES

I/O ACTIVITY ON THE DATA SET
-------------------------------------
Type: CFRM (IXCLOFD)
Primary I/O Activity:
There is no I/O activity on the data set.
Alternate I/O Activity:
There is no I/O activity on the data set.
Type: SFM (IXCAPFD)
Primary I/O Activity:
There is no I/O activity on the data set.
Alternate I/O Activity:
The data set is not functional.
Type: SYSPLEX (IXCLKMD)
Primary I/O Activity:
There is no I/O activity on the data set.
Alternate I/O Activity:
The data set is not functional.

XCF SERIALIZATION DATA SET REQUESTS
--------------------------------------
Diag005: 00000000 00000000 00000000 00000000 00000000 00000000
Diag051: 00000000 00000000
No data set requests to report on.

XCF SERIALIZATION RESOURCES
---------------------------
Resource ID: 003D0954
Dataspace: IXCDSLK1
  Request ID: 00013018
  Request Type: 00000000
  Record Type/Number: IXCLOACP 00000001
  Record Subtype/Number: IXCLOHDW
  IXCLOIDX
  IXCLOTBL 000000A
  Ownership: Global Waiter
  Owning System: S2
  Diag002: 00000000
  Diag054: 0000138C 0000138C

MISCELLANEOUS XCF SERIALIZATION ACTIVITY
------------------------------------------
Diag055: 00000000 00013018 00000000 00000000 00000000 00000000 00000000
No exceptional conditions were found in the SERIAL DETAIL report generator.

*** END OF COUPLE (CROSS-SYSTEM COUPLING FACILITY) REPORT ***

COUPLE SIGNAL SUMMARY report
This report provides detailed information about XCF signalling and communication services. The following command was issued to produce the COUPLE SIGNAL SUMMARY report:

COMMAND====> COUPLE SIGNAL SUMMARY
**XCF and XES**

* *** SIGNAL SUMMARY REPORT *** *

**XCF SIGNALLING DEFINITIONS FOR SYSTEM B7VBID86**

Default Maxmsg: 3,000  
Default Retry Limit: 10  
Default Class Length: 956

<table>
<thead>
<tr>
<th>Transport</th>
<th>Class Length</th>
<th>Assigned Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEFAULT</td>
<td>3,000</td>
<td>UNDESIG</td>
</tr>
</tbody>
</table>

Outbound Path Maxmsg Retry Transport

<table>
<thead>
<tr>
<th>Signalling Path Type</th>
<th>Limit</th>
<th>Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>08E0</td>
<td>3,000</td>
<td>10</td>
</tr>
<tr>
<td>08E1</td>
<td>3,000</td>
<td>10</td>
</tr>
</tbody>
</table>

Inbound Path Maxmsg Retry

<table>
<thead>
<tr>
<th>Signalling Path Type</th>
<th>Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>0CE2</td>
<td>3,000</td>
</tr>
<tr>
<td>0CE3</td>
<td>3,000</td>
</tr>
</tbody>
</table>

**XCF SIGNALLING CONNECTIVITY SUMMARY FOR SYSTEM B7VBID86**

Summary of outbound connectivity from B7VBID86 to indicated systems:

<table>
<thead>
<tr>
<th>System Number</th>
<th>Connectivity</th>
<th>Event Time of Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>B7VBID87 01000001</td>
<td>Signals transferred</td>
<td>01/19/2009 17:37:50.479915</td>
</tr>
</tbody>
</table>

Summary of inbound connectivity to B7VBID86 from indicated systems:

<table>
<thead>
<tr>
<th>System Number</th>
<th>Connectivity</th>
<th>Event Time of Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>B7VBID87 01000001</td>
<td>Signals transferred</td>
<td>01/19/2009 17:37:50.479915</td>
</tr>
</tbody>
</table>

**XCF SIGNALLING PATH SUMMARY FOR SYSTEM B7VBID86**

Summary of outbound paths from B7VBID86 to indicated systems:

<table>
<thead>
<tr>
<th>System Number</th>
<th>Path Type</th>
<th>Status</th>
<th>Status Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>B7VBID87 08E0</td>
<td>CTC</td>
<td>Idle</td>
<td>01/19/2009 17:37:48.219701</td>
</tr>
<tr>
<td>B7VBID87 08E1</td>
<td>CTC</td>
<td>Idle</td>
<td>01/19/2009 17:37:48.219701</td>
</tr>
</tbody>
</table>

Summary of inbound paths to B7VBID86 from indicated systems:

<table>
<thead>
<tr>
<th>System Number</th>
<th>Path Type</th>
<th>Status</th>
<th>Status Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCE2</td>
<td>CTC</td>
<td>Inoper</td>
<td>01/19/2009 08:38:33.366466 Start request failed</td>
</tr>
<tr>
<td>OCE3</td>
<td>CTC</td>
<td>Inoper</td>
<td>01/19/2009 08:38:33.366372 Start request failed</td>
</tr>
</tbody>
</table>

**XCF DELIVERY STATUS SUMMARY FOR SIGNALS OUTBOUND FROM SYSTEM B7VBID86**

<table>
<thead>
<tr>
<th>Outbound Path</th>
<th>Target Path</th>
<th>Last Signal</th>
<th>Last Signal</th>
<th>Last Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>08E0</td>
<td>B7VBID87</td>
<td>49,221</td>
<td>49,221</td>
<td>49,218</td>
</tr>
<tr>
<td>08E1</td>
<td>B7VBID87</td>
<td>90,056</td>
<td>90,056</td>
<td>90,055</td>
</tr>
</tbody>
</table>

**XCF DELIVERY STATUS SUMMARY FOR SIGNALS INBOUND TO SYSTEM B7VBID86**

<table>
<thead>
<tr>
<th>Inbound Source</th>
<th>Source Path</th>
<th>Last Signal</th>
<th>Last Signal</th>
<th># Read</th>
<th>#Messages</th>
</tr>
</thead>
</table>

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XCF and XES

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XCF and XES

... XCF SUMMARY OF MESSAGES LOCAL TO SYSTEM B7VBID86

<table>
<thead>
<tr>
<th>Group</th>
<th>Source Member</th>
<th>Target Member</th>
<th>Signal Status</th>
<th>Signal Token</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSMCS B7VBID86</td>
<td>B7VBID86</td>
<td>Deliver</td>
<td>0002D000</td>
<td>00000000</td>
</tr>
</tbody>
</table>

XCF SIGNALLING WORK REQUEST SUMMARY FOR SYSTEM B7VBID86

<table>
<thead>
<tr>
<th>System</th>
<th>Work Request Name</th>
<th>Additional Work Request Data</th>
<th>Time Request Initiated</th>
<th>Diag041</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There is no information to report.
IXC80305I SIGNAL SUMMARY report encountered one or more validity check warnings.
IXC80308I Run COUPLE SIGNAL EXCEPTION report.
IXC80307I SIGNAL SUMMARY report encountered one or more storage access failures, reported data may be incomplete.

* * * END OF COUPLE (CROSS-SYSTEM COUPLING FACILITY) REPORT * * *

COUPLE SIGNAL DETAIL report

This report provides detailed information about XCF signalling and communication services. Information is presented for signalling using CTCs or using a coupling facility. This information includes:

- signalling path definitions
- signalling connectivity data
- data for specific signalling paths
- signal delivery data
- signalling buffer usage
- messages sent using signalling
- signalling work requests
- signalling information for all servers defined on the dump system in response (EXPAND)

The following command was issued to produce the SIGNAL report:

```bash
COMMAND==> COUPLE SIGNAL DETAIL GRPNAME(SYSIGW01)
```

** ** ** SIGNAL DETAIL REPORT ** ** **

XCF SIGNALLING DEFINITIONS FOR SYSTEM B7VBID86

<table>
<thead>
<tr>
<th>Transport MaxMsg Class</th>
<th>Maxmsg:</th>
<th>Default Retry Limit:</th>
<th>Default Class Length:</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEFAULT</td>
<td>3,000</td>
<td>10</td>
<td>956</td>
</tr>
</tbody>
</table>

XCF SIGNALLING CONNECTIVITY DETAIL FOR SYSTEM B7VBID86

Detail of outbound connectivity from B7VBID86 to indicated systems:

<table>
<thead>
<tr>
<th>Target System</th>
<th>Signalling</th>
<th>Connectivity</th>
<th>Connectivity Event</th>
<th>Time of Event</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
XCF and XES

Chapter 27. Sysplex Services (XCF and XES)
XCF and XES

Diagnostics

Diag030: 027388A0 00000005 00000000 00000001 00000001
Diag031: 00000004 00000000 A0420000 00040000
Diag032: 01

IOSB: 02738E08

+0000 FLA...... 40 FLB...... 00 FLC...... 2A PROC...... 00 DVRID.... 16 FLD...... 38
+0006 ASID...... 0086 PGAD...... FF488A0 PKEY...... 00 COO...... 7F OPT...... 94 OPT2...... C0
+0010 UCW...... 00F1E8C8 CWWAD...... 0C840067 DSTAT...... 00 SSTAT...... 00 CSWRC...... 0000
+001C SBR...... 02738C74 USE...... 00000000 IOVID...... 00008000 SCHK...... 4029 SNS...... 0000
+002C IPIB...... 000000000000000000 PCH...... 16000000 PCI...... FF485440 NNK...... FF488A0
+0040 ABN...... FF488A0 DUE...... FF487C7F0 RST...... 0C84D868 VST...... 00041868 DSID...... 027388A0 LEVEL.... 01
+0055 GMK...... 0000 OCT1...... 0000 FMC...... 0000 CKY...... 0000 MMD...... 0000
+0060 UTC...... 000000000000000000 SKB...... 0000 SKCC...... 0000 SKH1...... 00 SKH2...... 00

IOS: 02738E08

+0000 FLA...... 40 FLB...... 00 FLC...... 2A PROC...... 00 DVRID.... 16 FLD...... 38
+0006 ASID...... 0086 PGAD...... FF488A0 PKEY...... 00 COO...... 7F OPT...... 94 OPT2...... C0
+0010 UCW...... 00F1E8C8 CWWAD...... 0C840067 DSTAT...... 00 SSTAT...... 00 CSWRC...... 0000
+001C SBR...... 02738C74 USE...... 00000000 IOVID...... 00008000 SCHK...... 4029 SNS...... 0000
+002C IPIB...... 000000000000000000 PCH...... 16000000 PCI...... FF485440 NNK...... FF488A0
+0040 ABN...... FF488A0 DUE...... FF487C7F0 RST...... 0C84D868 VST...... 00041868 DSID...... 027388A0 LEVEL.... 01
+0055 GMK...... 0000 OCT1...... 0000 FMC...... 0000 CKY...... 0000 MMD...... 0000
+0060 UTC...... 000000000000000000 SKB...... 0000 SKCC...... 0000 SKH1...... 00 SKH2...... 00

Subchannel-identification:

CSS id 00
Iid/SSid 01
Number 0026

PMCW1.... 2888 MBI...... 0000 LPM...... 80 LPUM...... 80 PIM...... 80
CHP1...... 0000 CHPRM.... 00 SATI...... 00

Actual UCB Common segment address 00F1E8C8
Device is installation-static

System Name: B7VBID86
Pathout Pathin
-------- --------
Defined: YES YES
Visible to other systems: YES YES
Maxmsg: 3,000 K 3,000 K
Transport Class: DEFAULT N/A
Retry Limit: 10 10

Hardware

Connection Name: SIGPATH_03000003
Connect Token: IXCLO015 7F139100 00030001
Connect Version ID: 00030001
Structure Version ID: C39EB5A6 4D45DF8F
Maximum Structure Size: 10 M
Actual Structure Size: 10 M
Number Lists: 64
Maximum number signalling paths: 56
Maximum number elements: 636
Maximum number entries: 665
Vector Token: 0271D800 155B6A58 155B6A58
Vector Length: 32

List Signalling Paths
Other Pathout from Pathin to
System B7V81086 B7V81086
-----------------------------------------
B7V81087 Started Started

Path Connection
Acceptable: YES
Connect Status: Completed IXLCONN RC/RSN: 00000000 00000000
Disconnect Status: N/A
Rebuilding: NO
Rebuild Connect Status: N/A

Signal Transfer

Inbound List Transition: 01/19/2009 17:37:40.878427
Sending Vector
System Index Active #Transitions List# Diag043 Diag084
-----------------------------------------
B7V81087 3 NO 2568 9 0248D000 7FEF0570

Path Monitor
Structure Status: Working
Pathout Status: Working
Pathin Status: Working

Path Requests

<table>
<thead>
<tr>
<th>Dir</th>
<th>Time Request Initiated</th>
<th>Request Reason CC</th>
<th>Diag073</th>
</tr>
</thead>
</table>

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XCF and XES

---

In 01/19/2009 14:38:36.746008 Start Operator request 00 08690004 0E014B00 00000000 00000000 00000000
Out 01/19/2009 14:38:42.633309 Start Operator request 00 08690004 0E014B00 00000000 00000000 00000000
Str 01/19/2009 14:38:43.376300 Restart Refresh control data from structure 00 087E0206----

Path Request History

<table>
<thead>
<tr>
<th>Dir</th>
<th>Time Request Recorded</th>
<th>Request</th>
<th>Reason</th>
<th>Req#</th>
<th>Diag074</th>
<th>044</th>
<th>037</th>
<th>038</th>
<th>039</th>
<th>087</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There is no information to report.

Diagnostics

Diag030: 7EF6C768 00000001 00000000 00000000 00000000
Diag042: 7EF6C768

Signalling Path Definition for: Structure IXC1 LIST# 8

System Name: B7VBID86
Direction: Outbound
Maxmsg: 3,000 K
Transport Class: DEFAULT
Retry Limit: 10

Hardware

Connect Token: IXCLO015 7F139100 00030001
Connect Version ID: 00030001
List limit: 320
Diag062: 7EF6C768
Diag084: 7EF6C768

Current Resource Status

Message length: 956
Buffer space in use: 0 K
Signal format: SP510

Path Connection

State: Operational
Last established at time: 01/19/2009 14:38:43.698393
Last established at signal: 0
Outbound Inbound

System Name: B7VBID86 B7VBID87
System Number: 03000003 01000001
Connection: Local Establshd
Desired Signal format: SP510 SP510
Diag083: 0001 0001
Diag085: 01/19/2009 14:38:43.383935 03000003 00000000
Diag086: 03000001 00030001 01000001 00010001 00000000 01400000 00010001 00000006

Signal Transfer

Status: Idle
#Sent when idle: 305
#Sent when busy: 15
First signal in working set: 15,149
Last signal in working set: 15,149
#Completed: 1
#Failed: 0
#Active: 0
#To do: 0

Signal# Status Token
------------- ------ --------
There is no information to report.

Path Monitor

Status: Idle
Path operational at time: 01/19/2009 17:37:48.219701
Duration of inactivity: 0 Seconds
Last signal monitored: 15,149
Last signal completed: 15,149
#Path start/restarts: 4
Retry count: 0

Path Requests

Time Request Initiated Request Reason CC Diag073
------------------------------------------------------
01/19/2009 14:38:42.643269 Start System started to use structure 00 08180001 08710000 4A000008 00000000 00000000
01/19/2009 14:38:43.383185 Restart Reset parameters 00 087C021B 00000140 00000281 00000002 01400000

Path Request History

<table>
<thead>
<tr>
<th>Time Request Recorded</th>
<th>Request</th>
<th>Reason</th>
<th>Req#</th>
<th>Diag074</th>
<th>044</th>
<th>037</th>
<th>038</th>
<th>039</th>
<th>087</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There is no information to report.

Diagnostics

Diag030: 02378A90 00000005 00000000 00000000 00000001 00000001
Diag031: 00000004 00000000 00000000 00000000 00000000
Diag032: 01 00

Signalling Path Definition for: Structure IXC1 LIST# 9

System Name: B7VBID86
Direction: Inbound
Maxmsg: 3,000 K
Transport Class: N/A
Retry Limit: 10

Hardware

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XCF and XES

Connect Token: IXCLO015 7FL39100 00030001
Connect Version ID: 00030001
List limit: 0
Diag042: 7EFC76B
Diag04: 7EFC054B
Current Resource Status
Message length: 956
Buffer space in use: 0 K
Signal format: SP50
Path Connection
State: Operational
Last established at time: 01/19/2009 14:38:43.381254
Last established at signal: 1
Outbound
Inbound
System Name: B7VBID87 B7VBID86
System Number: 01000001 03000003
Connection: Estblshed Local
Desired Signal format: SP50 SP50
Diag083: 0001 0001
Diag085: 01/19/2009 14:38:42.645802 03000003 00000000
Diag086: 01000001 00010001 03000003 00030001
00000000 00000000 00010001 00000003

Signal Transfer
Status: Stalled
First signal in working set: 15,101
Last signal in working set: 15,104
#Completed: 1
#Failed: 0
#Active: 0
#To do: 0

Signal# Status Token
------------- ------ --------

There is no information to report.

Path Monitor
Status: Stalled
Path operational at time: 01/19/2009 17:37:41.927091
Duration of inactivity: 6 Seconds
Last signal monitored: 15,102
Last signal completed: 15,101
#No buffer conditions: 0
#Path start/restarts: 3
Retry count: 0

Path Requests
Time Request Initiated Request Reason CC Diag073
---------------------------------------------------------------------
01/19/2009 14:38:42.643280 Start System started to use structure 00 08710000 00000000 00000000 00000000
01/19/2009 14:38:43.376275 Restart Start converted to restart 00 08710000 08710000 08710000 08710000 08710000 08710000

Path Request History
Time Request Recorded Request Reason Req# Diag074 044 037 038 039 087
---------------------------------------------------------------------

There is no information to report.

Timings for Recent Signal Transfers
Source Memtoken TOD When MSGO Requested Queue Time Transfer Time TOD When Arrived Token
---------------------------------------------------------------------
01000001 00000008 - - - 01/19/2009 17:37:01.072678 00044800
01000001 00000008 - - - 01/19/2009 17:37:01.072685 000BC000

Diagnostics
Diag030: 024BD0E0 00000005 00000000 00000001 00000001
Diag031: 00000004 00000000 00400008 00040800
Diag032: 01

The next output shows the signalling path details that are presented for each outbound and inbound path. This information is omitted from the previous example.

XCF DELIVERY STATUS SUMMARY FOR SIGNALS OUTBOUND FROM SYSTEM B7VBID86
---------------------------------------------------------------------
Outbound Target Target Path Last Signal Last Signal Last Signal
CTC Path CTC System Status Accepted Completed
---------------------------------------------------------------------
08E0 0CEF B7VBID87 Idle 49,221 49,221 49,218
08E1 0DCE B7VBID87 Idle 90,056 90,056 90,055
Outbound Target Path Last Signal Last Signal Last Signal
List Path System Status Accepted Completed
---------------------------------------------------------------------
IXC1 B7VBID87 Idle 15,149 15,149 15,149
Target Last InOrder #Pending Msgs Last Pending
System Msg Sent Being Held Msg Queued
### XCF Delivery Status Summary for Signals Inbound to System B7VBID86

<table>
<thead>
<tr>
<th>Source</th>
<th>Path</th>
<th>Status</th>
<th>Completed</th>
<th>Active</th>
<th>In Delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTC Path</td>
<td>CTC System</td>
<td>Last Signal</td>
<td># Read</td>
<td>#Messages</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>----------</td>
<td>-------------</td>
<td>--------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>OCEE</td>
<td>B7VBID87</td>
<td>Working</td>
<td>55,580</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

### Inbound List Source Path Last Signal # Read #Messages

<table>
<thead>
<tr>
<th>Source</th>
<th>Path</th>
<th>Status</th>
<th>Completed</th>
<th>Active</th>
<th>In Delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>IXCI</td>
<td>B7VBID87</td>
<td>Stalled</td>
<td>15,101</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### XCF Delivery Status Summary for Signals Local to System B7VBID86

Transport #Messages

- There is no information to report.

### XCF Delivery Status Summary for Managed Messages Sent by System B7VBID86

Broadcast, get response, and queued messages

<table>
<thead>
<tr>
<th>Group</th>
<th>Source</th>
<th>Member</th>
<th>#Targ</th>
<th>Pend</th>
<th>Resp Status</th>
<th>Message ID</th>
<th>Message Anchor</th>
<th>Signal Token</th>
</tr>
</thead>
</table>

- There is no information to report.

