z/OS
2.5

MVS Diagnosis: Reference

GA32-0904-50

Note

Before using this information and the product it supports, read the information in “Notices” on page 837.

This edition applies to Version 2 Release 5 of z/OS® (5650-ZOS) and to all subsequent releases and modifications until otherwise indicated in new editions.

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About this information

This information is divided into the following parts:

- 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.
- Part 2, "Component Reference," on page 405 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 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®

z/OS information

This information explains how z/OS references information in other documents and on the web.

When possible, this information uses cross-document links that go directly to the topic in reference using shortened versions of the document title. For complete titles and order numbers of the documents for all products that are part of z/OS, see *z/OS Information Roadmap*.

To find the complete z/OS library, go to IBM Documentation (www.ibm.com/docs/en/zos).

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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.

Note: IBM z/OS policy for the integration of service information into the z/OS product documentation library is documented on the z/OS Internet Library under IBM z/OS Product Documentation Update Policy (www-01.ibm.com/servers/resourcelink/svc00100.nsf/pages/ibm-zos-doc-update-policy?OpenDocument).

Summary of changes for z/OS MVS Diagnosis: Reference for Version 2 Release 5 (V2R5)

The following content is new, changed, or no longer included in V2R5.

New

The following content is new.

- A new SYSEVENT, REQILMT (X'86'), is added in "Locking for SYSEVENTs" on page 27 and "Summary of system events" on page 30.
- The GRB prefix is added to the module prefix table in Chapter 1, "Identifying modules, components, and products," on page 3.
- Tenant resource group information is added in "POLICY summary report" on page 676 and "POLICY detail report" on page 677.

Changed

The following content is changed.

March 2023 refresh

- The column values for sort by address are updated in "VERBEXIT VSMDATA CONTROLBLOCKS subcommand output" on page 827.

August 2022 refresh

- The RSMDATA HIGHVIRTUAL report is updated to provide improved MEMLIMIT diagnostics; see "RSMDATA HIGHVIRTUAL subcommand output" on page 566. (APAR OA63030, which also applies to z/OS 2.4)

March 2022 refresh

- The descriptions of the MAPPED and TOTAL fields are updated in "RSMDATA DIVMAP subcommand output" on page 561.
- The list of values under DELAY AND STATE SAMPLE INFORMATION is updated in "Service class" on page 610. (APAR OA61789, which also applies to z/OS V2R4 and V2R3)

Prior to March 2022 refresh

- The following entries have been updated in System-defined SVC dumps with titles:
  - "COMPON=RMF, COMPID=27401, ISSUER=GRBMFDEA, RMF MON.I CONTROL" on page 347
  - "COMPON=RMF, COMPID=27401, ISSUER=GRBMFEAR, RMF LISTEN EXITS" on page 348
  - "COMPON=RMF, COMPID=27401, ISSUER=GRBMFEVT, RMF MON.I SAMPLER" on page 348
  - "COMPON=RMF, COMPID=27401, ISSUER=GRBMFFUR, RMF MON.I CONTROL" on page 348

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- “COMPON=RMF, COMPID=27401, ISSUER=GRBMFIDX, RMF MSCH COMPLETION” on page 349
- “COMPON=RMF, COMPID=27401, ISSUER=ERBMFMFC, RMF SESSION CONTROL” on page 349
- “COMPON=RMF, COMPID=27401, ISSUER=GRBMFMLN, ERROR RMF MON I INIT” on page 349
- “COMPON=RMF, COMPID=27401, ISSUER=GRBMFPVS, RMF VSTOR PVT SAMPLER” on page 350
- “COMPON=RMF, COMPID=27401, ISSUER=GRBMFRES, MEMTERM RESOURCE MANAGER” on page 350
- “COMPON=RMF, COMPID=27401, ISSUER=GRBMFSDE, RMF MON.I CONTROL” on page 350
- “COMPON=RMF, COMPID=27401, ISSUER=GRBMFTMA, RMF MON.I TERMINATION” on page 351
- “COMPON=RMF, COMPID=27401, ISSUER=GRBMFTRM, RMF MON.I TERMINATION” on page 351
- “COMPON=RMF, COMPID=27401, ISSUER=GRB3GESA, MONIII GATHERER CANCEL FAILING CSECT NAME cccccccc” on page 351
- “COMPON=RMF, COMPID=27401, ISSUER=GRB3GESA, MONIII GATH RECURSION FAILING CSECT NAME cccccccc” on page 352
- “COMPON=RMF, COMPID=27401, ISSUER=GRB3GESA, FAILURE MONIII GATHERER FAILING CSECT NAME cccccccc” on page 352
- “COMPON=RMF, COMPID=27401, ISSUER=GRB3GXMV, TSO RMFWDM” on page 352
- “COMPON=RMF, COMPID=27401, ISSUER=GRB3GXMV, sid SESSION” on page 352

Deleted

The following content was deleted.

- The following entries have been removed from “System-defined SVC dumps with titles” on page 293 because the affected modules no longer exist:
  - COMPON=RMF, COMPID=27404, ISSUER=ERBCNFGC, I/O CONFIG.TAB. CREATE
  - COMPON=RMF, COMPID=27404, ISSUER=ERBCNFGF, I/O CONFIG.TAB. BUILD
  - COMPON=RMF, COMPID=27404, ISSUER=ERBCNFGG, I/O CONFIG.TAB. CREATE
  - COMPON=RMF, COMPID=27404, ISSUER=ERBMFIQA, RMF I/O QUEUING
  - COMPON=RMF, COMPID=27404, ISSUER=ERB3GEEH, RMF ENQ EVENT HANDLER
  - COMPON=RMF, COMPID=27404, ISSUER=ERB3RMFC, M3 LOCAL SESSION INIT
  - COMPON=RMF-ENQ EVENT HANDLER, COMPID=27404, ISSUER=ERBMFEEQ
- Information related to EWLM has been removed from “POLICY summary report” on page 676 and “POLICY detail report” on page 677.

Summary of changes for z/OS Version 2 Release 4

The following changes are made for z/OS Version 2 Release 4 (V2R4).

New

The following new information is added in this publication:

January 2021 refresh

- With APAR OA59829, the PFS latch identity string was added for z/OS UNIX. For more information, see “z/OS UNIX latch identities” on page 552.
- With RMF APAR OA58281/OA58759, the ERB data prefix was added to the RMF Data Gatherer component. For more information, see Table 1 on page 4.
- Updated sample output in the “COUPLE SIGNAL DETAIL report” on page 770. (APAR OA59063)

September 2020 refresh

- In "RSMDATA HIGHVIRTUAL subcommand output" on page 566, the example output has been updated, and the descriptions of the V and LOC/LOC2 columns have been updated via APAR OA58289.

Prior to September 2020 refresh

- The Summary of Memory Objects now includes an indication of the sensitive state of the data in a memory object in "RSMDATA HIGHVIRTUAL subcommand output" on page 566 (APAR OA57633).
- BWODSN, SYSZBPX, SYSZBPXF, SYSZIGG3, SYSZIGG4, SYSZIGG5, and SYSZILRD are added in Table 9 on page 211.
- The virtual storage layout, Figure 3 on page 231, has been updated.
- "RSMDATA HIGHVIRTUAL subcommand output" on page 566, "RSMDATA SHRDATA subcommand output" on page 589, and "RSMDATA VIRTPAGE subcommand output" on page 597 have been updated to support 64-bit data sharing.

Changed

The following information is changed in this publication:

May 2021 refresh

- For APAR OA60310, the following RSMDATA reports are updated:
  - The DIVMAP report now supports a 64-bit start address and indicates z/OS UNIX memory maps. See "RSMDATA DIVMAP subcommand output" on page 561.
  - The HIGHVIRT report now includes a D column to indicate mapped objects. See "RSMDATA HIGHVIRTUAL subcommand output" on page 566.
  - The D column on VIRTPAGE report is updated to reflect additional status values. See "RSMDATA VIRTPAGE subcommand output" on page 597.

Prior to September 2020 refresh

- Table 1 on page 4 is updated to add components HWI and HWT.
- Table 9 on page 211 is updated to add SYSZGLZ for zCX.
- Table 9 on page 211, "Sample JCL procedures and functions in SYS1.SAMPLIB" on page 622, "IXGDELLS – Delete a log stream from LOGR CDS" on page 625 and "Interpreting IXCMIAPU output" on page 633 are updated for system logger enhancement to support single-system scope Couple Data Set types (LOGRY and LOGRZ) for GDPS K-system environments.
- Table 9 on page 211 is updated in support of Decase VARY Command.
- GTF data has been updated in "SVC 117 (0A75)" on page 184.

Deleted

The following information is deleted in this publication:

Prior to September 2020 refresh

- COMPON=COMMTASK, COMPID=5752xxxxx, ISSUER=iiiiiiii, MODULE=cccccccc, ABEND=aaa, REASON=rrrrrrrr is deleted from "System-defined SVC dumps with titles" on page 293 in Chapter 10, "SVC dump directory," on page 293.