### XCF Delivery Status Detail for Members on System B7VBID86

Detail of signal transfers for group: SYSIGW01 member: IGWCLM01B7VBID86 memtoken: 03000001 00030004

<table>
<thead>
<tr>
<th>Source Memtoken</th>
<th>TOD When MSGO Requested</th>
<th>Queue Time</th>
<th>Transfer Time</th>
<th>TOD When Arrived</th>
<th>Diag043</th>
</tr>
</thead>
<tbody>
<tr>
<td>01000001 00030002</td>
<td>01/19/2009 08:38:43.94234</td>
<td>00:00:00.000002</td>
<td>00:00:00.000051</td>
<td>01/19/2009 08:38:43.942442</td>
<td>02729390</td>
</tr>
</tbody>
</table>

Detail of buffer sizes used by group: SYSIGW01 member: IGWCLM01B7VBID86 memtoken: 03000001 00030004

### XCF Buffer Usage Summary for Signals Outbound from System B7VBID86

<table>
<thead>
<tr>
<th>Target Transport Class</th>
<th>Msglen</th>
<th>Buff Space</th>
<th>Buff Space</th>
<th>#No Buffer Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Length In Use In Use (K) Allowed (K)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEFAULT</td>
<td>956</td>
<td>956</td>
<td>8</td>
<td>12,000</td>
</tr>
</tbody>
</table>

### XCF Buffer Usage Summary for Signals Inbound to System B7VBID86

<table>
<thead>
<tr>
<th>Source</th>
<th>Inbound Path</th>
<th>Msglen</th>
<th>Buff Space</th>
<th>Buff Space</th>
<th>#No Buffer Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Signalling Path Type In Use In Use (K) Allowed (K)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OCEE</td>
<td>CTC</td>
<td>956</td>
<td>0</td>
<td>3,000</td>
<td>0</td>
</tr>
<tr>
<td>IXCI</td>
<td>LIST</td>
<td>4,028</td>
<td>0</td>
<td>3,000</td>
<td>0</td>
</tr>
</tbody>
</table>

### XCF Buffer Usage Summary for Signals Local to System B7VBID86

<table>
<thead>
<tr>
<th>Transport Class</th>
<th>Msglen</th>
<th>Buff Space</th>
<th>Buff Space</th>
<th>#No Buffer Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Length In Use In Use (K) Allowed (K)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEFAULT</td>
<td>956</td>
<td>956</td>
<td>2</td>
<td>3,000</td>
</tr>
</tbody>
</table>
COUPLE SYSPLEX DETAIL report

This report provides detailed information about status and monitoring for systems and group members in the sysplex. System and subsystem monitoring information is included, such as:

- member monitoring status
- request and pending notifications to a member
- status of requests for sysplex partitioning
- SFM policy

The following command was issued to produce the SYSPLEX report:

COMMAND===> COUPLE SYSPLEX DETAIL

In this report, system B7VB0032 is being partitioned as a result of connector termination. The SYSPLEX PARTITIONING REQUESTS sections show the ongoing removal of system B7VB0032.

* * * * SYSPLEX DETAIL REPORT * * * *

SYSPLEX STATUS

******************************
Number of active systems: 2
Number of IPLing systems: 0
Number of inactive systems: 0
Number of systems being removed: 1
Number of systems detected stopped: 0
PR/SM policy status: N/A
Active PRSMPOLICY PARMLIB member: N/A
Systplex failure management status: ACTIVE
Started syplex failure management policy: WCNTEST
TOD when policy activated: 09/15/2009 12:36:19.03968
TOD when policy last updated: 09/15/2009 12:31:15.787810

Systplex Failure Management Specifications for Current Policy

**************************************************************************************
CONNFAIL(NO)
SYSTEM(-)
WEIGHT(10) PROMPT
CFSTRHANGTIME(NO)
SYSTEM(B7VB0032)
WEIGHT(10) PROMPT
CFSTRHANGTIME(45)

There are no systplex failure management requests outstanding.

System Status Detection partitioning protocol connection status:
B7VB0032 could not connect to any systems: BCP1I SERVICES NOT AVAILABLE

STATUS FOR EACH SYSTEM

******************************
System ID: 01000002 System Name: B7VB0031
SYSTEM MONITOR STATUS
******************************
XCF level: 0105010B
ETR ID: 15 Clock Status: Simulated ETR Timing Mode: ETR
System failure detection interval: 88 seconds

840 z/OS V2R2 MVS Diagnosis: Reference
System operator notification interval: 91 seconds
System indeterminate status action: PROMPT
System SSUMLIMIT: NONE
Interval since last status update: 3 seconds
Date and time of last status update: 09/15/2009 13:12:17.838631
Sysplex partitioning is not active for this system.

MEMBER MONITORING REQUESTS PENDING

Members(s) pending monitoring: 0

MEMBERS BEING MONITORED

<table>
<thead>
<tr>
<th>Grp Name</th>
<th>Member Name</th>
<th>Memtoken</th>
<th>Interval</th>
<th>Current Status</th>
<th>Event TOD</th>
<th>Event Type</th>
<th>Diag028</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSGRS</td>
<td>SY1</td>
<td>01000004</td>
<td>00020001</td>
<td>18,000 Normal</td>
<td>08/05/2009 15:46:36.147981 Last Good Stat 0001D018</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYSID0501</td>
<td>SY1</td>
<td>01000002</td>
<td>00010001</td>
<td>200 Normal</td>
<td>08/05/2009 15:46:36.147981 Last Good Stat 0001D090</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYSID0PX</td>
<td>SY1</td>
<td>01000002</td>
<td>00010001</td>
<td>200 Normal</td>
<td>08/05/2009 15:46:36.147981 Last Good Stat 0001D108</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SYSJES</td>
<td>SY1</td>
<td>01000002</td>
<td>00010001</td>
<td>30,000 Normal</td>
<td>08/05/2009 15:46:33.001506 Last Good Stat 0001D180</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GROUP1</td>
<td>MEMBER1</td>
<td>01000002</td>
<td>00180001</td>
<td>800 Confirmed SUM</td>
<td>08/05/2009 15:45:38.464720 Confirmed Sum 0001D450</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Members(s) being monitored: 10

System ID: 02000003 System Name: B7VB0032

SYSTEM MONITOR STATUS

XCF level: 0105010B
ETR ID: 15 Clock Status: Simulated ETR Timing Mode: ETR
System failure detection interval: 88 seconds
System operator notification interval: 91 seconds
System indeterminate status action: PROMPT
System SSUMLIMIT: NONE
Interval since last status update: 0 seconds
Date and time of last status update: 09/15/2009 13:12:20.858425
System recovery processing is being handled by: B7VB0031

SYSPLEX PARTITIONING STATUS

Primary reason for partitioning: Connector termination
Other reasons: None
Monitor: B7VB0031
Active: Yes
Reset: No
Gone sent: No

SYSPLEX PARTITIONING REQUESTS

<table>
<thead>
<tr>
<th>Request Type</th>
<th>Wait</th>
<th>SPRE</th>
<th>Primary Reason / Other Reason(s)</th>
<th>Code</th>
<th>Retain</th>
<th>C/Q</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiate</td>
<td></td>
<td></td>
<td>Connector termination</td>
<td>001880A2</td>
<td>Yes</td>
<td>C</td>
<td>00019018</td>
</tr>
</tbody>
</table>

MEMBER MONITORING REQUESTS PENDING

Members(s) pending monitoring: 0

MEMBERS BEING MONITORED

Members(s) being monitored: 0

No monitor notifications are pending for this system.

**COUPLE SYSPLEX EXCEPTION report**

This report provides detailed information about the exception state of signal exit SRB's for systems and group members in the sysplex.

The following command was issued to produce the EXCEPTION report:

COMMAND=> COUPLE SYSPLEX EXCEPTION

**** SYSPLEX EXCEPTION REPORT ****

SYSPLEX STATUS

- Number of active systems: 2
- Number of IPLing systems: 0
- Number of inactive systems: 0
- Number of systems being removed: 0
- Number of systems detected stopped: 0
- PR/SM policy status: N/A
- Active PRSM/SCHEMA member: N/A
XCF and XES

BLS18100I ASID(X'0006') DSPNAME(IXCAP1DS) DO not available
Sysplex failure management status: NOT ACTIVE
Started sysplex failure management policy: N/A

STATUS FOR EACH SYSTEM
------------------------
System ID: 01000006 System Name: SY1

MEMBER MONITORING EXCEPTIONS
-------------------------------
Grp Name Member Name Memtoken Interval Current Status Event TOD Event Type Diag028
-------- ----------------- ----------------- --------- -------------------- -------------------------- -------------- --------
GROUP1 MEMBER1 01000002 001B0001 800 Confirmed SUM 08/05/2009 15:45:38.464720 Confirmed Sum 0001D450

BLS18100I ASID(X'0006') DSPNAME(IXCAP1DS) 40000000 not available
System ID: 02000007 System Name: SY2
No exceptions were found for this system.

* * * * END OF COUPLE (CROSS-SYSTEM COUPLING FACILITY) REPORT * * * *

Formatting dump data using the IPCS subcommand - XESDATA

Format the SVC dump or stand-alone dump with the IPCS XESDATA subcommand to produce diagnostic reports about XES. [z/OS MVS IPCS Commands](https://www.ibm.com) gives the syntax of the XESDATA subcommand. The dump may also contain component trace data for XES. See the component trace chapter of [z/OS MVS Diagnosis: Tools and Service Aids](https://www.ibm.com) for information on how to format this trace data.

XESDATA divides the information about XES into multiple reports. Each report corresponds to the following XESDATA keywords in [Table 62](https://www.ibm.com)

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Report Displays</th>
<th>See topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>CACHE</td>
<td>Information about outstanding cache requests for this system.</td>
<td>&quot;XESDATA CACHE DETAIL report&quot; on page 843</td>
</tr>
<tr>
<td>CONNECTION</td>
<td>Information about connectors to structures in the coupling facility</td>
<td>&quot;XESDATA CONNECTION DETAIL report&quot; on page 845</td>
</tr>
<tr>
<td>FACILITY</td>
<td>Information about the coupling facilities and coupling facility structures known to the system.</td>
<td>&quot;XESDATA FACILITY DETAIL report&quot; on page 848</td>
</tr>
<tr>
<td>LIST</td>
<td>Information about outstanding list requests for this system.</td>
<td>None</td>
</tr>
<tr>
<td>LOCK</td>
<td>Information about outstanding lock requests for this system.</td>
<td>&quot;XESDATA LOCK DETAIL report&quot; on page 851</td>
</tr>
<tr>
<td>LOCKMGR</td>
<td>Information about lock resources managed globally by the system.</td>
<td>&quot;XESDATA LOCKMGR DETAIL report&quot; on page 853</td>
</tr>
<tr>
<td>LOCKRESOURCE</td>
<td>Information about the local lock resources owned or requested by the system.</td>
<td>&quot;XESDATA LOCKRESOURCE DETAIL report&quot; on page 855</td>
</tr>
<tr>
<td>TRACE</td>
<td>Information about SYSXES component traces for all connectors whose data is including in the dump.</td>
<td>&quot;XESDATA TRACE DETAIL report&quot; on page 858</td>
</tr>
</tbody>
</table>
Table 62. Summary of XESDATA keywords (continued)

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Report Displays</th>
<th>See topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>XESSTACK</td>
<td>Information about Cross System Extended Services execution flow. This report contains diagnostic information for IBM Service personnel.</td>
<td>None</td>
</tr>
</tbody>
</table>

Remember:
1. For IPCS information before z/OS V2R1, see the corresponding release documentation in the [http://www.ibm.com/systems/z/os/zos/bkserv/](http://www.ibm.com/systems/z/os/zos/bkserv/)
2. For ease of use, all report examples and repetitive information is in summary format. The examples might look slightly different than they display on your system.

**XESDATA CACHE DETAIL report**

This report provides detailed information about cache requests for this system. The following command was issued to produce a CACHE report:

```
COMMAND====> XESDATA CACHE DETAIL
```

Options list:
- Report(s)........... CACHE
- Level(s) of detail..... DETAIL
- Filter(s) in use....... NONE

Sysplex name.......... PLEX1
System name........... B7V80027
Facility name........... LF01
Structure name........... DITCACHE02
ASID................ X'0021'
Jobname................ MAINASID
Structure has data elements.......... Yes
Data element size in bytes........ 256
Maximum data elements per entry.... 4
Structure has adjunct data........... No
Number of storage classes......... 10
Number of castout classes......... 10

Diag001: 025A5010 Diag003: 02603630 Diag017: 00800000 Diag018: 01D4D20

Cache Activity on the System
XCF and XES

---

Request......................... Read_Data
Request ID......................... 00000000 00000000
Request mode....................... AsyncToken
Request Operation................... 03 (Async)
Request token....................... 7FFD0B038 000E4785 000E4A30 01D4D200
Requestor is suspended........... No
This request has completed.

Data for Simplex Request:
Arwe address: 01D4D200  Scte address: 00000000
Request Status: 06 (Complete)
Request Flags: 38000000  Shell Request Flags: 0000
Async token: 7FFD0B038 000E4785 000E4A30 01D4D200
Duplex chain next: 00000000  prev: 00000000
Duplex Scte addr: 00000000  Duplex triple buffer: 00000000
Duplex operations count: 00000000  FirstOfThree address: 00000000

Request......................... Read_DirInfo
Request ID......................... 00000000 00000000
Request mode....................... SyncSuspend
Request Operation................... 03 (Async)
Requestor is suspended........... Yes
  Requestor TToken................... 00000000 00000003 00000010 004D7AE8
  Requestor Asid..................... X'0021'
  Requestor ASCB address........... 00F98A00
  Requestor TCB address............ 004D7AE8
  Requestor RB address............. 004D79F8
This request has completed.
This request was issued at 04/30/2007 16:12:56 and is 00:00:05 old.

Data for Simplex Request:
Arwe address: 01D4D200  Scte address: 00000000
Request Status: 09 (Precomplete)
Request Flags: 00000000  Shell Request Flags: 0000
Async token: 7FFD0B038 000E4785 000E4A15 01D46200
Duplex chain next: 00000000  prev: 00000000
Duplex Scte addr: 00000000  Duplex triple buffer: 00000000
Duplex operations count: 00000000  FirstOfThree address: 00000000

Request......................... Read_StgStats
Request ID......................... 00000000 00000000
Request mode....................... SyncSuspend
Request Operation................... 03 (Async)
Requestor is suspended........... Yes
  Requestor TToken................... 00000000 00000003 00000010 004D7AE6
  Requestor Asid..................... X'0021'
  Requestor ASCB address........... 00F98A00
  Requestor TCB address............ 004D79F8
  Requestor RB address............. 004D7C68
This request has completed.
This request was issued at 04/30/2007 16:10:29 and is 00:02:32 old.

Data for Simplex Request:
Arwe address: 01B65200  Scte address: 00000000
Request Status: 06 (Complete)
Request Flags: 00000000  Shell Request Flags: 0000
Async token: 7FFD0B038 000E475B 000E4A30 01D4D200
Duplex chain next: 00000000  prev: 00000000
Duplex Scte addr: 00000000  Duplex triple buffer: 00000000
Duplex operations count: 00000000  FirstOfThree address: 00000000

Request......................... Reg_NameList
Request ID......................... 00000000 00000000
Request mode....................... SyncSuspend
Request Operation................... 03 (Async)
Requestor is suspended........... Yes
  Requestor TToken................... 00000000 00000003 0000000F 004D7CFD
  Requestor Asid..................... X'0021'
  Requestor ASCB address........... 00F98A00
  Requestor TCB address............ 004D7CFD
  Requestor RB address............. 004D7C68
This request has completed.

---
**XCF and XES**

This request was issued at 04/30/2007 16:12:57 and is 00:00:04 old.

Data for Simplex Request:

Arwe address: 01CF7200  Scte address: 00000000
Request Status: 09 (Precomplete)
Request Flags: F0808000  Shell Request Flags: 2000
Async token: 7FFD8038 000047AD 000E427 01CF7200
Duplex chain next: 00000000  prev: 00000000
Duplex Scte addr: 00000000  Duplex triple buffer: 00000000
Duplex operations count: 00000000  FirstOfThree address: 00000000

Request.......................... Write_Data
Request mode.................... SyncSuspend
Request Operation................ 03 (Async)
Requestor is suspended........... Yes
Requestor TToken.................. 00000084 00000003 0000013 004D7320
Requestor Asid................... X'0021'
Requestor ASCB address........... 00F98A00
Requestor TCB address............ 004D7320
Requestor RB address............. 004D6068

This request has completed.
This request was issued at 04/30/2007 16:12:56 and is 00:00:05 old.

Data for Simplex Request:

Arwe address: 01CA5200  Scte address: 00000000
Request Status: 09 (Precomplete)
Request Flags: F0808000  Shell Request Flags: 0000
Async token: 7FFD8038 000047A0 000E4A1C 01CA5200
Duplex chain next: 00000000  prev: 00000000
Duplex Scte addr: 00000000  Duplex triple buffer: 00000000
Duplex operations count: 00000000  FirstOfThree address: 00000000

Number of requests.................. 5
Number of Simplex Requests........ 5
Number of First of One Requests.... 0
Number of First of Two Requests.... 0
Number of Second of Two elements... 0
Number of Base of Three Requests... 0
Number of First of three elements... 0
Number of Second of Three elements.. 0
Number of Third of Three elements... 0
Number of request work elements.... 5

Requests passing filters......... 5
Request elements passing filters.. 5

No exceptional conditions were found by the CACHE DETAIL report.

***** END OF XEDATA (CROSS-SYSTEM EXTENDED SERVICES) REPORT *****

**XESDATA CONNECTION DETAIL report**

This report provides detailed information about connections to structures from the dumping system. The CONNECTION report identifies the connectors by connection name and includes such information as:

- Job name
- Address space identifier (ASID)
- Rebuild status, if applicable
- Connectivity status
- Response monitoring that was in progress when the dump was taken.

The CONNECTION report also shows the CTRACE options that were in effect and the address of the trace buffers.

Information is provided to identify the coupling facility to which the structure is connected. For each type of structure, specific information, such as group name
and exit address, is provided. This report will also display information when XES recovery is being performed. For lock and serialized list structures, the signal activity on the system is formatted to give you the status of signals for a structure to and from other connections. For cache structures, the NAMECLASSMASK in use for a structure is reported if applicable.