Summary of changes for z/OS Version 2 Release 3

The following changes are made for z/OS Version 2 Release 3 (V2R3).

New and Changed

- Information about RUCSA storage has been added in Chapter 8, “Storage summary,” on page 231 and Chapter 29, “Virtual Storage Management (VSM),” on page 827. (APAR OA56180)
- The virtual storage layout, Figure 3 on page 231, has been updated.
- For APAR OA54807, information about octo frames has been added to the RSMDATA SUMMARY subcommand output. See “RSMDATA SUMMARY subcommand output” on page 595.
- Updates to “VERBEXIT GRSTRACE subcommand output” on page 487 for APAR OA53509. This APAR introduces new NOSORT parameter for VERBEXIT GRSTRACE, which lets you skip the sorting of the resources to speed the completion of the report.
- Update to “RSMDATA ADDRSPACE subcommand output” on page 556 with new fields, TOT DREF, AUX DASD, AUX SCM, and MP NAME. The report displays TOT DREF, AUX DASD, and AUX SCM for both the issuing address space and all selected address spaces.
- For APAR OA3579, updates to “RSMDATA REALFRAME subcommand output” on page 576 and “RSMDATA SUMMARY subcommand output” on page 595.
- Chapter 1, “Identifying modules, components, and products,” on page 3 was updated with the latest information, and the tables in this section were consolidated into one concise table.
- The description of system event MEMCREAT (X'06') was changed in Table 4 on page 31.
- Added SYSEVNT QRYTNT to “Locking for SYSEVENTs” on page 27.
- Added code 85 to “Summary of system events” on page 30.
- Added a SYSEVNT, SDUMP, to “Locking for SYSEVENTs” on page 27 and “Summary of system events” on page 30.
- Added program call services to Chapter 5, “Program call services in the system function table,” on page 199.
- Added an entry for SYSZADRO in “ENQ/DEQ summary” on page 211, for DFSMS transparent cloud tiering support.
- New entry SYSZHZR in “ENQ/DEQ summary” on page 211, for Runtime Diagnostics serialization.
- Added new information for IBM z14™ (z14) in “RSMDATA HIGHVIRTUAL subcommand output” on page 566 and “RSMDATA VIRTPAGE subcommand output” on page 597.
- XESDATA STRDATA now reports on coupling facility structure encryption, see “Formatting coupling facility structure dump data using the IPCS subcommand - STRDATA” on page 796.

Deleted

- Information about the OMVSDATA NETSTAT subcommand has been removed from “OMVSDATA subcommand” on page 516.
- Information relating to shared mode for consoles was removed from “COMCHECK MCSINFO subcommand output” on page 449 and “COMCHECK UCM subcommand output” on page 470.
- Several system events were removed from Table 3 on page 28: MIGCNSTR, MIGPURGE, MIGSWAP. SOUTSUSP, and WKLDCHG.

Part 1. System Reference

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Chapter 1. Identifying modules, components, and products

This topic contains information to help you identify module, component, and product information that is related to where an error is occurring.

Use Table 1 on page 4 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 *z/OS SMP/E User's Guide* for information on using SMP/E.

Table 1 on page 4 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 that is 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 that is 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 that identifies 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 that are not shown in this table, see the programming support manual for the product or subsystem or use SMP/E reports.
- **Product, element name, or optional feature:** Some of the products and subsystems are:

  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

  DFSMStvs
  DFSMS Transactional VSAM Services

  EREP
  Environmental Record Editing and Printing program

  JES2
  Job entry subsystem 2

  JES3
  Job entry subsystem 3

  MVS™
  Control program for MVS

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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