The following command was issued to produce a CONNECTION report:

```
COMMAND====> XESDATA CONNECTION DETAIL CONNAME(HNGTME3#SYS2)
```

In this example report, connector HNGTME3#SYS2 illustrates a connector with an overdue event response.

```
***** XESDATA (CROSS-SYSTEM EXTENDED SERVICES) REPORT *****
Options list:
Report(s).................. CONNECTION
Level(s) of detail....... DETAIL
Filter(s) in use......... NONE
Sysplex name.............. PLEX1
System name............... B7VB0032
Facility name............. LF01
Structure name.......... CACHE01
  ASID.................. X'002A'
Connection name.. HNGTME3#SYS2
Structure name.......... IXCTL_SIGNAL03
  ASID.................. X'0006'
Connection name.. SIGPATH_02000003

***** CONNECTION DETAIL REPORT *****
CONNECTIONS DEFINED IN THE SYSTEM
---------------------------------
Connect Name................... HNGTME3#SYS2
Connection Function......... NOT SPECIFIED
ConToken.................... IXCLO002 7F509A00 00030001
Connection Identifier....... 03
Connection Version.......... 00030001
Connection Disposition...... Delete
Connection Status........... Active
ASID........................ X'002A'
Job name.................... MAINASID
TCB address................. 004E17E0
Address Space STOKEN........ 000000A8 00000003
Connect Data................ 00000000 0AF84BB0
Connect Level............... 00000000 00000000
Operational CF Level........ 00000008
Structure rebuild allowed... Yes
Duplexing rebuild allowed... No
System-managed support...... No
Termination level........... Task
Critical Connector.......... No
Connection Type............. Original
Connection is failure isolated
Outstanding Responses:
  Have not received a response to the disconnected/failed connection event
    Started monitoring....... 09/15/2009 12:36:42.743800
    Subject Connection Name, HNGTME3#SYS2
    MON address............. 7FD1468
    Response is overdue
  Maximum hang interval (CFSTRHANGTIME)... 45 seconds
  Next hang relief action time......... 09/15/2009 12:39:37.086051
Component Trace Information:
  Current Trace Buffer Address.............. 000001F0_00000000
  Connect Trace Buffer Address......... 000001F0_02500000
Global Trace Buffer Address.............. 000001F0_00000000
Global Trace Buffer Size ............ 32767 K
Connect Trace Buffer Address............. 000001F0_02500000
Connect Trace Buffer Size ........... 4095 K
Structure and Facility Information:
  Structure Name.................. CACHE01
  Structure Type.................. Cache
  Structure Logical Version........ CAC800ABC C9FA120
  Structure Disposition......... Delete
  Structure ID.................. 0003
  Structure Physical Version...... CAC800ABC C9FA120
  Facility Name.................. LF01
  Facility ID.................. 00000001
  Facility CFLevel............. 16
  Structure Specific Information:
    Event Exit Address.............. 0A066190
    Complete Exit Address........ 08F3BD42
```
**XCF and XES**

Number of Directory Entries........ 15933
Structure has data elements......... Yes
Total Data Elements Defined........ 15933
Data Element Size in Bytes........... 256
Maximum data elements per entry... 1
Structure has adjunct data........... No
Number of Storage Classes............ 1
Number of Castout Classes............ 1
UDF Order Queue maintained.......... No
Name class mask........................ 0000
Vector Token................................ 02134840 62973198 00000728
Diag128: 00000001 Diag129: 0049C018 00000003
Diag1201: 02578990 Diag1202: 7F509A00 Diag1203: 02134718
Diag129: 00008000
Connect Name.......................... SIGPATH_02000003
Connection Function................. NOT SPECIFIED
ConnToken................................ IXCE004 7EBE1900 00020001
Connection Identifier............... 02
Connection Version................... 00000001
Connection Disposition.............. Delete
Connection Status.................... Active
ASID...................................... X'0006'
Job name........................... XCFAS
TCB address............................... 004F9238
Address Space STOKEN.............. 00000000 00000001
Connect Data......................... 7EE47768 00000000
Connect Level.......................... 00000000 00000000
Operational CF Level................. 00000000
Structure rebuild allowed... Yes
Duplexing rebuild allowed... No
System-managed support...... No
Termination level............... XCF signaling
Critical Connector.............. No
Connection Type............... Original
Connection is not failure isolated
Outstanding Responses:
No Outstanding Responses
Component Trace Information:
Current Trace Buffer.................. Connector
Current Options...................... Lockmgr
Connect
Signal
Request
Recovery
Hwlayer
Config
Global Trace Buffer Address........... 000001F0_00000000
Global Trace Buffer Size ........... 32767 K
Connect Trace Buffer Address........... 000001F0_02100000
Connect Trace Buffer Size ........... 4095 K
Structure and Facility Information:
Structure Name....................... IXCTL_SIGNAL03
Structure Type...................... List
Structure Logical Version........... 00000000 00000000
Structure Disposition.............. Delete
Structure ID........................... 0001
Structure Physical Version........... C4C08004 0858884C
Facility Name........................ LF01
Facility ID............................ 00000001
Facility CFLevel..................... 16
Structure Specific Information:
Event Exit Address................... FF6F1AB
Complete Exit Address................ FF6F1AD
List Transition Exit Address........ FF6D0938
Number of List Headers.............. 64
Number of List Entries.............. 1580
Number of Event Monitor Controls... 0
Structure has data elements........ Yes
Total Data Elements Defined........ 1562
Data Element Size in Bytes........... 4096
Maximum data elements per entry... 16
Structure has adjunct data.......... Yes
Key Support........................... No
Secondary Key Support............... No
Name Support.......................... No
Entry ID assigned by.................. CF
Vector Token........................... 027F6420 49682968 02000721
Diag128: 00000002 Diag129: 0049C028 00000001
Diag1201: 02769696 Diag1202: 7EBE1900 Diag1203: 027F62F8
Diag129: 00000000
SIGNAL ACTIVITY ON THE SYSTEM

IXL00171 No information to display in report.
IXL00151 No exceptional conditions were found by the CONNECTION DETAIL report.
***** END OF XESDATA (CROSS-SYSTEM EXTENDED SERVICES) REPORT *****

Chapter 27. Sysplex Services (XCF and XES) 847
XESDATA FACILITY DETAIL report

This report provides detailed information about the coupling facility. The FACILITY report shows:

- the hardware configuration information for each coupling facility that a system has hardware connections to
- the structures that are allocated in each coupling facility on a system
- the active and queued requests for each of the structures allocated in a coupling facility

The following command was issued to produce a FACILITY report:

```
COMMAND==> XESDATA FACILITY DETAIL
```

```
***** FACILITY DETAIL REPORT *****

Diag054............................. 8 (decimal)
Simplex Sync/Async Threshold....... 345 (decimal)
Default Threshold Is........ 413 (decimal)
Threshold set from.......... SETXCF
Duplex Sync/Async Threshold........ 457 (decimal)
Simplex Lock Sync/Async Threshold.. 413 (decimal)
Duplex Lock Sync/Async Threshold.... 557 (decimal)

CF Request Time Ordering Function not installed on this system
Coupling Thin Interrupts enabled on this system

COUPLING FACILITIES KNOWN TO THIS SYSTEM
----------------------------------------
Facility Name....................... LF01
Coupling Facility................ SIMDEV.IBM.EN.ND0100000000
Partition..................... 00
CPCID......................... 00
CFLevel.......................... 16 (decimal)
Control Unit..................... 0001
Connected...................... Yes
Managed......................... Yes
Volatile......................... No
Authority......................... PLEX1 BF4600B7 02B554FA
SYID.......................... BF4600B7 02B554FA
Facility Space............. 194 M
Total Storage-Class Memory.... 100 G
Maximum Structure ID............. 93FF
Maximum Signalling-Segment Index. 7
CF Request Time Ordering Function
Installed..................... No
Required...................... No
Capable......................... No
Failed......................... No
ETR Network ID................ none
Dynamic I/O In Progress........ No
Number of Structures............. 1 (decimal)
Number of Subchannels............. 4 (decimal)
Number of Requests Active........ 0 (decimal)
Number of Requests Ready......... 0 (decimal)
Number of Requests Delayed....... 0 (decimal)
Delayed for dump ser............. 0 (decimal)
Delayed for dup req failure...... 0 (decimal)
Delayed for sys-mdg process..... 0 (decimal)
Number of Requests Serial Delay.. 0 (decimal)
Number of Requests Held.......... 0 (decimal)
Number of Requests Duplex Held... 0 (decimal)
Number of Requests Requested...... 0 (decimal)
Number of Requests Serial Delay.. 0 (decimal)
Number of Requests Requested...... 0 (decimal)
Number of Requests Duplex Held... 0 (decimal)
Time of Most Recent IFCC........ None recorded
Diag026.......................... 00000000
Diag027.......................... 00000000
MFID............................. 00000001
Diag032.......................... 0236C300
SCLE Address..................... 025721F8
Diag033.......................... 02455000
Diag034.......................... 02744300
Diag035.......................... 09350000
Diag036.......................... 0236C300
Diag037.......................... 02455000
Diag038.......................... 02744300
Diag039.......................... 09350000
Diag040.......................... 0236C300
Diag041.......................... 02455000
Diag042.......................... 02744300
Diag043.......................... 09350000
Diag044.......................... 0236C300
Diag045.......................... 02455000
Diag046.......................... 02744300
Diag047.......................... 09350000
Diag048.......................... 0236C300
Diag049.......................... 02455000
Diag050.......................... 02744300
Diag051.......................... 09350000
Diag052.......................... 61EF9F0 0001EE6
Diag053..........................

Remote Facility Information:

0236C390 C16C30C 14000405 07172006 09350000 | CFC,...........
+0001 00000000 00000000 00000000 00000000 | FIFC,...........
+0102 18000500 E2C3D4C4 CSIF0FO F1CEC6D4 | F1CEC6D4
+0103 CS5D5C3 F0F1FO F0F0FO F0F0FO | ENMD1000000000...
```

Remote Facility Information:
Chapter 27. Sysplex Services (XCF and XES)

XCF and XES

Remote Facility Information:

RFAT address ................. 025141A8
Max RFAT entries ............. 0004
Number of CFIBs ............. 0001

Coupling Facilities Known to this System

----------------------------------------

Facility Name....................... LF01
Coupling Facility................ SIMDEV.IBM.EN.ND0100000000
Partition..................... 00
CPCID......................... 00
CFLevel.......................... 16 (decimal)
Control Unit..................... 0001
Connected.................. Yes
Managed................... Yes
Volatile................... No
Authority..................... PLEX1 BF4600B7 02B554FA
SYID......................... BF4600B7 02B554FA
Facility Space................... 194 M
Maximum Structure ID............. 03FF
Maximum Signalling-Segment Index........ none
CF Request Time Ordering Function
Installed............. No
Required.................. No
Capable................... No
Failed................... No
ETR Network ID............. none
Dynamic I/O in Progress........... No

Number of Structures............ 1
Number of Subchannels........... 4
Number of Requests Active....... 0
Number of Requests Active Delayed 0
Number of Requests Ready........ 0
Number of Requests Ready Delayed 0
Delayed for dump ser........... 0
Delayed for dump ser remote... 0
Delayed for sys-mdi process... 0
Delayed for dup req failure... 0
Number of Requests Serial Delay.. 0
Number of Requests Held........... 0
Number of Requests Duplex Held... 0
Time of Most Recent IFCC......... None recorded

Remote Facility Information:

RFAT address ................. 025141A8
Max RFAT entries ............. 0004
Number of CFIBs ............. 0001

Remote Facility Name.......... A
Coupling Facility............. SIMDEV.IBM.EN.ND0100000000
Partition..................... 00
CPCID......................... 00
SYID......................... BF4600B7 378B90DA
Receiver paths Installed
Path Channel type Degraded Latency
F2 CIB 12X-1FB3 Yes xxxxxxxx
F3 CIB 1X-1FB No xxxxxxxx
Sender paths Installed E3
PATH Channel type Degraded Latency
E0 CFP F N/A xxxxxxxx
E1 ICP N/A xxxxxxxx
Signal vector token...... 614D4508 00001EE8

Remote Facility Name.......... TESTCF
Coupling Facility............. SIMDEV.IBM.EN.CF0100000000
Partition..................... 00
CPCID......................... 00
SYID......................... BF4600B7 02B554FA
Receiver paths Installed
Path Channel type Degraded Latency
F0 CFP H N/A xxxxxxxx
### XCF and XES

Sender paths installed

<table>
<thead>
<tr>
<th>Path</th>
<th>Channel type</th>
<th>Degraded</th>
<th>Latency</th>
</tr>
</thead>
<tbody>
<tr>
<td>E3</td>
<td>CFP</td>
<td>F</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Signal vector token...... 41EDFF0B 00001EE4

Remote Facility Name........ LF02
Coupling Facility........... SIMDEVI.BMN.ND0200000000
Partition.................... 00
CPCID......................... 00
SYID......................... BF4600B7 6BB54990

Receiver paths installed

<table>
<thead>
<tr>
<th>Path</th>
<th>Channel type</th>
<th>Degraded</th>
<th>Latency</th>
</tr>
</thead>
<tbody>
<tr>
<td>F0</td>
<td>CIB 12X-1FB3</td>
<td>Yes</td>
<td>xxxxxxx</td>
</tr>
<tr>
<td>F1</td>
<td>C85 8X-PCIE3</td>
<td>No</td>
<td>xxxxxxx</td>
</tr>
</tbody>
</table>

Sender paths installed

<table>
<thead>
<tr>
<th>Path</th>
<th>Channel type</th>
<th>Degraded</th>
<th>Latency</th>
</tr>
</thead>
<tbody>
<tr>
<td>E3</td>
<td>CFP</td>
<td>F</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Signal vector token...... 6088180B 000001CE

### Processor Information:

- **Has Dedicated CP.............. Yes**
- **Dynamic CF Dispatching....... No**
  - Number CP Dedicated........... 2 (decimal)
  - Number CP Shared.............. 3 (decimal)
- CP Number...................... 00
  - CP Classification............ Shared
  - CP Weight...................... 1 (decimal)
- CP Number...................... 01
  - CP Classification............ Dedicated
- CP Number...................... 02
  - CP Classification............ Shared
  - CP Weight...................... 2 (decimal)
- CP Number...................... 03
  - CP Classification............ Dedicated
- CP Number...................... 04
  - CP Classification............ Shared
  - CP Weight...................... 3 (decimal)

**Processor Information:**

- Dynamic CF Dispatching....... No
  - Number CP Dedicated........... 0 (decimal)
  - Number CP Shared.............. 1 (decimal)
- CP Number...................... 00
  - CP Classification............ Shared
  - CP Weight...................... 256 (decimal)

**Coupling facility is not standalone**

**Coupling Thin Interrupts: Enabled**

### Pathing Information:

<table>
<thead>
<tr>
<th>PATH</th>
<th>PHYSICAL</th>
<th>LOGICAL</th>
<th>CHANNEL TYPE</th>
<th>AID</th>
<th>PORT</th>
<th>LATENCY</th>
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<tr>
<td>80</td>
<td>ONLINE</td>
<td>DEGRADED</td>
<td>CCF 8X-PCIE3</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>80</td>
<td>OFFLINE</td>
<td>N/A</td>
<td>ICP</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Path Type Information:

Paths installed.............. C0 80
Path type.................... CFP CFP

### Subchannel Information:

Subchannel ID.................... 0060
Device Number.................. C00
Active.......................... No
Operational..................... Yes
Pending Deallocation........... No
Diag029......................... 02744100
Diag030......................... 00000000
**XCF and XES**

---

**Diag034** ............... 00000000  
**Diag179** ............... 00020000  
**Diag159** ............... 00000000  
**Diag160** ............... 00000000  

Subchannel ID ............... 0061  
Device Number ............... CF01  
Active .................... No  
Operational ................ Yes  
Pending Deallocation ........ No  

**Diag029** ............... 02744300  
**Diag030** ............... 00000000  
**Diag034** ............... 00000000  
**Diag041** ............... 01  
**Diag179** ............... 00010000  
**Diag159** ............... 00000000  
**Diag160** ............... 00000000  

Structure Information:  
Structure Name ............... ISGLOCK  
Structure Type ................ Lock  
Structure ID ............... 0001  
Structure Version ............ BF460C89 3876C12  
Request Count ............... 6239 (decimal)  
Number of connected users .... 1 (decimal)  

**Diag038** ............... 02453100  

Queued Request Information:  
Requests on WorkQ of Facility.... LF01  
  Number requests now on queue... 0 (decimal)  
  Total requests ever queued... 0 (decimal)  
  Last transition to nonempty.... mm/dd/yyyy hh:mm:ss.pppppp  
  Last enqueue of a request..... mm/dd/yyyy hh:mm:ss.pppppp  
  Last dequeue to start request.. mm/dd/yyyy hh:mm:ss.pppppp  

Moving Weighted Average Subchannel Delay Time (MWASDT) Information:  
  Refresh Counter ............... 0 (decimal)  
  Refresh Limit ................. 250 (decimal)  
  Queued Count ................. 0 (decimal)  
  Total Count .................. 2 (decimal)  
  MWASDT (in microseconds) ...... 13 (decimal)  

Sync/Async Heuristics Data  
Simplex Requests:  
<table>
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<tr>
<th>OpCode Acronym</th>
<th>Size</th>
<th>ReqCount</th>
<th>ConvReqCount</th>
<th>Avg Svc Time</th>
</tr>
</thead>
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<td>0301 ALST</td>
<td>0-0</td>
<td>0</td>
<td>0</td>
<td>34</td>
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<tr>
<td>0303 RLSR</td>
<td>0-0</td>
<td>0</td>
<td>0</td>
<td>66</td>
</tr>
<tr>
<td>0303 RLSR</td>
<td>1-1</td>
<td>0</td>
<td>0</td>
<td>41</td>
</tr>
<tr>
<td>0306 ALSU</td>
<td>0-0</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>0307 DLSR</td>
<td>0-0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>030A RLTE</td>
<td>0-0</td>
<td>2</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>0308 WLTE</td>
<td>0-0</td>
<td>5</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>0320 SLMV</td>
<td>0-0</td>
<td>326</td>
<td>0</td>
<td>10</td>
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<tr>
<td>0321 SLMV</td>
<td>0-0</td>
<td>319</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>0322 SLMV</td>
<td>0-0</td>
<td>2676</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>0323 RLXNV</td>
<td>0-0</td>
<td>2506</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>0328 CLTE</td>
<td>0-0</td>
<td>0</td>
<td>0</td>
<td>56</td>
</tr>
<tr>
<td>0381 WLCC</td>
<td>1-1</td>
<td>0</td>
<td>0</td>
<td>7</td>
</tr>
</tbody>
</table>

---

**XESDATA LOCK DETAIL report**

This report (Figure 82 on page 852) provides detailed information about outstanding asynchronous coupling facility lock requests. Both simplex and duplex request data is included in the status information.

The following command was issued to produce a LOCK report:

**COMMAND===> XESDATA LOCK DETAIL**
XCF and XES

***** XESDATA (CROSS-SYSTEM EXTENDED SERVICES) REPORT *****

Options list:

Report(s).............. LOCK
Level(s) of detail..... DETAIL
Filter(s) in use....... NONE

Sysplex name............. PLEX1
System name............. B7V80027
Facility name............. LF01
Structure name........... LIST8
ASID................ X'0026'
Connection name.. S1IS

***** LOCK DETAIL REPORT *****

DETAIL OF LOCK STRUCTURES

Connection Name............... S1IS
ConToken...................... IXCL000B 7F54B900 00020004
Connection Identifier.......... 02
Connect Data.................. 00000000 87C1D028
ASID........................ X'0026'
Jobname....................... MAINASID
Structure Name............... LIST8
Structure ID: Primary...0002 Secondary...0001
Facility Name: Primary...LF01 Secondary...LF02

Diag001: 0283A278 Diag003: 01D7A188 Diag017: 008C0000 Diag018: 01E1120

Data Space Information:
Local Data Space Name: 00000IXL Alet: 01020038 Stoken: 80007600 0000147
Local Data Space 01 Name: 00001IXL Alet: 01010039 Stoken: 80005C00 0000148
Local Data Space 02 Name: 00002IXL Alet: 0101003A Stoken: 80007100 0000149
Local Data Space 03 Name: 00003IXL Alet: 0101003B Stoken: 80007400 000014A
Local Data Space 04 Name: 00004IXL Alet: 0101003C Stoken: 80007500 000014B
Local Data Space 05 Name: 00005IXL Alet: 0101003D Stoken: 80007300 000014C
Local Data Space 06 Name: 00006IXL Alet: 0101003E Stoken: 80007A00 000014D
Local Data Space 07 Name: 00007IXL Alet: 0101003F Stoken: 80007200 000014E
Local Data Space 08 Name: 00008IXL Alet: 01010040 Stoken: 80007700 000014F
Local Data Space 09 Name: 00009IXL Alet: 01010041 Stoken: 80007900 0000150
Local Data Space 10 Name: 00010IXL Alet: 01010042 Stoken: 80007C00 0000151

Figure 82. Example: XESDATA LOCK DETAIL report (part 1 of 2)
This report provides detailed information about lock resource contention defined by the XES global control structures. Lock resource contention information is displayed for connectors acting as a contention manager. This information includes:

- resource contention request information
- internal XES lock contention messages
The following command was issued to produce a LOCKMGR report:

**COMMAND===> XESDATA LOCKMGR DETAIL**

***** LOCKMGR DETAIL REPORT *****

Connection Name............................. XEJSEN10_1
Contoken.................................. IXCLO00A 7F545900 00020001
Connection Identifier..................... 02
ASID...................................... X'0028'
Jobname................................... XEASEN10
Structure Name............................ LOCK16
Structure ID.............................. 0001
Facility Name............................. LF01
Connect Type.............................. Original
Number of Lock Entries.................... 1
Global Data Space Name: 00017IXL Alet: 01010049 Stoken: 80007300 000000D4
Diag056: 0000000F Diag099: 00013010 Diag100: 00000000
Diag020: 00034028 Diag022: 02414288
Diag101: 00013010 Diag102: 00000000 Diag103: 00000000
Diag104: 00000000 Diag105: 00034160

Lock Structure Information
--------------------------
Lock Structure Entry Number......... 00000000

GLTE Information
----------------
ID................... GLTE
Fwd.................. 00034028
Grab................. 00035028
EnabledDwe#.......... 00000000
LTE#................. 00000000
StatusFlags.......... 0080
DelayDeescFlags...... 00
PermanentFlags....... 00
Excl#................ 00000003
ManagedSsid.......... 60000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
ChaserSsid........... 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
EscalateSsid........ 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
ResponderSib@d....... 00000000
ResponseData......... 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
HowBecameGM.......... 80000000
GmStartTod........... 00000000 00000000
GmReadyTod........... 00000000 00000000
StartDeescTod........ 00000000 00000000
RequestCount......... 00000000
MgdResourceCount..... 00000000
NgmDueToPendDeesc.... 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
InterimDeescalates.. 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
DeescOnceAlready..... 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
DeferFwd............. 00000000
DeferBwd............. 00000000
DeferGrabFwd......... 00000000
GtoLActiveSignals.... 00000000

Number of outstanding global to local manager signals: 0
Request is not enabled

Lock Structure Entry Resource Information
-----------------------------------------
Resource Name: +0000 D9D5C1D4 C5F14040 40404040 40404040 | RNAME1 |
Resource Name Length............. 00000040
Hash Value....................... 00000001
Resource Contention Exit Work Area:
Resource is managed by the Contention exit
Resource is managed by the XES
Resource Request Queue

--------
Requestor ConName............ XEJSEN10_1
Requestor Contoken.............. IXCLO00A 7F545900 00020001
Requestor Connection Id........ 02
Requestor Connection Id........ 02
Status...................... Held
Held State.................... Exclusive
Held User Data:
+0000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
+0018 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
+0020 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000

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XESDATA LOCKRESOURCE DETAIL report

This report provides detailed information about lock resources defined by the XES local control structures. Lock structure resource information is displayed for each connection. This information includes:

- the number of exclusive and shared locks held
- an indication of whether there is any lock contention for the connection
- resource ownership (including ownership and pending request information)
- XES exit processing

The following command was issued to produce a LOCKRESOURCE report:

```
COMMAND===> XESDATA LOCKRESOURCE DETAIL
```

***** LOCKRESOURCE DETAIL REPORT *****

Connection Name.................. XEJSEN10_1
Connection Identifier........... 02
ASID............................ X'00028'
Jobname......................... XEASEN10
Structure Name.................. LOCK16
Structure ID..................... 0001
Facility Name................... LF01
Number of Lock Entries......... 1
Average Lock Held Time.......... 00000000

Data Space Information:

- Local Data Space Name: 0000010X Alet: 01020000 Stoken: 80006000 00000003
- Local Data Space 01 Name: 0000010X Alet: 01010000 Stoken: 80006000 00000004
- Local Data Space 02 Name: 0000010X Alet: 01010000 Stoken: 80006000 00000005
- Local Data Space 03 Name: 0000010X Alet: 01010000 Stoken: 80006000 00000006
- Local Data Space 04 Name: 0000010X Alet: 01010000 Stoken: 80006000 00000007
### Lock Structure Resource Information

- **Lock Structure Entry Number**: 00000000
- This Entry Managed by Connector 02
- Exclusive Resource Count: 2
- Shared Resource Count: 0

#### LLTE Information

- **ID**: RNA
- **Fwd**: 00113010
- **CompletionQueue**: 00000000
- **RNA**: 00113028
- **LTE**: 00000000
- **Excl#**: 00000002
- **Shr#**: 00000000
- **GlobalInfo1**: C0
- **GlobalSSID**: 02
- **GlobalInfo2**: 00
- **EscPendInfoSw@**: 00000000
- **RedriveToken**: 00000000 00000000
- **DeescRespToken**: 00000000
- **EnabledDwe@**: 00000000
- **LatchInfo**: 010C2A00

#### Accepted Resource Requests

- **Resource Name**: +0000 0050C1D4 00404040 40404040 40404040 | RNAME1
- **Resource Name Length**: 00000040
- **Hash Value**: 00000001
- **Resource Status**: Held

#### RNA Information

- **ID**: RNA
- **GrantTo@**: 00000000 00000000
- **RnaFwd**: 00113028
- **ResourceStatus**: 00000000
- **DWE@**: 00000000
- **SignalToken**: 00000000 00000000
- **Chase#: 00
- **ReqHashval**: 00000001
- **ReqState**: 00
- **Reqdata**: 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
- **ReqRdata**: 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
- **ReqLeid**: 00000000 00000000 00000000 00000000
- **ReqLockData**: 00000000 00000000
- **ReqMode**: 00
- **ReqEvent**: 00
- **ReqDataFlags**: 00
- **ReqEntryCount**: 00000000
- **ReqMiscFlags**: 00000000
- **ReqRnameLen**: 00000040
- **HeldState**: 02
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XESDATA TRACE DETAIL report

The system collects SYSXES component trace data on a per-connector basis. However, the system may start or complete a request initiated by one connector while running under a unit of work associated with another connector, including connectors to other structures. Traces relevant to one connector may therefore be collected under another connector's trace set, and those traces are difficult to locate when diagnosing problems. The XESDATA TRACE report formats traces associated with all active connectors to enable diagnosticians to locate relevant traces without having to examine individual connector trace sets.

This report is most useful when used with selection criteria to limit the traces displayed, as otherwise it will produce a large amount of data on systems with many active connectors. For example, you can select specific trace IDs, traces containing the address of a control block or any other hexadecimal string (optionally specifying the offset within the trace at which the string is expected to be present), and traces resulting from events occurring on a specific CPU.

The following command produces an unfiltered trace report:

```
COMMAND===> XESDATA TRACE DETAIL
```

However, it is more useful to initiate this report from the XESDATA panels so that selection criteria can be more easily specified. The example report shown was produced by the panel-generated command:

```
COMMAND===> XESDATA TRACE DETAIL TROPTS('OPTIONS((ENTRY1((********,7FF6A500,**,**))))')
```

which formats all traces containing the hexadecimal string 7FF6A500 at any offset and from any CPU.

```
***** XESDATA (CROSS-SYSTEM EXTENDED SERVICES) REPORT *****

Options list:
Report(s).............. TRACE
Level(s) of detail..... DETAIL
Filter(s) in use....... NONE
Sysplex name......... PLEX1
System name............ B7VB0032
Facility name......... LF01
Structure name........ DUPALLOWED01
                     ASID.............. X'002E'
                     Connection name.. LCKHANGCONN1
Structure name........ IXCTL_SIGNAL03
                     ASID.............. X'0006'
                     Connection name.. SIGPATH_02000012
```

IXL001SI No exceptional conditions were found by the LOCKRESOURCE DETAIL report.
Formatting coupling facility structure dump data using the IPCS subcommand - STRDATA

If you are having a problem with a structure, the STRDATA subcommand of IPCS provides information about structures. Format the SVC dump with the IPCS STRDATA subcommand to produce diagnostic reports about coupling facility structures. "z/OS MVS IPCS Commands" gives the syntax of the STRDATA subcommand.

The dump may also contain component trace data for XES. See the component trace chapter of "z/OS MVS Diagnosis: Tools and Service Aids" for information on how to format this trace data.

STRDATA can result in many different reports depending on which keywords you use. Table 63 on page 860 lists the possible reports and the STRDATA keywords to specify to get them. In many cases, a report may be generated by several keywords. The STRDATA ALL STRUCTURES DETAIL REPORT and the STRDATA

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ALL STRUCTURES SUMMARY REPORT are generated with almost every invocation of the STRDATA subcommand.

**Note:**
1. There is no exception report for the STRDATA subcommand.
2. All report examples have been compressed and repetitive information has been pared down for this document. Therefore, the examples look slightly different from the way they look on your system.

<table>
<thead>
<tr>
<th>Report Name</th>
<th>STRDATA Subcommand Keywords</th>
</tr>
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<tbody>
<tr>
<td>ALL STRUCTURES ALLLDATA DETAIL REPORT</td>
<td>ALLLDATA DETAIL</td>
</tr>
<tr>
<td>ALL STRUCTURES ALLLDATA SUMMARY REPORT</td>
<td>ALLLDATA SUMMARY</td>
</tr>
<tr>
<td>ASSOCIATED REQUEST BLOCK REPORT</td>
<td>• ARB</td>
</tr>
<tr>
<td>Note: Same report for DETAIL and SUMMARY</td>
<td>• ALLLDATA</td>
</tr>
<tr>
<td>CACHE STRUCTURE DETAIL REPORT</td>
<td>STRNAME((cache structure name)) DETAIL</td>
</tr>
<tr>
<td>Note: No STRDATA ALL STRUCTURES DETAIL REPORT</td>
<td></td>
</tr>
<tr>
<td>CACHE STRUCTURE SUMMARY REPORT</td>
<td>STRNAME((cache structure name)) SUMMARY</td>
</tr>
<tr>
<td>Note: No STRDATA ALL STRUCTURES SUMMARY REPORT</td>
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<tr>
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<td>COCLASS(xx) DETAIL</td>
</tr>
<tr>
<td>CASTOUT CLASS ENTRY POSITION DETAIL REPORT</td>
<td>• COCLASS(xx) ENTRYPOS(yy) DETAIL</td>
</tr>
<tr>
<td>Note:</td>
<td>• ALLLDATA</td>
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<td>CASTOUT CLASS ENTRY POSITION SUMMARY REPORT</td>
<td>• COCLASS(xx) ENTRYPOS(yy) SUMMARY</td>
</tr>
<tr>
<td>Note:</td>
<td>• ALLLDATA</td>
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<td>COCLASS(xx) SUMMARY</td>
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</tr>
<tr>
<td>LIST NUMBERS ENTRYKEY ENTRY POSITION DETAIL REPORT</td>
<td>LISTNUM(xx) ENTRYPOS(yy) ENTRYKEY(nn) DETAIL</td>
</tr>
<tr>
<td>Note:</td>
<td>• ALLLDATA DETAIL</td>
</tr>
<tr>
<td>LIST NUMBERS ENTRYKEY ENTRY POSITION SUMMARY REPORT</td>
<td>LISTNUM(xx) ENTRYPOS(yy) ENTRYKEY(nn) SUMMARY</td>
</tr>
<tr>
<td>LIST NUMBERS ENTRY POSITION DETAIL REPORT</td>
<td>• ALLLDATA DETAIL</td>
</tr>
<tr>
<td>LIST NUMBERS ENTRY POSITION SUMMARY REPORT</td>
<td>• ALLLDATA DETAIL</td>
</tr>
<tr>
<td>LIST NUMBERS SUMMARY REPORT</td>
<td>• ALLLDATA DETIAL</td>
</tr>
<tr>
<td>LIST STRUCTURE DETAIL REPORT</td>
<td>LISTNUM(xx) SUMMARY</td>
</tr>
<tr>
<td>Note: No STRDATA ALL STRUCTURES DETAIL REPORT</td>
<td>STRNAME((name of list structure)) DETAIL</td>
</tr>
<tr>
<td>Report Name</td>
<td>STRDATA Subcommand Keywords</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>-----------------------------------------------------------------</td>
</tr>
<tr>
<td>LIST STRUCTURE SUMMARY REPORT</td>
<td>STRNAME((list structure name)) SUMMARY</td>
</tr>
<tr>
<td>Note: No STRDATA ALL STRUCTURES SUMMARY REPORT</td>
<td></td>
</tr>
<tr>
<td>LOCK ENTRIES REPORT</td>
<td>• LOCKENTRIES(xx)</td>
</tr>
<tr>
<td>Note: Same report for DETAIL and SUMMARY</td>
<td>• ALLDATA</td>
</tr>
<tr>
<td>STORAGE CLASS DETAIL REPORT</td>
<td>STGCLASS(xx) DETAIL</td>
</tr>
<tr>
<td>STORAGE CLASS ENTRY POSITION DETAIL REPORT</td>
<td>• STGCLASS(xx) ENTRYPOS(yy) DETAIL</td>
</tr>
<tr>
<td></td>
<td>• ALLDATA DETAIL</td>
</tr>
<tr>
<td>STORAGE CLASS ENTRY POSITION SUMMARY REPORT</td>
<td>• STGCLASS(xx) ENTRYPOS(yy) SUMMARY</td>
</tr>
<tr>
<td></td>
<td>• ALLDATA SUMMARY</td>
</tr>
<tr>
<td>STORAGE CLASS SUMMARY REPORT</td>
<td>STGCLASS(xx) SUMMARY</td>
</tr>
<tr>
<td>STRDATA ALL STRUCTURES DETAIL REPORT</td>
<td>DETAIL</td>
</tr>
<tr>
<td>Note: With all DETAIL specifications except:</td>
<td></td>
</tr>
<tr>
<td>• LIST STRUCTURE DETAIL REPORT</td>
<td></td>
</tr>
<tr>
<td>• CACHE STRUCTURE DETAIL REPORT</td>
<td></td>
</tr>
<tr>
<td>STRDATA ALL STRUCTURES SUMMARY REPORT</td>
<td>SUMMARY</td>
</tr>
<tr>
<td>Note: With all SUMMARY specifications except:</td>
<td></td>
</tr>
<tr>
<td>• LIST STRUCTURE SUMMARY REPORT</td>
<td></td>
</tr>
<tr>
<td>• CACHE STRUCTURE SUMMARY REPORT</td>
<td></td>
</tr>
<tr>
<td>USER CONTROLS REPORT</td>
<td>• USERCNTLS</td>
</tr>
<tr>
<td>Note: Same report for DETAIL and SUMMARY</td>
<td>• ALLDATA</td>
</tr>
</tbody>
</table>

**STRDATA for a list structure**

This example provides detailed information for a list structure and all its list entries. Some of the information provided is:

- List structure name
- List type
- Structure control information
- The connection IDs of assigned users

The following command was issued to produce an STRDATA report:

```
COMMAND===> STRDATA DETAIL LISTNUM(0)ENTRYPOS(0) ORDER(HEAD) STRNAME((DUPALLOWED02))
```

```
**** LIST STRUCTURE DETAIL REPORT ****
Structure Name....................... DUPALLOWED02
Structure Type....................... List
Structure Dump ID................... 0101
Structure is the rebuild old structure
Rebuild is a duplexing rebuild
Process is system-managed
Coupling Facility................... SIMDEV.IBM.EN.ND0100000000
Partition........................... 00
CPCID............................... 00
CFLevel............................. 21
Facility Name....................... LF01
Dump Status........................ Complete
Incident token:
PLEX1 87V8D646 09/10/2009 14:41:47
Structure Control Information:
List Structure Type:
List limit accounting by entries
Entry IDs are assigned by the System
List entries have adjunct and entry data
List entries have entry keys and secondary keys
```
### Duplexed State Active
- Yes

### Wait On Ready To Complete
- No

### Immediate RTC completion enabled
- Yes

### Duplex Retry Index Limit
- 1799

### Signalling Segment Index
- 1

### Duplex Signalling Segment Index
- 1

### Maximum User Id
- 0020

### Maximum Data Entry Size
- 4096

### Data Element Size
- 256

### Marginal Structure Size
- 2 M

### Minimum Structure Size
- 7 M

### Structure Size
- 10 M

### Maximum Structure Size
- 10 M

### Target Structure Size
- 10 M

### Target Entry to Element Ratio
- 1:4

### Pending EMC Storage Percentage
- 20.00%

### Target Entry Count
- 5165

### Target Data Element Count
- 21461

### Target EMC Count
- 7882

### List Number Count
- 25

### Maximum Data Element Count
- 21461

### Maximum Data Element Count
- 63

### Maximum Entry Count
- 5165

### Entry Count
- 32

### Maximum EMC Count
- 7882

### EMC Count
- 6

### Sublist Notification Delay
- 003EB000

### List Set Cursor
- 0000

### Execution Time Accumulator
- 00000000 0008C7F

### Allocation Time
- 09/10/2009 14:32:43

### Extended Structure Controls
- Maximum Storage-Class Memory: xxxxxxxx u
- In-use Storage-Class Memory: xxxxxxxx u
- Est Maximum Augmented Space: xxxxxxxx u
- Fixed Augmented Space: xxxxxxxx u
- In-use Augmented Space: xxxxxxxx u
- Maximum SCM Entry Count: xxxxxxxx
- Maximum SCM Buffer Entry Count: xxxxxxxx
- Minimum Entry Count: xxxxxxxx
- Minimum Element Count: xxxxxxxx
- SCM Entry Count: xxxxxxxx
- Maximum SCM Element Count: xxxxxxxx
- Maximum SCM Buffer Element Count: xxxxxxxx
- SCM Element Count: xxxxxxxx
- SCM Algorithm Type: KEYPRIORITY1
- SCM Lower Threshold: xxx
- SCM Lower Threshold Regulator: xxx
- SCM Upper Threshold Regulator: xxx
- SCM Upper Threshold: xxx
- SCM Expeditious Upper Threshold: xxx
- SCM Full Threshold: xxx
- SCM Write Count: xxxxxxxx
- SCM Read After Fault Count: xxxxxxxx
- SCM Read For Prefetch Count: xxxxxxxx
- SCM Read Time 1st Moment: xxxxxxxx
- SCM Read Time 2nd Moment: xxxxxxxx
- SCM Write Time 1st Moment: xxxxxxxx
- SCM Write Time 2nd Moment: xxxxxxxx
- SCM Read Bytes Transferred: xxxxxxxx u
- SCM Write Bytes Transferred: xxxxxxxx u
- SCM Auxiliary-Enabled Commands: xxxxxxxx
- SCM Reference Completion Code 1: xxxxxxxx
- SCM Reference Completion Code 2: xxxxxxxx
- SCM Reference Completion Code 3: xxxxxxxx
- SCM Reference Completion Code 4: xxxxxxxx

### Structure Authority:
```
+0000 C4C4DB59 93D5B21A 02000012 00000000 | DD..1N........... |
```
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XCF and XES

List State Transition Count..... 1
List Cursor Direction............ Head-to-tail
List Cursor...................... 00000000 00000000 00000000
List Scan Identifier........... 01
List Scan State.................. Available
List Key For Key Assignment:
+0000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
Maximum List Key For Key Assignment:
+0000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
List KeyRange Start Value:
+0000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
List KeyRange End Value:
+0000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
List Notification Thresholds:
List KeyRange Empty ........... 0
List KeyRange Not Empty ....... 0
List Empty .................. 0
List Not Empty ............... 0
List Authority:
+0000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
List Description:
+0000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
+0010 00000000 00000000 00000000 00000000 00000000 00000000 00000000
List Monitor Table:
Connection ID Monitoring Notification Vector Index
------------- ---------- ------------ ------------
01 No No 00000000
02 No No 00000000
03 No No 00000000
04 No No 00000000
05 No No 00000000
06 No No 00000000
07 No No 00000000
08 No No 00000000
09 No No 00000000
0A No No 00000000
0B No No 00000000
0C No No 00000000
0D No No 00000000
0E No No 00000000
0F No No 00000000
10 No No 00000000
11 No No 00000000
12 No No 00000000
13 No No 00000000
14 No No 00000000
15 No No 00000000
16 No No 00000000
17 No No 00000000
18 No No 00000000
19 No No 00000000
1A No No 00000000
1B No No 00000000
1C No No 00000000
1D No No 00000000
1E No No 00000000
1F No No 00000000
20 No No 00000000

KeyRange Monitor Table:
Connection ID Monitoring Notification Vector Index
------------- ---------- ------------ ------------
01 No No 00000000
02 No No 00000000
03 No No 00000000
04 No No 00000000
05 No No 00000000
**LIST STRUCTURE DETAIL REPORT**

Structure Name: DUPALLOWED02
Structure Type: List
Structure Dump ID: 0201
Structure is the rebuild new structure
Rebuild is a duplexing rebuild
Process is system-managed
Coupling Facility: SIMDEV.IBM.EN.CF0100000000
Partition: 00
CPCID: 00
CFLevel: 21
Facility Name: TESTCF

---

The rest of the report is similar to the previously-shown sections for the rebuild old structure and are omitted from this sample.

**Additional STRDATA report information**

If your keyed list structure is allocated in a CFLEVEL=3 or higher coupling facility, the information shown in **Figure 84** will be included in the STRDATA detail report.

---

Target EMC Count: 3317
Maximum EMC Count: 3317
EMC Count: 5

**Figure 84. Example: Additional STRDATA report information**

**STRDATA for a cache structure**

This example provides detailed information for a cache structure and its storage class usage. Some of the information provided is:

- Cache structure name
- Type
XCF and XES

- Structure control information
- The connection IDs of assigned users

The rest of the report is similar to the previously shown sections for the rebuild old structure and are omitted from this sample.