Table 1. Relating a module prefix to component and product

Module prefix	Component name	Product ID	Component ID	Product, element name, or optional feature
ADF	TSO and TSO/E session manager	5650-ZOS	566528505	TSO/E
ADR	DFSMSdss	5650-ZOS	5695DF175	DFSMSdss
ADY	Dump analysis and elimination (DAE)	5650-ZOS	5752SC143	MVS
AFH	Fortran Library	5650-ZOS	568819804	Language Environment®
AHL	Macros for GTF (formerly AMDPRDMP macros)	5650-ZOS	5752SC113	MVS
AHL - AHLC	Generalized trace facility (GTF)	5650-ZOS	5752SC111	MVS
AHLF - AHLMC	Generalized trace facility (GTF)	5650-ZOS	5752SC111	MVS
AHLMF - AHLW	GTFTRACE subcommand of IPCS	5650-ZOS	5752SC118	MVS
AIR-AIRH	Predictive Failure Analysis (PFA)	5650-ZOS	5752SCPFA	MVS
AKJL	LINK/LOADGO prompter	5650-ZOS	5695PMB01	Program Management
AMA	AMATERSE service aid	5650-ZOS	5752SC112	MVS
AMA	Problem Documentation Upload Utility (PDUU)	5650-ZOS	5752SC112	MVS
AMA	SPZAP service aid	5650-ZOS	5752SC112	MVS
AMB	LIST service aid (AMBLIST)	5650-ZOS	5695PMB01	Program Management
AMD	Stand-alone dump (SADMP)	5650-ZOS	5752SC115	MVS
AMS	System Availability Management (SAM) of the Resource Measurement Facility (RMF)	5650-ZOS	566527404	RMF
ANT	System data mover	5650-ZOS	5695DF117	DFSMSdss
AOM	Device Support Services (AOM)	5650-ZOS	5695DF113	DFSMSdfp
ARC	DFSMShsm	5650-ZOS	5695DF170	DFSMShsm
ASA	MVS reuse	5650-ZOS	5752SCASA	MVS
ASB	Advanced Program-to-Program Communication (APPC) scheduler	5650-ZOS	5752SCACB	MVS
ASE	Address space services	5650-ZOS	5752SCASE	MVS
ASR	Symptom record (SYMREC) services	5650-ZOS	5752SCASR	MVS
ATB	Advanced Program-to-Program Communication (APPC)	5650-ZOS	5752SCACB	MVS
ATR	Resource recovery services	5650-ZOS	5752SCRRS	MVS
AVF	Availability manager	5650-ZOS	5752SCAVM	MVS
AXR	System REXX	5650-ZOS	5752SCAXR	MVS
BCD	z/OS Batch Runtime	5650-ZOS	5752SC1BC	MVS
BCF	Base Crypto Function	5650-ZOS	566505101	MVS

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

Module prefix	Component name	Product ID	Component ID	Product, element name, or optional feature
BCN	SMP/E Planning and Migration Assistant	5650-ZOS, 5655-G44	566894902	SMP/E
BLR	Interactive problem control system (IPCS)	5650-ZOS	5752SC132	MVS
BLS	Interactive problem control system (IPCS)	5650-ZOS	5752SC132	MVS
BLW	Loadwait/Restart	5650-ZOS	5752SCLWT	MVS
BOP	z/OS UNIX (z/OS UNIX System Services) support	5650-ZOS	5752SCPX6	MVS
BPX	z/OS UNIX System Services	5650-ZOS	5695SCPX1	MVS
CBD	Hardware configuration definition (HCD)	5650-ZOS	5695SC1XL	MVS
CBD	Interactive storage management facility (ISMF) and Hardware Configuration Definition (HCD)	5650-ZOS	5695DF161	DFSMSdfp
CBP	MVS configuration program (MVSCP)	5665	29105	MVS
CBPUS01 - CBPUSnn	Input/output supervisor (IOS) unit information module (UIM)	5650-ZOS	5752SC1C3	MVS
CBQ	Runtime Library Extensions	5650-ZOS	56551210D	MVS
CBR	Object Access Method (OAM)	5650-ZOS	5695DF180	DFSMSdfp
CDA	Runtime Library Extensions	5650-ZOS	56551210D	MVS
CDS	Open Cryptographic Services Facility	5650-ZOS	565506804	Cryptographic Services
CEA	Common Event Adapter	5650-ZOS	5752SCCEA	MVS
CEE	Language Environment	5650-ZOS	568819801	Language Environment
CEH	Language Environment	5650-ZOS	568819801	Language Environment
CEJ	Language Environment	5650-ZOS	568819801	Language Environment
CEL	Language Environment	5650-ZOS	568819801	Language Environment
CEQ	Language Environment **Note:** CEQ excludes CEQA, CEQL, and CEQN, which belong to Open Cryptographic Enhanced Plug-ins.	5650-ZOS	568819801	Language Environment
CEQA, CEQL, CEQN	Open Cryptographic Enhanced Plug-ins	5650-ZOS	565506809	Security Server
CEU	Language Environment	5650-ZOS	568819801	Language Environment
CEZ	Language Environment	5650-ZOS	568819801	Language Environment
CHS	TSO/E Enhanced Connectivity Facility	5650-ZOS	566528507	TSO/E
CIP	Utilities (3800 Offline Utility)	5650-ZOS	5695DF114	DFSMSdfp
CLB	Runtime Library Extensions	5650-ZOS	56551210D	MVS
CLE	Runtime Library Extensions	5650-ZOS	56551210D	MVS
CNL	MVS message service (MMS)	5650-ZOS	5752SCMMS	MVS
CNN	XL C/C++ Compiler	5650-ZOS	56551210A	MVS
CNZ	Console Services	5650-ZOS	5752SC1CK	MVS
COF	Virtual lookaside facility (VLF)	5650-ZOS	5752SC164	MVS
CRG	Context services (Registration services)	5650-ZOS	5752SCCTX	MVS
CRT	C++ Standard Library	5650-ZOS	568819807	Language Environment
CSF	Integrated Cryptographic Service Facility/Trusted Key Entry	5650-ZOS	568505102	Cryptographic Services