The following command was issued to produce an STRDATA report:

```
COMMAND==> STRDATA DETAIL STGCLASS(01,02) STRNAME((CACHE02))
```

```
**** CACHE STRUCTURE DETAIL REPORT ****
Structure Name....................... CACHE02
Structure Type....................... Cache
Structure Dump ID.................... 0101
Structure is the rebuild old structure
Rebuild is a duplexing rebuild
Process is system-managed
Coupling Facility.................... SIMDEV.IBM.EN.ND0100000000
Partition......................... 00
CPCID............................. 00
CFLevel.............................. 16
Facility Name...................... LF01
Dump Status......................... Complete
Incident token:
PLEX1 B7VBID86 09/10/2009 11:39:32
Structure Control Information:
  Duplexed State Active............. Yes
  Immediate RTC completion enabled.. Yes
  Duplex Retry Index Limit........... 1799
  Signalling Segment Index.......... 1
  Duplex Signalling Segment Index... 1
  Maximum Directory Entry Count..... 1012
  Total Str Changed Entry Count.... 0
  Maximum Data Element Count....... 2002
  Total Str Changed Element Count... 0
  Number of Storage Classes........ 20
  Number of Castout Classes......... 2
  Adjunct Data Present.............. Yes
  UDF order queue maintained....... No
  Name Class Mask................... 0000
  Data Element Size................ 4096
  Maximum Data Entry Size.......... 8192
  Marginal Structure Size........... 1828 K
  Minimum Structure Size............ 2 M
  Structure Size.................... 10 M
  Maximum Structure Size............ 10 M
  Target Structure Size............. 18 M
  Target Entry to Element Ratio.... 1:2
  Target Directory Entry Count..... 1012
  Target Data Element Count......... 2002
  Castout Class Cursor.............. 0000
  WAMO Queue Count.................. 0
  Unchanged with Reg Interest Count. 450
  Free Directory Entry Count....... 562
  Free Data Area Element Count..... 1852
  Execution Time Accumulator....... 00000000 0003877F
  Allocation Time................... 09/10/2009 11:25:17
Structure Authority:
+0000 C4CB174 CCF0A092 01000011 00000000 | DD...0.k...... |
  User Structure Controls:
  +0000 0703558F F1406400 C311C38 00F0F240 | PLEX1 CACHE02 |
  +0010 04004040 04004040 00100000 00000000 |............. |
  Extended User Structure Controls:
  +0000 C4CB174 CCF0A092 00000000 00000000 | DD...0.k...... |
  Structure Copy Controls Version Number....... 00000001
Structure Copy Controls
  +--------------------------
  | EYECATCHER SCC |
  | FUNCTION 01 |
  | CURRENT_PHASE 00 |
  | COPYID_SEQ 00 |
  | PARTICIPANTS 00000000 |
  | WORKER_PARTICIPANTS 00000000 |
  | FAILED_PARTICIPANTS 00000000 |
  | COPYIDS(32) |
  | 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 |
  | SYSTEMS(32) |
  | 00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000 |
```

XCF and XES
Remote Structure Information

Structure Id......................... 0001
SYID................................. C4C4A2A7 CBDB6720
Coupling Facility.................... SIMDEV.IBM.EN.CF0100000000
Partition......................... 00
CPCID............................. 00
Structure Authority:
+0000 C4C4B176 CB08419A 01000011 00000000 | DD.............. |
Assigned Users:
   Connection IDs: 01

**** STORAGE CLASS DETAIL REPORT ****
Class Type........................... Storage
Class................................ 1
Class Status......................... Complete
Class Control Information:
   Read Hit....................... 0
   Read Miss Directory Hit........ 0
   Read Miss Assign Suppressed.... 0
   Read Miss Name Assigned......... 0
   Read Miss Target StgCl Full.... 0
   Write Hit Unchanged Data........ 0
   Write Hit Changed Data.......... 0
   Write Miss Not Registered....... 0
   Write Miss Invalid State....... 0
   Write Miss Target StgCl Full... 0
   Write Unchanged with XI......... 0
   Directory Entry Reclaim....... 0
   Data Entry Reclaim............ 0
   Cross Inval For Dir Reclaim.... 0
   Cross Inval For Write.......... 0
   Cross Inval For Delete Name.... 0
   Cross Inval For Invalidate copy 0
   Cross Inval For LCVI Replace... 0
   Castout Count.................. 0
   Reference Signal Miss.......... 0
   Target StgCl Full............... 0
   Maximum Directory Entry Count.. 0
   Total Changed Entries.......... 0
   Data Area Count................ 0
   Completed Reference Lists...... 0
   Part Complete Reference Lists.. 0
   Repeat Factor.................. 0
Class Type........................... Storage
Class................................ 2
Class Status......................... Complete
Class Control Information:
   Read Hit....................... 0
   Read Miss Directory Hit........ 0
   Read Miss Assign Suppressed.... 0
   Read Miss Name Assigned......... 0
   Read Miss Target StgCl Full.... 0
   Write Hit Unchanged Data........ 0
   Write Hit Changed Data.......... 0
   Write Miss Not Registered....... 0
   Write Miss Invalid State....... 0
   Write Miss Target StgCl Full... 0
   Write Unchanged with XI......... 0
   Directory Entry Reclaim....... 0
   Data Entry Reclaim............ 0
   Cross Inval For Dir Reclaim.... 0
   Cross Inval For Write.......... 0
   Cross Inval For Delete Name.... 0
   Cross Inval For Invalidate copy 0
   Cross Inval For LCVI Replace... 0
   Castout Count.................. 0
   Reference Signal Miss.......... 0
   Target StgCl Full............... 0

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Maximum Directory Entry Count.. 100
Data Element Count........... 0
Total Changed Entries........ 0
Data Area Count............. 0
Completed Reference Lists... 0
Part Complete Reference Lists.. 0
Repeat Factor.................. 0

**** CACHE STRUCTURE DETAIL REPORT ****
Structure Name.................... CACHE02
Structure Type..................... Cache
Structure Dump ID.................. 0201
Structure is the rebuild new structure
Rebuild is a duplexing rebuild
Process is system-managed
Coupling Facility................ SIMDEV.IBM.EN.CF0100000000
Partition......................... 00
CPCID............................. 00
CFLevel.............................. 16
Facility Name..................... TESTCF
Dump Status........................ Complete
Incident token:
PLEXI B7VBID86 09/10/2009 11:39:32
....
Chapter 28. Virtual Lookaside Facility (VLF)

This topic contains the following diagnosis information for the virtual lookaside facility (VLF) component and data lookaside facility (DLF) subcomponent of VLF:

- "Requesting VLF dump data."
- "Formatting VLF dump data."
- "Requesting DLF dump data" on page 884.
- "Formatting DLF dump data" on page 885.

**Requesting VLF dump data**

To obtain dump data for a VLF class, you need to dump both the VLF address space and its associated data spaces. First, use the DISPLAY command to determine the data spaces assigned to the VLF job:

```
D J,VLF
```

Then, use the DUMP command to dump the data, replacing `clsname` with the name of a VLF class:

```
DUMP COMM=(DUMP OF VLF)
```

The system issues message IEE094D to prompt the operator for information. Enter the following replies:

```
R xx,JOBNAME=VLF,CONT
R yy,DSPNAME=('VLF'.Dclsname,'VLF'.Cclsname),END
```


**Formatting VLF dump data**


The dump may also contain component trace data for VLF. See the component trace chapter of [z/OS MVS Diagnosis: Tools and Service Aids](https://www.ibm.com/support/knowledgecenter/en/SSLVMB_2.12.0/com.ibm.zos.v2r12.trgtrg000/zogtsg.htm) for information on how to format this trace data.

VLFDATA divides the information about VLF into six reports. Each report corresponds to the following VLFDATA keywords listed in Table 64.

**Table 64. Summary: VLFDATA keywords**

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Report Displays:</th>
<th>See topic:</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLASS</td>
<td>Information about a VLF class.</td>
<td>&quot;VLFDATA CLASS subcommand output&quot; on page 882</td>
</tr>
<tr>
<td>EXCEPTION</td>
<td>Information about any inconsistencies found in the VLF data.</td>
<td>&quot;VLFDATA EXCEPTION subcommand output&quot; on page 872</td>
</tr>
<tr>
<td>STATS</td>
<td>Statistics on VLF activity</td>
<td>&quot;VLFDATA STATS subcommand output&quot; on page 875</td>
</tr>
<tr>
<td>STORAGE</td>
<td>Information about storage management of VLF data spaces sysplex.</td>
<td>&quot;VLFDATA STORAGE subcommand output&quot; on page 879</td>
</tr>
</tbody>
</table>

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Virtual Lookaside Facility

Table 64. Summary: VLFDATA keywords (continued)

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Report Displays:</th>
<th>See topic:</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUMMARY</td>
<td>Information about classes specified in the COFVLFxx parmlib member.</td>
<td>&quot;VLFDATA SUMMARY subcommand output&quot;</td>
</tr>
<tr>
<td>USER</td>
<td>Information relating to the non-VLF address space associated with the active task that was using a VLF function when VLF recovery received control.</td>
<td>&quot;VLFDATA USER subcommand output&quot; on page 873</td>
</tr>
</tbody>
</table>

Examples of VLFDATA reports follow. The order of the reports represent a typical sequence for diagnosing a VLF problem:

VLFDATA SUMMARY (or just VLFDATA)
VLFDATA EXCEPTION
VLFDATA USER
VLFDATA STATS
VLFDATA STORAGE
VLFDATA CLASS

**VLFDATA SUMMARY subcommand output**

This report provides status information for each class specified in a COFVLFxx parmlib member. A VLF class is a collection of VLF-related objects, usually associated with a particular component, subsystem, or application. VLF classes are one of two types:

- **PDS** - A correspondence exists between the VLF major names for the class and partitioned data sets (PDS). The minor names for a class correspond to the members of a PDS. PDS classes are defined in a COFVLFxx parmlib member using the EDSN keyword for major names.
- **Non-PDS** - There is no correspondence between the VLF major names for the class and any data set structure. Non-PDS classes are defined in a COFVLFxx parmlib member using the EMAJ keyword for major names.

Enter either of the following IPCS subcommands to obtain this report:

VLFDATA
VLFDATA SUMMARY

*** *** FORMAT DUMP OF VLF DATA *** ***
BLS18077I VLFDATA processing may not be valid for a VIRTUAL dump

VIRTUAL LOOKASIDE FACILITY (VLF)

VLF ADDRESS SPACE = ASID(X'000B')

******************************************************************************
* * VLF Summary Report * *
* * ******************************************************************************
CLASS : CLASS2
CLASS TYPE : NON-PDS
CLASS STATE : Class has never been defined.
DATA SPACES OWNED
   Control data space : CCLASS2
   Object data space : DCLASS2
Number of eligible major names for this class : 2

USAGE STATISTICS
Virtual Lookaside Facility

Successful DEFINE requests : 0
Available object storage used : N/A

*********************************************************************

CLASS : CLASS1
CLASS TYPE : NON-PDS
CLASS STATE : Class is defined.

DATA SPACES OWNED
Control data space : CCLASS1
Object data space : DCLASS1

Number of eligible major names for this class : 5

USAGE STATISTICS
Successful DEFINE requests : 1
Available object storage used : 0.6 %

*********************************************************************

CLASS : IJKLMNOP
CLASS TYPE : PDS
CLASS STATE : Class is defined.

DATA SPACES OWNED
Control data space : CIJKLMNOP
Object data space : DIJKLMNOP

Number of eligible major names for this class : 2

USAGE STATISTICS
Successful DEFINE requests : 1
Available object storage used : N/A

MESSAGES:
COF11000I Report may be incomplete due to unavailable data.

*********************************************************************

*** *** END OF VLF DATA *** ***

The report contains the following information:

CLASS: This is the name of a VLF class. A class name is specified in a COFVLFx parmlib member.

Note: An A-I prefix indicates an IBM-supplied class.

CLASS TYPE: VLF classes may be either:
• A set of related PDSs as specified with the EDSN keyword in a COFVLFx parmlib member.
• A named collection of data as specified with the EMAJ keyword in a COFVLFx parmlib member.

CLASS STATE: The 5 recognizable VLF class states are:
• Defined - The class is active and available for use.
• Being Defined - The COFDEFIN macro has been invoked for this class, but has not completed processing.
• Being Purged - The COFPURGE macro has been invoked for this class, but has not completed processing.
Virtual Lookaside Facility

- **Previously Defined** - The class was defined and purged, and has not been redefined.
- **Never Defined** - The class is listed as a VLF class in a COFVLFxX parmlib member, but has never been defined.

**Note:** If the class is not in any of the above states, the report contains a message.

**DATA SPACES OWNED:** These are the names of the two data spaces used by the VLF class. Each name is comprised of a prefix followed by the class name. The prefix is one of the following values:
- **C** - Contains the control data for the class.
- **D** - Contains the user objects for the class.

**USAGE STATISTICS:** This section provides selected VLF statistics for the class. The possible statistics displayed are:
- **Successful define requests** - The number of times that the class has been successfully defined to VLF.
- **Successful object RETRIEVE requests** - The number of times objects have been retrieved from the class.
- **Successful object CREATE requests** - The number of times objects have been created for the class.
- **Unsuccessful object CREATE requests** - The number of times that requests to create an object failed for this class. The reasons for failure are the following:
  - **No pending create** - A RETRIEVE request was not done prior to the CREATE as required, the CREATE PENDING timed out, or a NOTIFY was received for the major and/or minor before the CREATE completed.
  - **Major name not in search order** - The major name specified for the CREATE is not in the user's search order.
- **Oldest object stored** - The time of last reference for the last recently used object at the time the object space was last reclaimed. The format is mm/dd/yy hh:mm:ss.
- **Available object storage used** - The percentage of object storage that is currently in use.

**Note:** The last two statistics, oldest object stored and object storage used, are data space related statistics. If the control space for the class is not found in the dump, the statistics each read N/A.

**VLFDATA EXCEPTION subcommand output**

The EXCEPTION report produces messages related to any inconsistencies detected in VLF data. This report contains information that IBM may request for diagnosis.
This report provides status information relating to the identified programs using VLF at the time the dump was requested. Specifically, the information provided relates to the address space associated with the active task that was using a VLF function. For SCOPE=SYSTEM, the address space is that of the using program that issued the IDENTIFY request and owns the user token.

If VLFDATA USER(uclass) is specified, the report shows the information only for identified users related to a user class.

This information is available only if VLF recovery processing took the dump.
### Virtual Lookaside Facility

```
*** *** FORMAT DUMP OF VLF DATA *** ***
BLS1B0771 VLFDATA processing may not be valid for a VIRTUAL dump

VIRTUAL LOOKASIDE FACILITY (VLF)
VLF ADDRESS SPACE = ASID(X'000B')

*******************************************************************
* *
* VLF User Report *
* *
*******************************************************************

USER REPORT for ASID: X'000E'

USER :
CLASS identified to : IKJEXEC
SCOPE of IDENTIFY : HOME
DDNAME : TSTDD1
MESSAGES:
COF11000I Report may be incomplete due to unavailable data.

USER :
CLASS identified to : CLASS2
SCOPE of IDENTIFY : SYSTEM
DDNAME : N/A
MESSAGES:
COF11000I Report may be incomplete due to unavailable data.

USER :
CLASS identified to : CLASS1
SCOPE of IDENTIFY : HOME
DDNAME : N/A

Major names in search order VLF
C'MAJ1' |Y|
C'NONVLFMAJOR' |N|
C'TestMaj1' |Y|
C'TestMaj2' |Y|
C'MAJ2' |Y|

*** *** END OF VLF DATA *** ***
```

**Figure 86. Example: VLFDATA USER subcommand output**

The following information appears in the report:
Virtual Lookaside Facility

**CLASS identified to:** This is the name of the VLF class associated with the using program. It is the class name that was specified in the COFVLFxx parmlib member.

**Note:** An A-I prefix indicates an IBM-supplied class.

**SCOPE of IDENTIFY:** The scope of an identify is one of the following values:
- **HOME** - Indicates that only services with the same HASID as the task that issued the COFIDENT macro are allowed to invoke the retrieve function using the UTOKEN returned by the identify.
- **SYSTEM** - Indicates that any services in any address space are allowed to invoke the retrieve function using the UTOKEN returned by the identify.

**DDNAME:**

**Major names in search order**

These are the major names that are found in the identified user's search order.
- If the major name can be translated to characters, it appears in the report as `C'major name'`.
- If the major name cannot be translated to characters, it is converted to hexadecimal and appears in the report as `X'converted major name'`.

The column labeled VLF on the far right contains either:
- **Y** - Indicates that the printed major name is in the user's search order and is specified in a COFVLFxx parmlib member with either the EDSN or EMAJ keyword.
- **N** - Indicates that the printed major name is in the user's search order but is not specified in the COFVLFxx parmlib member.

**VLFDATA STATS subcommand output**

This report provides statistics pertaining to the usage of VLF. If the optional class is specified, the report shows statistics only for the specified VLF class.
Virtual Lookaside Facility

BLS18077I VLFDATA processing may not be valid for a VIRTUAL dump

*** *** FORMAT VLFDATA *** ***
Virtual Lookaside Facility (VLF)
VLF address space = ASID(X'0011')

VLFDATA subcommand

*******************************************************************
* *
* VLF Statistics Report *
* *
*******************************************************************

Number of classes 17
DPT termination count 0
TRIM termination count 0

VLNOTE Statistics:
Requests to purge a class 0
Requests to purge a volume 0
Requests to delete a major 0
Requests against a minor 0

Cross-System Notification Statistics:
Requests to purge a volume 0
Requests to delete a major 0
Requests against a minor 0

Major name statistics:
PDS major names 3
PDS major name instances 0
Eligible PDS major name instances 0
Non-PDS major names 24
Non-PDS major name instances 2
Eligible non-PDS major instances 2
Majors in transitional states:
Major names 0
Major name instances 43

User statistics:
Number of ASIDs 64
Number of ASIDs using VLF 0
Maximum number of users in one ASID 0
Number of active IDENTIFYs 0
Number of latent IDENTIFYs 0

*******************************************************************

Figure 87. Example: VLFDATA STATS subcommand output (part 1 of 2)
The following information appears in this report:

**VLFNOTE STATISTICS:** This section provides selected VLFNOTE macro statistics.

- **Requests to purge a class** - The number of times VLFNOTE macro was invoked to delete a class.
- **Requests to purge a volume** - The number of times VLFNOTE macro was invoked to delete a volume.
- **Requests to delete a major** - The number of times VLFNOTE macro was invoked to delete a major name.
- **Requests against a minor** - The number of times VLFNOTE macro was invoked to add, update, or delete a minor name.

**CROSS-SYSTEM NOTIFICATION STATISTICS:** This section provides selected statistics about notification this system received about changes made to shared data by other systems in the same sysplex. These statistics only apply to data in a PDS class.

- **Requests to purge a volume** - The number of times that a request to delete a volume was processed as a result of notification to this system about changes made to shared data by another system.
- **Requests to delete a major** - The number of times that a request to delete a major name was processed as a result of notification to this system about changes made to shared data by another system.
- **Requests against a minor** - The number of times that a request to add, update or delete a minor name was processed as a result of notification to this system about changes made to shared data by another system.
Virtual Lookaside Facility

VLF GENERAL STATISTICS: This section provides selected VLF statistics.
- **Number of classes** - The number of classes currently known to VLF.
- **DPT termination count** - The number of times the delayed processing task (DPT) failed.
- **TRIM termination count** - The number of times trim task failed.

MAJOR NAME STATISTICS: This section provides selected major name statistics.
- **PDS major names** - The number of unique major names in VLF that belong to a PDS class.
- **PDS major name instances** - The number of PDS major names in VLF. Each major name may belong to more than one class.
- **Eligible PDS major name instances** - The number of PDS major name instances that are allowed to have objects stored in VLF.
- **Non-PDS major names** - The number of unique major names in VLF that belong to a non-PDS class.
- **Non-PDS major name instances** - The number of non-PDS major names in VLF. Each major name may belong to more than one class.
- **Eligible non-PDS major name instances** - The number of non-PDS major name instances that are allowed to have objects stored in VLF.
- **Major names in transitional states** - The number of unique major names that are being deleted.
- **Major name instances in transitional states** - The number of major names that are being deleted from particular classes.