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

Module prefix	Component name	Product ID	Component ID	Product, element name, or optional feature
CSF	Integrated Cryptographic Service Facility (ICSF)	5650-ZOS	568505101	Cryptographic Services
CSR	Callable service requests and Integrated Cryptographic Service Facility (ICSF)	5650-ZOS	5752SCCSR	MVS
CSV	Contents supervision (CSV)	5650-ZOS	5752SC1CJ	MVS
CTV	C/C++ Performance Analyzer	5655-A45, 5650-ZOS	5655A4501	MVS
CTX	Context services	5650-ZOS	5752SCCTX	MVS
CUN	Unicode Services	5650-ZOS	5752SCUNI	MVS
CVA	Common volume table of contents (VTOC) access facility (CVAF)	5650-ZOS	5695DF133	DFSMSdfp
DGT	Interactive storage management facility (ISMF) and Hardware Configuration Definition (HCD)	5650-ZOS	5695DF161	DFSMSdfp
EDC	C/C++ Library	5650-ZOS	568819805	Language Environment
EDG	DFSMSrmm	5650-ZOS	5695DF186	DFSMSrmm
END	TSO and TSO/E session manager	5650-ZOS	566528505	TSO/E
ERB	Resource Measurement Facility (RMF)	5650-ZOS	566527404	RMF
EUVF	Network Authentication Service	5650-ZOS	565506807	Integrated Security Services
EZA	Communication Server for z/OS IP Services	5650-ZOS	5655HAL00	Communication Server for z/OS IP Services
EZB	Communication Server for z/OS IP Services	5650-ZOS	5655HAL00	Communication Server for z/OS IP Services
EZY	Communication Server for z/OS IP Services	5650-ZOS	5655HAL00	Communication Server for z/OS IP Services
EZZ	Communication Server for z/OS IP Services	5650-ZOS	5655HAL00	Communication Server for z/OS IP Services
FDBX	z/OS UNIX Debugger	5650-ZOS	5695SCPX3	MVS
FOM	z/OS UNIX System Services application services	5650-ZOS	5695SCPX4	MVS
FPG	Hardware accelerator manager (HWAM)	5650-ZOS	5752SCIQP	MVS
FPZ	zEnterprise® Data Compression (ZEDC)	5650-ZOS	5752SCIQP	MVS
FSUM	z/OS Shell and Utilities	5650-ZOS	5695SCPX2	MVS
FXE	IBM Function Registry for z/OS	5650-ZOS	5752SCFXE	MVS
GFS	z/OS Network File System	5650-ZOS	5695DF121	DFSMSdfp
GFU	Hierarchical File System (HFS) Adapter	5650-ZOS	5695DF185	DFSMSdfp
GIM	SMP/E	5650-ZOS, 5655-G44	566894901	SMP/E
GLD	LDAP Server	5650-ZOS	565506803	Integrated Security Server
GRB/ERB	z/OS Data Gatherer	5650-ZOS	566527401	z/OS Data Gatherer
GSK	System SSL	5650-ZOS	565506805	Cryptographic Services
GTZ	IBM Generic Tracker for z/OS	5650-ZOS	5752SCGTZ	MVS
HAS	JES2	5650-ZOS	5752SC1BH	JES2
HEW	Program Management (linkage editor and batch loader)	5650-ZOS	5695PMB01	Program Management

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

Module prefix	Component name	Product ID	Component ID	Product, element name, or optional feature
HPD	IBM Policy Director Authorization Services for z/OS	5655-F95	5655F9500, 5655F9501	IBM Policy Director Authorization Services for z/OS
HWI	Base Control Program internal interface (BCPii)	5650-ZOS	5752SCHWI	MVS
HWT	z/OS Client Web Enablement Toolkit	5650-ZOS	5752SCHWT	MVS
HZR	Runtime Diagnostics	5650-ZOS	5752SCRTD	MVS
HZS	IBM Health Checker for z/OS	5650-ZOS	5752SCHZS	MVS
IAR	Real storage manager (RSM)	5650-ZOS	5752SC1CR	MVS
IASA - IASW	JES2	5650-ZOS	5752SC1BH	JES2
IASX	External writer (XWTR)	5650-ZOS	5752SC1B2	JES2
IAT	JES3	5650-ZOS	5752SC1BA	JES3
IAX	Real storage manager (RSM)	5650-ZOS	5752SC1CR	MVS
IAZ	Functional subsystem interface (FSI)	5650-ZOS	5752SC141	JES2
IBM	PL/I Library, VA PL/I Library	5650-ZOS	568819803, 568819806	Language Environment
ICA	Firewall Technologies	5650-ZOS	5655A2800	Security Server
ICH	Resource Access Control Facility (RACF)	5650-ZOS	5752XXH00	RACF
ICK	Device Support Facilities	5655-257	565899201	ICKDSF
ICP	Input/output configuration program (IOCP)	5650-ZOS	566529101, 566529102	MVS
ICQ	TSO/E Information Center Facility (ICF)	5650-ZOS	566528506	TSO/E
ICT	Programmed Cryptographic Facility	5740-XY5	5741XY500	Cryptographic Services
ICV	Common volume table of contents (VTOC) access facility (CVAF)	5650-ZOS	5695DF133	DFSMSdfp
ICY	Media manager	5650-ZOS	5695DF106	DFSMSdfp
IDA	VSAM base	5650-ZOS	5695DF106	DFSMSdfp
IDA	VSAM RLS	5650-ZOS	5695DF122	DFSMSdfp
IDA	VIO	5650-ZOS	5695DF102	DFSMSdfp
IDC	Access Method Services (AMS)	5650-ZOS	5695DF103	DFSMSdfp
IDD	Basic access methods (Virtual I/O (VIO))	5650-ZOS	5695DF102	DFSMSdfp
IDYTSLIB	TSOLIB command	5650-ZOS	566528502	TSO/E
IEA	Serviceability level indicator processing (SLIP)	5650-ZOS	5752SCSLP	MVS
IEAALxxx	Program Call authorization (PC/AUTH) service routines	5650-ZOS	5752SCXMS	MVS
IEAASxxx - IEACSxxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEACVxxx	Mapping macros of supervisor control	5650-ZOS	5752SC101	MVS
IEAExxxx	Program Call authorization (PC/AUTH) service routines	5650-ZOS	5752SCXMS	MVS
IEAFIxxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAFTxxx	Recovery termination manager (RTM)	5650-ZOS	5752SCRTM	MVS
IEAHxxxx	Supervisor Control	5650-ZOS	5752SC1C5	MVS
IEAIHxxx	Supervisor control	5650-ZOS	5752SC1C5	MVS