USER STATISTICS: This section provides selected VLF user statistics.
- **Number of ASIDs** - The number of address spaces known to the system.
- **Number of ASIDs using VLF** - The number of address spaces that have tasks using VLF.
- **Maximum number of users in one ASID** - The maximum number of users identified to one address space.
- **Number of active IDENTIFYs** - The number of users currently identified.
- **Number of latent IDENTIFYs** - The number of users that were once identified but are not currently active.

CLASS STATISTICS: This section provides selected VLF class statistics.
- **Class state** - The current state of the class, which is one of the following:
  - **Defined** - The class is active and available for use.
  - **Being defined** - The COFDEFIN macro has been invoked for this class, but has not completed processing.
  - **Being purged** - The COFPURGE macro has been invoked for this class, but has not completed processing.
  - **Undefined** - Previously defined - The class was defined and purged, and has not been redefined.
    - **Never defined** - The class is listed as a VLF class in the COFVLFxx parmlib member, but has never been defined.
- **Number of successful defines** - The number of times the class was defined.
- **MAXVIRT value** - The maximum size of object storage for this class in 4-kilobyte blocks.
Virtual Lookaside Facility

• **Actual size of obtained data space** - The actual size of the object storage obtained for this class in 4K blocks.

• **Number of majors known to VLF** - The number of major names known to VLF that belong to this class.

• **Number of eligible majors** - The number of major names belonging to this class that are allowed to have objects stored in VLF.

• **Number of active IDENTIFYs** - The number of users currently identified to this class.

**VLFDATA STORAGE subcommand output**

This report provides information about the storage management of VLF data spaces. If VLFDATA STORAGE(sclass) is specified, the report shows storage management information only for the sclass.
*** *** FORMAT DUMP OF VLF DATA  *** ***
BLS18077I VLFDATA processing may not be valid for a VIRTUAL dump

VIRTUAL LOOKASIDE FACILITY (VLF)

VLF ADDRESS SPACE = ASID(X'000B')

********************************************************************
* *
* VLF Storage Report *
* *
********************************************************************

Class: CLASS2

Messages:
No errors detected

Class: CLASS1
Control data space: CCLASS1
Managed address range
Start address: X'00001000'
End address: X'7FFFFFFF'

Number of pages initially reserved for control: 1024
Number of pages in use for control: 19

Number of available areas: 1
Largest available area: 214304312
Total available area: 214304312

User control:

Pool 2
Cell size: 64
Primary count: 128
Secondary count: 128
Number of extents: 1
Cells in use: 1

Minor control:

Pool 1
Cell size: 48
Primary count: 256
Secondary count: 170
Number of extents: 1
Cells in use: 25

Figure 89. Example: VLFDATA STORAGE subcommand output (part 1 of 1)
The following information appears in this report:

**CLASS:** The name of a VLF class. (An A-I prefix indicates an IBM-supplied class.)

**Control data space:** The name of the data space used by the VLF class. Each name is comprised of a prefix followed by the class name. The prefix is one of the following values:
- **C** - Contains the control data for the class.
- **D** - Contains the user objects for the class.

**Managed address range:** These are the range of addresses in the data space which are available for use by VLF. The following values are shown:
- **Start address** - The lowest valid address.
- **End address** - The highest valid address.

**Number of pages initially reserved for control:** The number of pages reserved at the time the class was defined.

**Number of pages in use for control:** The number of pages in the data space that are currently being used for control information.

**Number of available areas:** The number of available areas in the data space.
Virtual Lookaside Facility

Largest available area: The size of the largest available area, in bytes, in the data space.

Total available area: The total amount of available storage, in bytes, in the data space.

User control, minor control, and object control: Information about the management of cell pools used for user, minor, and object data:
- Cell Size - The size of each cell in the pool in bytes.
- Primary Count - The number of cells in the first pool extent.
- Secondary Count - The number of cells in each of the other pool extents that have been added.
- Number of Extents - The total number of extents currently in the pool.
- Cells in Use - The total number of cells currently in use in the pool.

VLFDATA CLASS subcommand output

The CLASS reports provide status information pertaining to the requested VLF class. The level of detail included in the reports is determined by the other keywords specified.

The reports produce a header containing class-related information and usage statistics. This is followed by more detailed information regarding major names and minor names in the class, depending on the options specified on the VLFDATA subcommand.

Examples of how you can request various reports for a single class are:

VLFDATA CLASS(CLASS1) SHORT
VLFDATA CLASS(CLASS1) MAJOR(X' TESTMAJ1')
VLFDATA CLASS(CLASS1) MAJOR(MAJ1) MINOR(MIN0)
VLFDATA CLASS(CLASS1) MINOR(MIN0)
VLFDATA CLASS(CLASS1) ALL

Note: The VLF summary report can be used to view a summary of all VLF classes.

VLFDATA CLASS(CLASS1) ALL produces the following report:

*** *** FORMAT DUMP OF VLF DATA *** ***
BLS18077I VLFDATA processing may not be valid for a VIRTUAL dump

VIRTUAL LOOKASIDE FACILITY (VLF)
VLF ADDRESS SPACE = ASID(X'000B')

*******************************************************************
* * VLF Class Report * *
*******************************************************************

CLASS : CLASS1
CLASS TYPE : NON-PDS
CLASS STATE : Class is defined.

DATA SPACES OWNED
Control data space : CCLASS1
Object data space : DCLASS1

Number of eligible major names for this class : 5

USAGE STATISTICS
Successful DEFINE requests : 1
Successful object RETRIEVE requests : 35
Successful object CREATE requests : 35
Unsuccessful object CREATE requests

No pending create : 0
Major name not in search order : 0
Oldest object stored (timestamp) : 01/27/90 15:57:36
Available object storage used : 0.6 %

Major/minor pairs currently existing in VLF for class CLASS1

MINOR :
C'BCDE'
N O Major names associated with minor name

| | C'TestMaj1' |

*******************************************************************************

MINOR :
C'CDEF'
N O Major names associated with minor name

| | C'TestMaj2' |

*******************************************************************************

MINOR :
C'MINO'
N O Major names associated with minor name

| | C'TestMaj1' |
| | C'TestMaj2' |
| | C'MAJ1' |
| | C'MAJ2' |

*******************************************************************************

*** *** END OF VLF DATA *** ***

For descriptions of the following fields, see “VLFDATA SUMMARY subcommand output” on page 870.

- CLASS
- CLASS TYPE
- CLASS STATE
- DATA SPACES OWNED
- USAGE STATISTICS

The following information also appears in this report:

I T M USERS: This table appears for the SHORT option or the default. The table lists all major names that are eligible to have objects placed into VLF for this class. An * in one of the ITM columns indicates a problem was found with the major name listed to the right. A ? in one of the ITM columns indicates the information is not available. The following columns appear in the table:

- I (A valid major name entry does not exist for the class.)
- T (The major name entry for the class does not match the class type.)
Virtual Lookaside Facility

- **M** (The major name entry for the class does not relate to a major name known to VLF)
- **USERS** (The number of identified users of the major name.)

**MAJOR:** These are the major names that are found in the identified user's search order.
- If the major name can be translated to characters, it appears in the report as 'C'major name'.
- If the major name cannot be translated to characters, it is converted to hexadecimal and appears in the report as 'X'converted major name'.

**MINOR:** The minor name specified on the VLFDATA subcommand.
- If the minor name can be translated to characters, it appears in the report as 'C'minor name'.
- If the minor name cannot be translated to characters, it is converted to hexadecimal and appears in the report as 'X'converted minor name'.

**OBJECT STATISTICS:** This section appears when both the MAJOR and MINOR keywords are specified on the VLFDATA subcommand. It provides selected statistics for a VLF object that represents the specified major/minor name pair for the given class.
- **Object Size** (The size of the VLF object in bytes.)
- **Time of Last Retrieve** (The time that the object was last retrieved from VLF. If the object has never been retrieved, then it is the time that the object was created. The form is mm/dd/yy hh:mm:ss).

**R N O TABLE:** This table appears if only the MAJOR keyword is specified on the VLFDATA subcommand. The table lists all the minor names associated with the specified major name for the given class. An * in one of the columns has the following meanings for the associated major/minor name pair:
- **R** (The object has never been retrieved from VLF.)
- **N** (The pointer to the object is null.)
- **O** (The pointer to the object contains a value outside the range of object storage addresses.)

**N O TABLE:** This table appears if the ALL keyword or only the MINOR keyword is specified on the subcommand. The table lists all majors that are associated with the specified minor name for the given class. An * in one of the columns indicates a problem was found with the associated major/minor name pair.
- **N** (The pointer to the object is null.)
- **O** (The pointer to the object contains a value which is outside the range of object storage addresses.)

---

**Requesting DLF dump data**

To obtain dump data for the DLF class COFGSDO, you need to dump both the DLF address space and its associated data space. Use the DUMP command to dump the data:

```
DUMP COMM=(DUMP OF DLF)
R xx,JOBNAME=DLF,CONT
R yy,DSPNAME=('DLF'.CCOFGSDO),END
```
See z/OS MVS System Commands for more information about the DISPLAY and DUMP commands.

**Formatting DLF dump data**

Use the IPCS DLFDATA subcommand to produce diagnostic reports about DLF. z/OS MVS IPCS Commands gives the syntax of the DLFDATA subcommand and z/OS MVS IPCS User’s Guide explains how to use the DLFDATA option of the IPCS dialog.

The dump may also contain component trace data for DLF. See the component trace chapter of z/OS MVS Diagnosis: Tools and Service Aids for information on how to format this trace data.

DLFDATA divides the information about DLF into six reports. Each report corresponds to the following DLFDATA keywords.

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Report Displays</th>
<th>See topic:</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLASS</td>
<td>Information about a DLF class.</td>
<td>DLFDATA CLASS subcommand output” on page 886</td>
</tr>
<tr>
<td>EXCEPTION</td>
<td>Information about any inconsistencies found in the DLF data.</td>
<td>DLFDATA EXCEPTION subcommand output” on page 890</td>
</tr>
<tr>
<td>STATS</td>
<td>Statistics on DLF activity</td>
<td>DLFDATA STATS subcommand output” on page 893</td>
</tr>
<tr>
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<td>Information about storage management of DLF data spaces sysplex.</td>
<td>DLFDATA STORAGE subcommand output” on page 891</td>
</tr>
<tr>
<td>SUMMARY</td>
<td>Information about each class known to DLF.</td>
<td>DLFDATA SUMMARY subcommand output</td>
</tr>
<tr>
<td>USER</td>
<td>Information about an address space associated with the active task that was using DLF at the time of the error.</td>
<td>DLFDATA USER subcommand output” on page 889</td>
</tr>
</tbody>
</table>

Examples of DLFDATA reports follow. The order of the reports represent a typical sequence when diagnosing a DLF problem:

DLFDATA SUMMARY (or just DLFDATA)
DLFDATA CLASS
DLFDATA USER
DLFDATA CLASS OBJECT
DLFDATA EXCEPTION
DLFDATA STORAGE
DLFDATA STATS

**DLFDATA SUMMARY subcommand output**

This report provides status information for each class known to DLF. Enter either of the following IPCS subcommands to obtain this report:

DLFDATA
DLFDATA SUMMARY

---

Virtual Lookaside Facility

See z/OS MVS System Commands for more information about the DISPLAY and DUMP commands.

**Formatting DLF dump data**

Use the IPCS DLFDATA subcommand to produce diagnostic reports about DLF. z/OS MVS IPCS Commands gives the syntax of the DLFDATA subcommand and z/OS MVS IPCS User’s Guide explains how to use the DLFDATA option of the IPCS dialog.

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DLFDATA SUMMARY (or just DLFDATA)
DLFDATA CLASS
DLFDATA USER
DLFDATA CLASS OBJECT
DLFDATA EXCEPTION
DLFDATA STORAGE
DLFDATA STATS

**DLFDATA SUMMARY subcommand output**

This report provides status information for each class known to DLF. Enter either of the following IPCS subcommands to obtain this report:

DLFDATA
DLFDATA SUMMARY
CLASS:
This is the name of the DLF class. A class name is 7 alphanumeric characters and is specified in a COFDLFxx parmlib member. COFGSDO is the only valid DLF class.

CLASS STATE:
There is only one recognizable DLF class state:
- Defined - The class is active and available for use.

** DLFDATA CLASS subcommand output **

The CLASS reports provide status information pertaining to the requested DLF class. This topic shows reports for the following subcommands:
- DLFDATA CLASS(class)
- DLFDATA CLASS(class) OBJECT(name)

** DLFDATA CLASS(COFGSDO) produces the following report. **

```
Figure 91. Example: DLFDATA SUMMARY subcommand output
```

The following information appears in the report:

**CLASS:** This is the name of the DLF class. A class name is 7 alphanumeric characters and is specified in a COFDLFxx parmlib member. COFGSDO is the only valid DLF class.

**CLASS STATE:** There is only one recognizable DLF class state:
- Defined - The class is active and available for use.
Virtual Lookaside Facility

Current largest object: 256

Connect exit: COFMEXIT
Current connects: 0
Maximum active connects: 1
Failed connects: 0

Shared objects in the class: Connects
C'SHARED 1MB RETAINED OBJECT CONNSPMR' 18

Total number of objects found: 1

The following information appears in the report:

CLASS: This is the name of the DLF class. A class name is 7 alphanumeric characters and is specified in a COFDLFxx parmlib member. COFGSDO is the only valid DLF class.

CLASS STATE: There is only one DLF class state:
• Defined - The class is active and available for use.

STATISTICS: This section of the report provides selected DLF statistics for the class.
• Maximum expanded - The maximum number of 4-kilobyte blocks of expanded storage that may be used by DLF.
• Current expanded - The number of 4-kilobyte blocks of expanded storage that is assigned to DLF and that currently contains cached data.
• Current largest object - The size of the largest object that has been connected since DLF was started. This object is not necessarily currently connected.

Note: The above maximum values are specified in the COFDLFxx parmlib member.

CONNECT EXIT: This section of the report provides selected DLF connect statistics for the class.
• Current connects - The number of objects currently connected.
• Maximum connects - The peak number of concurrent connects to all objects.
• Failed connects - The number of connect requests that have been unsuccessful.

SHARED OBJECTS: This is a list of the currently connected or retained shared objects that belong to the class.
• If the object name can be translated to characters, it appears in the report as C'shared object name'.
• If the object name cannot be translated to characters, it is converted to hexadecimal and appears in the report as X'converted shared object name'.

The total number of shared objects found in the dump is shown at the end of the report.

DLFDATA CLASS(COFGSDO) OBJECT('SHARED 1MB RETAINED OBJECT CONNSPMR') produces the following report.

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Data Lookaside Facility (DLF)
DLF address space = ASID(X'000F')
Virtual Lookaside Facility

DLFDATA subcommand

***************************************************************************
**                DLF Class Object Report                  **
***************************************************************************

Class: COFGSDO

Class state: Class is defined.

Maximum expanded: 524288
Current expanded: 0
Current largest object: 256

Connect exit: COFMCXIT
Current connects: 0
Maximum active connects: 1
Failed connects: 0

OBJECT:

C'SHARED 1MB RETAINED OBJECT CONNSPMR'

Object is shared

Total users of the object: 18

Object size in blocks: 256
Object status: Connected
Access mode: Update
Storage key: 0
Disconnect with RETAIN: Allowed
Control data space name: Not requested

Hiperspaces containing the object:

00000COF

***************************************************************************

ASID: X'000E'

No objects found for specified ASID

***************************************************************************

ASID: X'000F'

No objects found for specified ASID

***************************************************************************

*** *** END OF DLFDATA *** ***

The following information appears in the report:

OBJECT: This is the object name that was specified on the DLFDATA subcommand
for which information is requested.

- If the object name can be translated to characters, it appears in the report as
  C'object name'.
- If the object name cannot be translated to characters, it is converted to
  hexadecimal and appears in the report as X'converted object name'.

OBJECT SIZE: This is the size of the space obtained for the DLF object in
4-kilobyte blocks.

OBJECT STATUS: There are three DLF object states:

- Connected - The object is currently connected.
- Connect in progress - The COFCONNE macro has been issued for this object,
  but has not completed processing.
**Virtual Lookaside Facility**

- **Disconnect in progress** - The COFDISCO macro has been issued for this object, but has not completed processing.

**ACCESS MODE:** There are two types of access modes:
- **Update** - The user requested UPDATE access.
- **Read** - The user requested READ access.

**STORAGE KEY:** This is the storage key of the space or spaces that comprise the data object.

**RETAIN OPTION:** This field indicates whether the installation-defined Resource Access Control Facility (RACF) profile has been set up to allow the DELOPT=RETAIN option on a disconnect of the object. If the field is:
- **Allowed** - RETAIN is allowed on a disconnect.
- **Not allowed** - RETAIN is not allowed on a disconnect.

**CONTROL SPACE:** If the CNTLDSPC(YES) option was specified on the COFCONNE macro, this field contains the name of the requested control data space. If CNTLDSPC(NO) was specified, then this field contains **Not Requested**.

**SPACES CONTAINING OBJECT:** This is a list of the Hiperspace names of the storage spaces that contain the object.

**DLFDATA USER subcommand output**

This report provides status information relating to the identified users of the DLF at the time a problem occurred. Specifically, the information provided relates to the address space associated with the active task that was using a DLF function.

If DLFDATA USER(class) is specified, the report shows the information only for identified users related to class.
A description of the sample output items is:

**SHARED OBJECTS:** This is a list of the shared objects that were connected by the address space indicated by the ASID. If the optional class name was specified, the objects listed all belong to that class.
  - If the object name can be translated to characters, it appears in the report as `C'shared object name'`.
  - If the object name cannot be translated to characters, it is converted to hexadecimal and appears in the report as `X'converted shared object name'`.

**DLFDATA EXCEPTION subcommand output**

The EXCEPTION report produces messages related to any inconsistencies detected in DLF data. The information may be requested by IBM for diagnosis.
DLFDATA STORAGE subcommand output

This report provides information about the storage management of DLF data spaces.

If DLFDATA STORAGE(class) is specified, the report shows storage management information only for the class.
Virtual Lookaside Facility

BLS18077I DLFDATA processing may not be valid for a VIRTUAL dump

*** *** FORMAT DLFDATA *** ***

Data Lookaside Facility (DLF)

DLF address space = ASID(X'000F')

DLFDATA subcommand

******************************************************************************
** DLF Storage Report **
******************************************************************************

Class: COFGSDO
Control data space: COFGSDO
Managed address range
Start address: X'00001000'
End address: X'7FFFFFFF'

Number of pages initially reserved for control: 1024
Number of pages in use for control: 19
Number of available areas: 2
Largest available area: 2143207424
Total available area: 2143211456

User control:

Pool 1
Cell size: 32
Primary count: 128
Secondary count: 128
Number of extents: 1
Cells in use: 0

Object control:

Pool 1
Cell size: 248
Primary count: 214
Secondary count: 115
Number of extents: 1
Cells in use: 1

Messages:
No errors detected

*** *** END OF DLFDATA *** ***

Figure 94. Example: DLFDATA STORAGE subcommand output

The following information appears in the report:

**CLASS:** This is the name of the DLF class. A class name is 7 alphanumeric characters and is specified in a COFDLFxx parmlib member.

**Note:** COFGSDO is the only valid DLF class.

**DATA SPACE:** This is the name of the control data space used by the DLF class. The name appears with a prefix of 'C' followed by the class name.

**ADDRESS RANGE:** These are the range of addresses in the data space that are available for use by DLF. The following values are shown:
- **Start address** - The lowest valid address.
Virtual Lookaside Facility

- **End address** - The highest valid address.

PAGE COUNTS: These are the number of pages of data space storage allocated to control information. The following two counts are shown:
- The number of pages reserved at the time the class was defined.
- The number of pages in the data space that are currently being used for control information.

AVAILABLE AREAS: These are statistics concerning the available areas of storage in the data space. The following three items are shown:
- **Available areas** - The number of available areas in the data space.
- **Largest area** - The size of the largest available area found in bytes.
- **Total area** - The total amount of available storage found in bytes.

CONTROL INFORMATION: This section contains information about the management of cell pools used for user and object data. For each pool, the following are shown:
- **Cell size** - The size of each cell in the pool in bytes.
- **Primary count** - The number of cells in the first pool extent.
- **Secondary count** - The number of cells in each of the other pool extents that have been added.
- **Number of extents** - The total number of extents currently in the pool.
- **Cells in use** - The total number of cells currently in use in the pool.

**DLFDAStats subcommand output**

The STATS reports provide statistics about DLF activity. If DLFDATA STATS(class) is specified, the report shows statistics information only for the class.
Virtual Lookaside Facility

<table>
<thead>
<tr>
<th>BLS18077I DLFDATA processing may not be valid for a VIRTUAL dump</th>
</tr>
</thead>
<tbody>
<tr>
<td>*** *** FORMAT DLFDATA *** ***</td>
</tr>
<tr>
<td>Data Lookaside Facility (DLF)</td>
</tr>
<tr>
<td>DLF address space = ASID(X'000F')</td>
</tr>
<tr>
<td>DLFDATA subcommand</td>
</tr>
<tr>
<td>************************************************************</td>
</tr>
<tr>
<td>** DLF Statistics Report **</td>
</tr>
<tr>
<td>************************************************************</td>
</tr>
</tbody>
</table>

| Number of classes | 1 |
| DORT termination count | 0 |

| User statistics: |
| Number of ASIDs | 64 |
| Number of ASIDs using DLF | 0 |
| Maximum connects in one ASID | 0 |
| Number of active connects found | 0 |
| Number of connects in progress | 0 |

**Statistics for class COFGSDO**

| Class state: Class is defined. |
| Maximum values from parmlib member: |
| Expanded storage | 524288 |
| Non-retainable expanded storage | 0 |
| Retainable expanded storage | 524288 |

| Current resource usage: |
| Expanded storage | 0 |
| Non-retainable expanded storage | 0 |
| Retainable expanded storage | 0 |
| Largest shared data object | 256 |

| Connect statistics: |
| Current connects | 0 |
| Failed connects | 0 |
| Maximum connects at one time | 1 |

| Object statistics: |
| Number of connected objects | 1 |
| Number of retained objects | 0 |
| Number of users | 18 |

*** *** END OF DLFDATA *** ***

*Figure 95. Example: DLFDATA STATS subcommand output*

The STATS report contains sets of selected DLF values. The first set of values in the report, after the class name, are the maximum resource values that were specified in a COFDLFx parmlib member.

Following the maximum parmlib values are the amounts of each resource that were in use at the time of the dump. After these current values, selected connect statistics appear in the report followed by selected object statistics.

The connect statistics that appear include the total number of connect requests that were successful, the total number of requests that failed, and the maximum number of connects that were active at the same time. The system has accumulated these values since the system last started DLF.
Virtual Lookaside Facility

The object statistics that appear include the total number of objects currently connected and the total number of objects that have no connected users but still exist in DLF. The system has accumulated these values since the system last started DLF.
Chapter 29. Virtual Storage Management (VSM)

The virtual storage management (VSM) component provides diagnostic data in dumps and traces.

Formatting VSM dump data

The IPCS VERBEXIT VSMDATA subcommand formats VSM control blocks.

For information about using IPCS and the syntax of the IPCS VERBEXIT VSMDATA, see z/OS MVS IPCS Commands. For information about using the VSMDATA subcommand through the IPCS dialog, see z/OS MVS IPCS User’s Guide.

VERBEXIT VSMDATA CONTROLBLOCKS subcommand output

The report generated by the VERBEXIT VSMDATA subcommand formats the following VSM control blocks:

- Address queue anchor table (AQAT)
- Allocated element (AE)
- Cell pool primary extent (PXT)
- Cell pool secondary extent (SXT)
- Double free element (DFE)
- Descriptor queue element (DQE)
- Free block queue element (FBQE)
- Free queue element (FQE)
- Global data area (GDA)
- Local data area (LDA)
- Size queue anchor table (SQAT)
- Subpool queue anchors (SPQA)
- Subpool queue element (SPQE)
- Subpool translation table (SPTT)
- VSM work area (VSWK)

The VERBX VSMDATA command also supports a SUMMARY parameter which provides a more concise report designed specifically for diagnosis of out of storage conditions. This report, generated by the VERBEXIT VSMDATA ‘SUMMARY’ subcommand, formats key data from the following VSM control blocks:

- Address queue anchor table (AQAT)
- Allocated element (AE)
- Double free element (DFE)
- Descriptor queue element (DQE)
- Free block queue element (FBQE)
- Free queue element (FQE)
- Global data area (GDA)
- Local data area (LDA)
Virtual Storage Management

This 'SUMMARY' report also generates the following:
- Global storage map
- Global subpool usage summary
- Local storage map
- Local subpool usage summary

**Note:** The Global and Local subpool usage summaries reflect pages that have all or some of the page allocated. You can find information on the allocation of a particular page in the VSM control blocks representing the page.

The SUMMARY option of the VSMDATA CONTROLBLOCKS report has a feature which allows for easier identification of the subpool, key, and TCB associated with a particular allocated or freemained area. Additionally, this new feature provides you with the capability of sorting the VSMDATA output by subpool, by key, by TCB, or by storage address, provided that the data is first routed to an ISPF data set.

Each line of VSMDATA output that represents an allocated or free area has data similar to the following at the far right:
```
TCB 006FE240 SP/K 229/ 5 hppmlaaa
```

This data allows for easy identification of the TCB, subpool, and key associated with a particular piece of VSM storage as represented by a line in the VSMDATA output. The character data at the far right (hppmlaaa) is a translation of the address of storage represented by this line of VSMDATA output. This translation gives you the capability of decimally sorting the data into ascending address order. This is useful when trying to identify what subpool a particular address lives in, or in trying to understand what distribution of subpools own a particular section of storage. It can also be helpful in a tuning analysis because it allows you to see the progression of storage growth within an address space.

To take advantage of the sorting capability provided by this feature, you must first append the PRINT and NOTERM keywords to the VSMDATA command to direct the output data to the IPCSPRNT data set. For example, the following command will route the data to the data set and prevent it from being displayed at the terminal:
```
VERBX VSMDATA 'NOG SUMMARY' PRINT NOTERM
```

Then, you should issue the following command to close the file:
```
CLOSE PRINT
```

After this command has completed, the output should be viewable in the IPCSPRNT data set. Under ISPF, EDIT the data set and perform the following commands:

**EXCLUDE ALL**
to exclude all lines from the data set

**F 'SP/K' ALL**
to find just the lines with the sortable data

**DELETE ALL X**
to get discard of all of the other lines

**SORT x y**
to sort the remaining line of data:
Sorting the data by address places the allocated and free addresses in ascending order, making it easy to identify whether a particular address is GETMAINed or free, and if GETMAINed, to which subpool and key.

Note that this sorting technique is not effective for VSMDATA output that contains local data from multiple address spaces. VSMDATA output from an SVC dump generally contains only one address space. In the event the dump is of multiple address spaces, VSMDATA output can be limited to a single address space through the ASID or JOBNAME parameter.

**VERBEXIT VSMDATA OWNCOMM subcommand output**

Enter the VERBEXIT VSMDATA OWNCOMM command to display information about jobs or address spaces that hold storage in the common service area (CSA), extended CSA, system queue area (SQA), or extended SQA. The dump being analyzed with VERBEXIT VSMDATA OWNCOMM must contain the SQA and ESQA subpools. If you use the SDUMP or SDUMPX macro or the DUMP command to obtain the dump, make sure to specify the SQA option of the SDATA parameter. This ensures that the following control blocks will appear in the formatted dump.

**Table 66. Summary: Control blocks in VERBEXIT VSMDATA OWNCOMM subcommand output**

<table>
<thead>
<tr>
<th>Control Block</th>
<th>Mapping Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address space control block (ASCB)</td>
<td>ASCB</td>
</tr>
<tr>
<td>Address space secondary block (ASSB)</td>
<td>ASSB</td>
</tr>
<tr>
<td>Common area user block (CAUB)</td>
<td>IGVCAUB</td>
</tr>
<tr>
<td>Getmained queue element (GQE)</td>
<td>IGVGQE</td>
</tr>
<tr>
<td>GQE Queue Anchor Table (GQAT)</td>
<td>IGVGQAT</td>
</tr>
<tr>
<td>VSM address space block (VAB)</td>
<td>IGVVAB</td>
</tr>
</tbody>
</table>

If one of these control blocks does not appear in the dump, IPCS does one of the following:

- For a VERBEXIT VSMDATA OWNCOMM SUMMARY request, IPCS displays a message indicating that it cannot access the control block and stops processing the VERBEXIT VSMDATA OWNCOMM SUMMARY request.
- For a VERBEXIT VSMDATA OWNCOMM DETAIL request, IPCS displays a message indicating that it cannot access the control block, and continues processing the dump.

Enter the VERBEXIT VSMDATA OWNCOMM SUMMARY command to obtain a report like the one shown in Figure 96 on page 900. The report is sorted by ASID.
The report displays information for all ASIDs.

---

**VIRTUAL STORAGE MANAGEMENT DUMP FORMAT ROUTINE**

**OWNCOMM SUMMARY**

********** GRAND TOTALS **********

<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
<th>Length</th>
<th>SQA</th>
<th>CSA</th>
<th>ESQA</th>
<th>ECSA</th>
<th>CAUB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total for active ASIDs</td>
<td>00295558</td>
<td>0148F0</td>
<td>044EC0</td>
<td>00E4EFO</td>
<td>00156E8B</td>
<td>********</td>
<td></td>
</tr>
<tr>
<td>Total for &quot;Owner Gone&quot;</td>
<td>000147D0</td>
<td>0012C8</td>
<td>00F230</td>
<td>000004A8</td>
<td>00003E30</td>
<td>********</td>
<td></td>
</tr>
<tr>
<td>Total for &quot;No Detail&quot;</td>
<td>00000000</td>
<td>000000</td>
<td>000000</td>
<td>00000000</td>
<td>00000000</td>
<td>********</td>
<td></td>
</tr>
<tr>
<td>Grand Total</td>
<td>00404B00</td>
<td>01D668</td>
<td>068860</td>
<td>00205130</td>
<td>00179B08</td>
<td>*******</td>
<td></td>
</tr>
</tbody>
</table>

---

**TOTAL SYSTEM-owned**

- The amount of CSA, ECSA, SQA, and ESQA storage that the system is currently using.
- If the system cannot access the SYSTEM CAUB, all the counts in the “Grand Totals” part of the report display ‘????????’ and the counts for the SYSTEM CAUB are not included in the displayed total counts.

**Total for active ASIDs**

- The amount of CSA, ECSA, SQA, and ESQA storage in bytes that address spaces were using when the system wrote the dump.

---

**Figure 96. Example: VERBEXIT VSMDATA OWNCOMM SUMMARY output**

---

**Grand Totals**

- Header that indicates that totals for the information listed in the remainder of the report follows.

**Total SYSTEM-owned**

- The amount of CSA, ECSA, SQA, and ESQA storage that the system is currently using. If the system cannot access the SYSTEM CAUB, all the counts in the “Grand Totals” part of the report display ‘????????’ and the counts for the SYSTEM CAUB are not included in the displayed total counts.

**Total for active ASIDs**

- The amount of CSA, ECSA, SQA, and ESQA storage in bytes that address spaces were using when the system wrote the dump.
Total for "Owner Gone"
The amount of CSA, ECSA, SQA, and ESQA storage obtained by jobs and address spaces that had ended without a FREEMAIN being issued before the system wrote the dump.

Total for "No Detail"
The amount of CSA, ECSA, SQA, or ESQA storage obtained by jobs and address spaces before the system programmer started the storage tracking function. The system cannot identify users of this storage because the tracking function was not on when you obtained the storage. (If you IPL the system with the tracking function on and do not turn it off, the value in this field is zero).

ASID
The hexadecimal identifier of the address space that owns the specified area of CSA, ECSA, SQA, or ESQA storage.

Jobname
The name of the job that holds the reported area of CSA, ECSA, SQA, or ESQA storage. The job may have finished without issuing a FREEMAIN to free the storage.

ID
The system-assigned identifier for an instance of a job that holds the reported area of CSA, ECSA, SQA, or ESQA storage. Used to identify multiple occurrences of the job.

St
The status of the job specified in the Jobname field:
  Ac Active - The job is active
  OG Owner gone - The job has ended.

Total Length
The total amount of CSA, ECSA, SQA, or ESQA storage (in bytes) held by the reported job. The system displays this amount in hexadecimal.

CSA, ECSA, SQA, ESQA
The total number of bytes of storage held in CSA, ECSA, SQA, and ESQA.

CAUB
The address of the CAUB that contains the reported information. A string of asterisks (*******) in this field indicates that the system might have gathered the reported information from more than one CAUB. IGVCAUB maps the CAUB. For more information, see z/OS MVS Data Areas in the z/OS Internet Library (http://www.ibm.com/systems/z/os/zos/bkserv/).

Enter the VERBEXIT VSMDATAOWNCOMM DETAIL command to obtain a report that displays a list of storage ranges owned by one or more jobs, like the one shown in Figure 97 on page 902. The system assumes the following defaults:
ALL
SORTBY (ASIDADDR)
CONTENTS (YES)
Virtual Storage Management

```
VIRTUAL STORAGE MANAGEMENT DUMP FORMAT ROUTINE
THE FOLLOWING KEYWORDS ARE IN EFFECT:
OWNCOMM
DETAIL
ALL
SORTBY(ASIDADDR)
CONTENTS(YES)

<table>
<thead>
<tr>
<th>Date Time</th>
<th>ASID</th>
<th>Job Name</th>
<th>ID</th>
<th>St</th>
<th>T</th>
<th>Address</th>
<th>Length</th>
<th>Ret Addr</th>
<th>MM/DD/YY</th>
<th>HH:MM:SS</th>
<th>CAUB</th>
<th>GQE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000</td>
<td>SYSTEM</td>
<td>..........</td>
<td>Ac</td>
<td>C</td>
<td>00C50F40</td>
<td>000020C0</td>
<td>0003D132</td>
<td>Not Available</td>
<td>01B31378</td>
<td>01B351A8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Data ------ | 00000000 | 00000000 | 00000000 | 00000000 | *----------*
| 0000      | SYSTEM | .......... | Ac | C | 00C53C00 | 00104000 | 0003D132 | Not Available | 01B31378 | 01B35160 |      |     |
| Data ------ | 00000000 | 00000000 | 00000000 | 00000000 | *----------*
| 0000      | SYSTEM | .......... | Ac | C | 00C64F70 | 00020900 | 0003D132 | Not Available | 01B31378 | 01B35148 |      |     |
| Data ------ | 00000000 | 00000000 | 00000000 | 00000000 | *----------*
| 0000      | SYSTEM | .......... | Ac | C | 00C67DE0 | 000000A8 | 0003D132 | Not Available | 01B31378 | 01B35130 |      |     |
| Data ------ | CAE2E5A4 | 00C67DFC | 00C67E14 | 00C67E38 | *DSV ...F...F=...F=* |
| 0000      | SYSTEM | .......... | Ac | C | 00C67E88 | 00000178 | 0003D132 | Not Available | 01B31378 | 01B350E8 |      |     |
| Data ------ | E2C4E6F1 | 00000000 | 00000000 | A5821BEF | *SDW1......V...* |
| 0000      | SYSTEM | .......... | Ac | 5 | 00E00000 | 00000020 | FFFFFFE | Not Available | 01B31378 | 01B36828 |      |     |
| Data ------ | 00C42300 | 00C42000 | 00C43700 | 00C44100 | *.D...D...D..D.* |
| 0001      | MASTER | .......... | Ac | C | 00C29688 | 00000698 | 00E40048 | 05/15/92 | 14:02:44 | 01B31418 | 01BF53B8 |      |     |
| Data ------ | 00000000 | 00000000 | 00000000 | 00000000 | *----------*
| 0001      | MASTER | .......... | Ac | C | 00C24B18 | 000004E8 | 81E21616 | 05/15/92 | 14:02:37 | 01B31418 | 01A571C0 |      |     |
| Data ------ | 710004E0 | 00C24B00 | 00C24B00 | 00C24DF8 | *...Y.B..B..B(8* |
| 0001      | MASTER | .......... | Ac | C | 00C25000 | 00001000 | 81E21616 | 05/15/92 | 14:02:37 | 01B31418 | 01BF50B8 |      |     |
| Data ------ | 00000000 | 00000000 | 00000000 | 00000000 | *----------*
| 0001      | MASTER | .......... | Ac | C | 00C26178 | 00000150 | 81E21616 | 05/15/92 | 14:02:37 | 01B31418 | 01BF51A8 |      |     |
| Data ------ | 71000150 | 00C26240 | 00C26240 | 00C26270 | *...&.B. .B. .B..* |

(report continues)

GRAND TOTALS

<table>
<thead>
<tr>
<th>Description</th>
<th>Length</th>
<th>SQA</th>
<th>CSA</th>
<th>ESQA</th>
<th>ECSA</th>
<th>CAUB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total SYSTEM-owned</td>
<td>0015A0D8</td>
<td>007A80</td>
<td>014770</td>
<td>0011FD98</td>
<td>001EE20</td>
<td>01B31378</td>
</tr>
<tr>
<td>Total for active ASIDs</td>
<td>00295156</td>
<td>0148F0</td>
<td>00E4EC</td>
<td>0000E4F0</td>
<td>0015E6B8</td>
<td></td>
</tr>
<tr>
<td>Total for &quot;Owner Gone&quot;</td>
<td>000147D0</td>
<td>0012C8</td>
<td>00F230</td>
<td>000004A8</td>
<td>00003E30</td>
<td></td>
</tr>
<tr>
<td>Total for &quot;No Detail&quot;</td>
<td>00000000</td>
<td>000000</td>
<td>000000</td>
<td>00000000</td>
<td>00000000</td>
<td></td>
</tr>
<tr>
<td>Grand Total</td>
<td>00404B00</td>
<td>01D668</td>
<td>068860</td>
<td>00205130</td>
<td>00179B08</td>
<td></td>
</tr>
</tbody>
</table>

END OF VIRTUAL STORAGE MANAGEMENT DUMP FORMAT ROUTINE

Figure 97. Example: VERBEXIT VSMDATA OWNCOMM DETAIL output

The field descriptions and defaults are the same as for the VERBEXIT VSMDATA OWNCOMM SUMMARY output shown in Figure 96 on page 900 except the following fields:

Total for active ASIDs
The amount of CSA, ECSA, SQA, and ESQA storage that address spaces were using when the system wrote the dump. This value only applies to address spaces that were requested for this report.

Total for "Owner Gone"
The amount of CSA, ECSA, SQA, and ESQA storage obtained by jobs and address spaces that had ended before the dump was written. This value only applies to address spaces that were requested for this report.

ASID
The hexadecimal identifier of the address space that owns the specified area of
Virtual Storage Management

CSA, ECSA, SQA, or ESQA storage. Specify the ASIDLIST keyword to limit the number of address spaces displayed in this column.

T  The type of storage:
   •  C - Indicates that the obtained storage is in CSA or ECSA.
   •  S - Indicates that the obtained storage is in SQA or ESQA.

Address
   The starting address of a storage range held by the reported job.

Length
   The length of the storage range, in hexadecimal, starting at the address shown in the Address column.

Ret Addr
   The address to which the system returned after issuing the GETMAIN, STORAGE, or CPOOL macro for the specified storage range. If the value in this field is X'FFFFFFFE', the specified storage was obtained during MVS initialization.

Date, Time
   The date and time when the storage was obtained. When the time-of-day clock is not available, IPCS displays “Not Available” in the Date and Time columns.

GQE
   Information that IBM may request for diagnosis.

DATA----->
   The first 10 bytes of data that the address in the Address field points to.

Grand Totals
   Header that indicates that totals for the information listed above follow. The totals are provided only for entries selected by the filters specified on the VERBEXIT VSMDATA OWNCOMM DETAIL command. The following examples show the output that appears in the “Grand Totals” section when certain filters are specified:

VSMDATA OWNCOMM DETAIL
   The grand totals section contains all the total lines shown in Figure 97 on page 902.

VSMDATA OWNCOMM DETAIL SYSTEM
   The grand totals section contains only the Total SYSTEM-owned line.

VSMDATA OWNCOMM DETAIL ASIDLIST(4)
   The grand totals section contains only the Total for active ASIDs and Total for “Owner Gone” lines. The totals counts listed on those lines are for ASID 4 only.

VERBEXIT VSMDATA CONTROLBLOCKS subcommand output
   The report generated by the VERBEXIT VSMDATA subcommand formats the following VSM control blocks:
   •  Address queue anchor table (AQAT)
   •  Allocated element (AE)
   •  Cell pool primary extent (PXT)
   •  Cell pool secondary extent (SXT)
   •  Double free element (DFE)
   •  Descriptor queue element (DQE)
   •  Free block queue element (FBQE)
The VERBX VSMDATA command also supports a SUMMARY parameter which provides a more concise report designed specifically for diagnosis of out of storage conditions. This report, generated by the VERBEXIT VSMDATA 'SUMMARY' subcommand, formats key data from the following VSM control blocks:

- Address queue anchor table (AQAT)
- Allocated element (AE)
- Double free element (DFE)
- Descriptor queue element (DQE)
- Free block queue element (FBQE)
- Free queue element (FQE)
- Global data area (GDA)
- Local data area (LDA)

This 'SUMMARY' report also generates the following:

- Global storage map
- Global subpool usage summary
- Local storage map
- Local subpool usage summary

**Note:** The Global and Local subpool usage summaries reflect pages that have all or some of the page allocated. You can find information on the allocation of a particular page in the VSM control blocks representing the page.

The SUMMARY option of the VSMDATA CONTROLBLOCKS report has a feature which allows for easier identification of the subpool, key, and TCB associated with a particular allocated or freemained area. Additionally, this new feature provides you with the capability of sorting the VSMDATA output by subpool, by key, by TCB, or by storage address, provided that the data is first routed to an ISPF data set.

Each line of VSMDATA output that represents an allocated or free area has data similar to the following at the far right:

```
TCB 006FE240 SP/K 229/5 hppmlaaa
```

This data allows for easy identification of the TCB, subpool, and key associated with a particular piece of VSM storage as represented by a line in the VSMDATA output. The character data at the far right (hppmlaaa) is a translation of the address of storage represented by this line of VSMDATA output. This translation gives you the capability of decimally sorting the data into ascending address order. This is useful when trying to identify what subpool a particular address lives in, or in trying to understand what distribution of subpools own a particular section of
storage. It can also be helpful in a tuning analysis because it allows you to see the progression of storage growth within an address space.

To take advantage of the sorting capability provided by this feature, you must first append the PRINT and NOTERM keywords to the VSMDATA command to direct the output data to the IPCSPRNT data set. For example, the following command will route the data to the data set and prevent it from being displayed at the terminal:

```
VERBX VSMDATA 'NOG SUMMARY' PRINT NOTERM
```

Then, you should issue the following command to close the file:

```
CLOSE PRINT
```

After this command has completed, the output should be viewable in the IPCSPRNT data set. Under ISPF, EDIT the data set and perform the following commands:

```
EXCLUDE ALL
to exclude all lines from the data set
F 'SP/K' ALL

to find just the lines with the sortable data
DELETE ALL X
to get discard of all of the other lines
SORT x y
to sort the remaining line of data:
  by ADDRESS
    x=116, y=123
  by SUBPOOL
    x=109, y=111
  by SUBPOOL and KEY
    x=109, y=114
  by TCB
    x=94, y=101
```

Sorting the data by address places the allocated and free addresses in ascending order, making it easy to identify whether a particular address is GETMAINed or free, and if GETMAINed, to which subpool and key.

Note that this sorting technique is not effective for VSMDATA output that contains local data from multiple address spaces. VSMDATA output from an SVC dump generally contains only one address space. In the event the dump is of multiple address spaces, VSMDATA output can be limited to a single address space through the ASID or JOBNAME parameter.

**VERBEXIT VSMDATA OWNCOMM subcommand output**

Enter the VERBEXIT VSMDATA OWNCOMM command to display information about jobs or address spaces that hold storage in the common service area (CSA), extended CSA, system queue area (SQA), or extended SQA. The dump being analyzed with VERBEXIT VSMDATA OWNCOMM must contain the SQA and ESQA subpools. If you use the SDUMP or SDUMPX macro or the DUMP
command to obtain the dump, make sure to specify the SQA option of the SDATA parameter. This ensures that the following control blocks will appear in the formatted dump.

Table 67. Summary: Control blocks in VERBEXIT VSMDATA OWNCOMM subcommand output

<table>
<thead>
<tr>
<th>Control Block</th>
<th>Mapping Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address space control block (ASCB)</td>
<td>ASCB</td>
</tr>
<tr>
<td>Address space secondary block (ASSB)</td>
<td>ASSB</td>
</tr>
<tr>
<td>Common area user block (CAUB)</td>
<td>IGVCAUB</td>
</tr>
<tr>
<td>Getmaind queue element (GQE)</td>
<td>IGVGQE</td>
</tr>
<tr>
<td>GQE Queue Anchor Table (GQAT)</td>
<td>IGVGQAT</td>
</tr>
<tr>
<td>VSM address space block (VAB)</td>
<td>IGVVAB</td>
</tr>
</tbody>
</table>

If one of these control blocks does not appear in the dump, IPCS does one of the following:

- For a VERBEXIT VSMDATA OWNCOMM SUMMARY request, IPCS displays a message indicating that it cannot access the control block and stops processing the VERBEXIT VSMDATA OWNCOMM SUMMARY request.
- For a VERBEXIT VSMDATA OWNCOMM DETAIL request, IPCS displays a message indicating that it cannot access the control block, and continues processing the dump.

Enter the VERBEXIT VSMDATA OWNCOMM SUMMARY command to obtain a report like the one shown in the following figure. The report is sorted by ASID. The report displays information for all ASIDs.
Virtual Storage Management

**Grand Totals**

Header that indicates that totals for the information listed in the remainder of the report follows.

**Total SYSTEM-owned**

The amount of CSA, ECSA, SQA, and ESQA storage that the system is currently using. If the system cannot access the SYSTEM CAUB, all the counts in the “Grand Totals” part of the report display ‘????????’ and the counts for the SYSTEM CAUB are not included in the displayed total counts.

**Total for active ASIDs**

The amount of CSA, ECSA, SQA, and ESQA storage in bytes that address spaces were using when the system wrote the dump.

**Virtual Storage Management Dump Format Routine**

The following keywords are in effect:

**OWNCOMM**

**SUMMARY**

---

**GRAND TOTALS**

---

<table>
<thead>
<tr>
<th>Description</th>
<th>Total</th>
<th>Length</th>
<th>SQA</th>
<th>CSA</th>
<th>ESQA</th>
<th>ECSA</th>
<th>CAUB</th>
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</thead>
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<tr>
<td>Total SYSTEM-owned</td>
<td>0015ADD8</td>
<td>007AB0</td>
<td>014770</td>
<td>0011FD98</td>
<td>0001EE20</td>
<td>01B31378</td>
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<tr>
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<td>0148F0</td>
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<td>Total for &quot;Owner Gone&quot;</td>
<td>000147D0</td>
<td>0012C8</td>
<td>00F230</td>
<td>000004A8</td>
<td>00003E30</td>
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<tr>
<td>Total for &quot;No Detail&quot;</td>
<td>00000000</td>
<td>000000</td>
<td>000000</td>
<td>00000000</td>
<td>00000000</td>
<td>******</td>
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---

| Total                  | 00404B00 | 01D668 | 068860 | 00205130 | 00179B08 |

---

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<tr>
<th>ASID</th>
<th>Job Name ID</th>
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<th>ESQA</th>
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</tr>
</tbody>
</table>

---

**Figure 98. Example: VERBEXIT VSMDATA OWNCOMM SUMMARY output**

**Grand Totals**

Header that indicates that totals for the information listed in the remainder of the report follows.

**Total SYSTEM-owned**

The amount of CSA, ECSA, SQA, and ESQA storage that the system is currently using. If the system cannot access the SYSTEM CAUB, all the counts in the “Grand Totals” part of the report display ‘????????’ and the counts for the SYSTEM CAUB are not included in the displayed total counts.

**Total for active ASIDs**

The amount of CSA, ECSA, SQA, and ESQA storage in bytes that address spaces were using when the system wrote the dump.
### Total for "Owner Gone"
The amount of CSA, ECSA, SQA, and ESQA storage obtained by jobs and address spaces that had ended without a FREEMAIN being issued before the system wrote the dump.

### Total for "No Detail"
The amount of CSA, ECSA, SQA, or ESQA storage obtained by jobs and address spaces before the system programmer started the storage tracking function. The system cannot identify users of this storage because the tracking function was not on when you obtained the storage. (If you IPL the system with the tracking function on and do not turn it off, the value in this field is zero).

**ASID**
The hexadecimal identifier of the address space that owns the specified area of CSA, ECSA, SQA, or ESQA storage.

**Jobname**
The name of the job that holds the reported area of CSA, ECSA, SQA, or ESQA storage. The job may have finished without issuing a FREEMAIN to free the storage.

**ID**
The system-assigned identifier for an instance of a job that holds the reported area of CSA, ECSA, SQA, or ESQA storage. Used to identify multiple occurrences of the job.

**St**
The status of the job specified in the **Jobname** field:

- **Ac** Active - The job is active
- **OG** Owner gone - The job has ended.

### Total Length
The total amount of CSA, ECSA, SQA, or ESQA storage (in bytes) held by the reported job. The system displays this amount in hexadecimal.

**CSA, ECSA, SQA, ESQA**
The total number of bytes of storage held in CSA, ECSA, SQA, and ESQA.

**CAUB**
The address of the CAUB that contains the reported information. A string of asterisks (********) in this field indicates that the system might have gathered the reported information from more than one CAUB. IGVCAUB maps the CAUB. For more information, see [z/OS MVS Data Areas](http://www.ibm.com/systems/z/os/zos/bkserv/) in the z/OS Internet Library.

Enter the VERBEXIT VSMDATA OWNCOMM DETAIL command to obtain a report that displays a list of storage ranges owned by one or more jobs, like the one shown in [Figure 98 on page 907](#).

The system assumes the following defaults:

- **ALL**
- **SORTBY (ASIDADDR)**
- **CONTENTS (YES)**

---

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[Virtual Storage Management](#)  

z/OS V2R2 MVS Diagnosis: Reference
### Virtual Storage Management (VSM)

**Virtual Storage Management Dump Format Routine**

The following keywords are in effect:
- **OWNCOMM**
- **DETAIL**
- **ALL**
- **SORTBY(ASIDADDR)**
- **CONTENTS(YES)**

**REPORT CONTINUES**

---

#### Grand Totals

<table>
<thead>
<tr>
<th>Description</th>
<th>Length</th>
<th>SQA</th>
<th>CSA</th>
<th>ESQA</th>
<th>ECSA</th>
<th>CAUB</th>
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</thead>
<tbody>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<tr>
<td>Total for active ASIDs</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>&quot;Owner Gone&quot;</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>&quot;No Detail&quot;</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**End of Virtual Storage Management Dump Format Routine**

---

**Figure 99. Example: VERBEXIT VSMDATA OWNCOMM DETAIL output**

The field descriptions and defaults are the same as for the VERBEXIT VSMDATA OWNCOMM SUMMARY output, except the following fields:

**Total for active ASIDs**

The amount of CSA, ECSA, SQA, and ESQA storage that address spaces were using when the system wrote the dump. This value only applies to address spaces that were requested for this report.

**Total for "Owner Gone"**

The amount of CSA, ECSA, SQA, and ESQA storage obtained by jobs and address spaces that had ended before the dump was written. This value only applies to address spaces that were requested for this report.

**ASID**

The hexadecimal identifier of the address space that owns the specified area of
Virtual Storage Management

CSA, ECSA, SQA, or ESQA storage. Specify the ASIDLIST keyword to limit the number of address spaces displayed in this column.

T  The type of storage:
    • C - Indicates that the obtained storage is in CSA or ECSA.
    • S - Indicates that the obtained storage is in SQA or ESQA.

Address  The starting address of a storage range held by the reported job.

Length  The length of the storage range, in hexadecimal, starting at the address shown in the Address column.

Ret Addr  The address to which the system returned after issuing the GETMAIN, STORAGE, or CPOOL macro for the specified storage range. If the value in this field is X'FFFFFFFE', the specified storage was obtained during MVS initialization.

Date, Time  The date and time when the storage was obtained. When the time-of-day clock is not available, IPCS displays “Not Available” in the Date and Time columns.

GQE  Information that IBM may request for diagnosis.

DATA----->  The first 10 bytes of data that the address in the Address field points to.

Grand Totals  Header that indicates that totals for the information listed above follow. The totals are provided only for entries selected by the filters specified on the VERBEXIT VSMDATA OWNCOMM DETAIL command. The following examples show the output that appears in the “Grand Totals” section when certain filters are specified:

VSMDATA OWNCOMM DETAIL  The grand totals section contains all the total lines shown in Figure 99 on page 909.

VSMDATA OWNCOMM DETAIL SYSTEM  The grand totals section contains only the Total SYSTEM-owned line.

VSMDATA OWNCOMM DETAIL ASIDLIST(4)  The grand totals section contains only the Total for active ASIDs and Total for “Owner Gone” lines. The totals counts listed on those lines are for ASID 4 only.
Part 3. Appendixes
Appendix. Accessibility

Accessible publications for this product are offered through IBM Knowledge Center (http://www.ibm.com/support/knowledgcenter/SSLTBW/welcome). If you experience difficulty with the accessibility of any z/OS information, send a detailed message to the Contact z/OS or use the following mailing address.

IBM Corporation
Attention: MHVRCFS Reader Comments
Department H6MA, Building 707
2455 South Road
Poughkeepsie, NY 12601-5400
United States

Accessibility features

Accessibility features help users who have physical disabilities such as restricted mobility or limited vision use software products successfully. The accessibility features in z/OS can help users do the following tasks:

- Run assistive technology such as screen readers and screen magnifier software.
- Operate specific or equivalent features by using the keyboard.
- Customize display attributes such as color, contrast, and font size.

Consult assistive technologies

Assistive technology products such as screen readers function with the user interfaces found in z/OS. Consult the product information for the specific assistive technology product that is used to access z/OS interfaces.

Keyboard navigation of the user interface

You can access z/OS user interfaces with TSO/E or ISPF. The following information describes how to use TSO/E and ISPF, including the use of keyboard shortcuts and function keys (PF keys). Each guide includes the default settings for the PF keys.

- z/OS TSO/E Primer
- z/OS TSO/E User’s Guide
- z/OS V2R2 ISPF User’s Guide Vol I

Dotted decimal syntax diagrams

Syntax diagrams are provided in dotted decimal format for users who access IBM Knowledge Center with a screen reader. In dotted decimal format, each syntax element is written on a separate line. If two or more syntax elements are always present together (or always absent together), they can appear on the same line because they are considered a single compound syntax element.

Each line starts with a dotted decimal number; for example, 3 or 3.1 or 3.1.1. To hear these numbers correctly, make sure that the screen reader is set to read out punctuation. All the syntax elements that have the same dotted decimal number
(for example, all the syntax elements that have the number 3.1) are mutually exclusive alternatives. If you hear the lines 3.1 USERID and 3.1 SYSTEMID, your syntax can include either USERID or SYSTEMID, but not both.

The dotted decimal numbering level denotes the level of nesting. For example, if a syntax element with dotted decimal number 3 is followed by a series of syntax elements with dotted decimal number 3.1, all the syntax elements numbered 3.1 are subordinate to the syntax element numbered 3.

Certain words and symbols are used next to the dotted decimal numbers to add information about the syntax elements. Occasionally, these words and symbols might occur at the beginning of the element itself. For ease of identification, if the word or symbol is a part of the syntax element, it is preceded by the backslash (\) character. The * symbol is placed next to a dotted decimal number to indicate that the syntax element repeats. For example, syntax element *FILE with dotted decimal number 3 is given the format 3 \* FILE. Format 3* FILE indicates that syntax element FILE repeats. Format 3* \* FILE indicates that syntax element *FILE repeats.

Characters such as commas, which are used to separate a string of syntax elements, are shown in the syntax just before the items they separate. These characters can appear on the same line as each item, or on a separate line with the same dotted decimal number as the relevant items. The line can also show another symbol to provide information about the syntax elements. For example, the lines 5.1*, 5.1 LASTRUN, and 5.1 DELETE mean that if you use more than one of the LASTRUN and DELETE syntax elements, the elements must be separated by a comma. If no separator is given, assume that you use a blank to separate each syntax element.

If a syntax element is preceded by the % symbol, it indicates a reference that is defined elsewhere. The string that follows the % symbol is the name of a syntax fragment rather than a literal. For example, the line 2.1 %OP1 means that you must refer to separate syntax fragment OP1.

The following symbols are used next to the dotted decimal numbers.

? indicates an optional syntax element
The question mark (?) symbol indicates an optional syntax element. A dotted decimal number followed by the question mark symbol (?) indicates that all the syntax elements with a corresponding dotted decimal number, and any subordinate syntax elements, are optional. If there is only one syntax element with a dotted decimal number, the ? symbol is displayed on the same line as the syntax element, (for example 5? NOTIFY). If there is more than one syntax element with a dotted decimal number, the ? symbol is displayed on a line by itself, followed by the syntax elements that are optional. For example, if you hear the lines 5 ?, 5 NOTIFY, and 5 UPDATE, you know that the syntax elements NOTIFY and UPDATE are optional. That is, you can choose one or none of them. The ? symbol is equivalent to a bypass line in a railroad diagram.

! indicates a default syntax element
The exclamation mark (!) symbol indicates a default syntax element. A dotted decimal number followed by the ! symbol and a syntax element indicate that the syntax element is the default option for all syntax elements that share the same dotted decimal number. Only one of the syntax elements that share the dotted decimal number can specify the ! symbol. For example, if you hear the lines 2? FILE, 2.1! (KEEP), and 2.1 (DELETE), you know that (KEEP) is the default option for the FILE keyword. In the example, if you include the FILE
keyword, but do not specify an option, the default option KEEP is applied. A default option also applies to the next higher dotted decimal number. In this example, if the FILE keyword is omitted, the default FILE(KEEP) is used. However, if you hear the lines 2? FILE, 2.1, 2.1.1! (KEEP), and 2.1.1 (DELETE), the default option KEEP applies only to the next higher dotted decimal number, 2.1 (which does not have an associated keyword), and does not apply to 2? FILE. Nothing is used if the keyword FILE is omitted.

* indicates an optional syntax element that is repeatable
The asterisk or glyph (*) symbol indicates a syntax element that can be repeated zero or more times. A dotted decimal number followed by the * symbol indicates that this syntax element can be used zero or more times; that is, it is optional and can be repeated. For example, if you hear the line 5.1* data area, you know that you can include one data area, more than one data area, or no data area. If you hear the lines 3* , 3 HOST, 3 STATE, you know that you can include HOST, STATE, both together, or nothing.

Notes:
1. If a dotted decimal number has an asterisk (*) next to it and there is only one item with that dotted decimal number, you can repeat that same item more than once.
2. If a dotted decimal number has an asterisk next to it and several items have that dotted decimal number, you can use more than one item from the list, but you cannot use the items more than once each. In the previous example, you can write HOST STATE, but you cannot write HOST HOST.
3. The * symbol is equivalent to a loopback line in a railroad syntax diagram.

+ indicates a syntax element that must be included
The plus (+) symbol indicates a syntax element that must be included at least once. A dotted decimal number followed by the + symbol indicates that the syntax element must be included one or more times. That is, it must be included at least once and can be repeated. For example, if you hear the line 6.1+ data area, you must include at least one data area. If you hear the lines 2+, 2 HOST, and 2 STATE, you know that you must include HOST, STATE, or both. Similar to the * symbol, the + symbol can repeat a particular item if it is the only item with that dotted decimal number. The + symbol, like the * symbol, is equivalent to a loopback line in a railroad syntax diagram.
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for service, and current service activity will cease if a problem is determined to be associated with out-of-support devices. In such cases, fixes will not be issued.

**Minimum supported hardware**

The minimum supported hardware for z/OS releases identified in z/OS announcements can subsequently change when service for particular servers or devices is withdrawn. Likewise, the levels of other software products supported on a particular release of z/OS are subject to the service support lifecycle of those products. Therefore, z/OS and its product publications (for example, panels, samples, messages, and product documentation) can include references to hardware and software that is no longer supported.

- For information about software support lifecycle, see: [http://www.ibm.com/software/support/systemsz/lifecycle/](http://www.ibm.com/software/support/systemsz/lifecycle/)
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