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

Module prefix	Component name	Product ID	Component ID	Product, element name, or optional feature
IEAIPCSP	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAIPL08, IEAIPL18, IEAIPL88	Allocation/unallocation	5650-ZOS	5752SC1B4	MVS
IEAIPxxx	Initial program load (IPL)	5650-ZOS	5752SC1C9	MVS
IEALCxxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEALIxxx	Virtual storage management (VSM)	5650-ZOS	5752SC1CH	MVS
IEALSxxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAMLTxx	Device support	5650-ZOS	5695DF106	DFSMSdfp
IEAMLxxx	Input/output supervisor (IOS)	5650-ZOS	5752SC1C3	MVS
IEAMSDxx	Recovery termination manager (RTM)	5650-ZOS	5752SCRTM	MVS
IEAMSWxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAMTLxx	Input/output supervisor (IOS)	5650-ZOS	5752SC1C3	MVS
IEAPAxxx	Mapping macros of supervisor control	5650-ZOS	5752SC101	MVS
IEAPSxxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEARxxxx	Task management	5650-ZOS	5752SC1CL	MVS
IEASCFxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEASCVxx	Mapping macros of supervisor control	5650-ZOS	5752SC101	MVS
IEASMxxx	System management facilities (SMF)	5650-ZOS	5752SC102	MVS
IEASRxxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEASSAxx	Task management	5650-ZOS	5752SC1CL	MVS
IEASSRxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEASTCxx	Task management	5650-ZOS	5752SC1CL	MVS
IEASTKxx	Program Call authorization (PC/AUTH) service routines	5650-ZOS	5752SCXMS	MVS
IEASVxxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEASYxxx	Nucleus initialization program (NIP)	5650-ZOS	5752SC1C8	MVS
IEATCxxx	Task management	5650-ZOS	5752SC1CL	MVS
IEATDxxx - IEATExxx	Timer supervision	5650-ZOS	5752SC1CV	MVS
IEATLxxx	System management facilities (SMF) and SMF scheduler	5650-ZOS	5752SC100	MVS
IEATPxxx	Timer supervision	5650-ZOS	5752SC1CV	MVS
IEATSxxx - IEATTxxx	Timer supervision	5650-ZOS	5752SC1CV	MVS
IEAV1443	Console Services	5650-ZOS	5752SC1CK	MVS
IEAVADxx	Dumping Services	5650-ZOS	5752SCDMP	MVS
IEAVALxx	Program Call authorization (PC/AUTH) service routines	5650-ZOS	5752SCXMS	MVS
IEAVAPxx	Initial program load (IPL)	5650-ZOS	5752SC1C9	MVS
IEAVARxx - IEAVAXxx	Region control task (RCT) of address space control	5650-ZOS	5752SC1CU	MVS
IEAVBLWT	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVBLxx	Virtual storage management (VSM)	5650-ZOS	5752SC1CH	MVS

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

Module prefix	Component name	Product ID	Component ID	Product, element name, or optional feature
IEAVBNLK	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVBTxx	Task management	5650-ZOS	5752SC1CL	MVS
IEAVBWxx	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVC6xx	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVC7xx	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVCBxx - IEAVCRxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVCVxx	Mapping macros of supervisor control	5650-ZOS	5752SC101	MVS
IEAVD2x - IEAVD3x	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVDExx	Virtual storage management (VSM)	5650-ZOS	5752SC1CH	MVS
IEAVEACx	Task management	5650-ZOS	5752SC1CL	MVS
IEAVEADx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVEAT	Task management	5650-ZOS	5752SC1CL	MVS
IEAVEBxx - IEAVECBx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVECH	Task management	5650-ZOS	5752SC1CL	MVS
IEAVECMx - IEAVEDxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVEEDx	Task management	5650-ZOS	5752SC1CL	MVS
IEAVEEEx - IEAVEFxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVEGLT	Task management	5650-ZOS	5752SC1CL	MVS
IEAVEGLU - IEAVEMIx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVEMPx	Task management	5650-ZOS	5752SC1CL	MVS
IEAVEMRx - IEAVEMSx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVENxx	Nucleus initialization program (NIP)	5650-ZOS	5752SC1C8	MVS
IEAVEOxx	Task management	5650-ZOS	5752SC1CL	MVS
IEAVEPCx - IEAVEPDx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVEPS	Task management	5650-ZOS	5752SC1CL	MVS
IEAVEQxx - IEAVESSE	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVEREx	Loadwait/Restart	5650-ZOS	5752SCLWT	MVS
IEAVESSI	Task management	5650-ZOS	5752SC1CL	MVS
IEAVESTx - IEAVESVx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVETAx - IEAVETCK	System trace	5650-ZOS	5752SC142	MVS
IEAVETCL	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVETCV - IEAVETVx	System trace	5650-ZOS	5752SC142	MVS
IEAVEVAx - IEAVEVSx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVEWxx	Task management	5650-ZOS	5752SC1CL	MVS
IEAVEXxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVFRCx	Virtual storage management (VSM)	5650-ZOS	5752SC1CH	MVS
IEAVFRLx- IEAVGSxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVGTxx	Virtual storage management (VSM)	5650-ZOS	5752SC1CH	MVS
IEAVGxxx- IEAVHxxx	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS

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

Module prefix	Component name	Product ID	Component ID	Product, element name, or optional feature
IEAVIDxx	Contents supervision (CSV)	5650-ZOS	5752SC1CJ	MVS
IEAVINxx - IEAVLxxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVMAxx - IEAVMExx	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVMFIH	Service processor interface (SPI)	5650-ZOS	5752SCSPI	MVS
IEAVMFRx- IEAVMNxx	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVMOxx	Task management	5650-ZOS	5752SC1CL	MVS
IEAVMQxx	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVMSFx	Service processor interface (SPI)	5650-ZOS	5752SCSPI	MVS
IEAVMSGx	Virtual storage management (VSM)	5650-ZOS	5752SC1CH	MVS
IEAVMVxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVMWxx- IEAVM9xx	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVN1xx, IEAVN6xx, IEAVN7xx, IEAVN800, IEAVQxxx	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVNIxx	Nucleus initialization program (NIP)	5650-ZOS	5752SC1C8	MVS
IEAVNP00	Reconfiguration	5650-ZOS	5752SC1CZ	MVS
IEAVNP01- IEAVNP03	Nucleus initialization program (NIP)	5650-ZOS	5752SC1C8	MVS
IEAVNP04	Auxiliary storage manager (ASM)	5650-ZOS	5752SC1CW	MVS
IEAVNP05	Contents supervision (CSV)	5650-ZOS	5752SC1CJ	MVS
IEAVNP06 - IEAVNP08	Nucleus initialization program (NIP)	5650-ZOS	5752SC1C8	MVS
IEAVNP09	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVNP10	System resources manager (SRM)	5650-ZOS	5752SC1CX	MVS
IEAVNP11	Catalog	5650-ZOS	5695DF105	DFSMSdfp
IEAVNP12	Catalog	5650-ZOS	5695DF105	DFSMSdfp
IEAVNP13	Master scheduler of command processing	5650-ZOS	5752SC1B8	MVS
IEAVNP14	Auxiliary storage manager (ASM)	5650-ZOS	5752SC1CW	MVS
IEAVNP15	Allocation/unallocation	5650-ZOS	5752SC1B4	MVS
IEAVNP16	OPEN/CLOSE/EOV	5650-ZOS	5695DF107	DFSMSdfp
IEAVNP17	Generalized trace facility (GTF)	5650-ZOS	5752SC111	MVS
IEAVNP18	Master scheduler of command processing	5650-ZOS	5752SC1B8	MVS
IEAVNP19	Nucleus initialization program (NIP)	5650-ZOS	5752SC1C8	MVS
IEAVNP1A	Virtual Storage Access Method (VSAM)	5650-ZOS	5695DF106	DFSMSdfp
IEAVNP1B	Catalog	5650-ZOS	5695DF105	DFSMSdfp
IEAVNP1F	System resources manager (SRM)	5650-ZOS	5752SC1CX	MVS
IEAVNP20 - IEAVNP21	Timer supervision	5650-ZOS	5752SC1CV	MVS
IEAVNP23	Global resource serialization	5650-ZOS	5752SCSDS	MVS
IEAVNP24	Basic access method (BAM)	5650-ZOS	5695DF102	DFSMSdfp
IEAVNP25	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVNP26	Storage management subsystem (SMS)	5650-ZOS	5695DF115	DFSMSdfp
IEAVNP27	Reconfiguration	5650-ZOS	5752SC1CZ	MVS

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

Module prefix	Component name	Product ID	Component ID	Product, element name, or optional feature
IEAVNP33	Global resource serialization	5650-ZOS	5752SCSDS	MVS
IEAVNP47	Event notification facility (ENF) of scheduler services	5650-ZOS	5752BB131	MVS
IEAVNP51	System trace	5650-ZOS	5752SC142	MVS
IEAVNP57	Dumping Services	5650-ZOS	5752SCDMP	MVS
IEAVNP76	Outboard recording (OBR) of logrec error recording	5650-ZOS	5752SCOBR	MVS
IEAVNPA1	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVNPA2	Input/output supervisor (IOS)	5650-ZOS	5752SC1C3	MVS
IEAVNPA5	Contents supervision (CSV)	5650-ZOS	5752SC1CJ	MVS
IEAVNPA6	Recovery termination manager (RTM)	5650-ZOS	5752SCRTM	MVS
IEAVNPA8	Virtual storage management (VSM)	5650-ZOS	5752SC1CH	MVS
IEAVNPB1	Master scheduler of command processing	5650-ZOS	5752SC1B8	MVS
IEAVNPB2	Input/output supervisor (IOS)	5650-ZOS	5752SC1C3	MVS
IEAVNPB8	Virtual storage management (VSM)	5650-ZOS	5752SC1CH	MVS
IEAVNPC1- IEAVNPC4	Nucleus initialization program (NIP)	5650-ZOS	5752SC1C8	MVS
IEAVNPC5	Contents supervision (CSV)	5650-ZOS	5752SC1CJ	MVS
IEAVNPC6	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVNPC7 - IEAVNPC8	Nucleus initialization program (NIP)	5650-ZOS	5752SC1C8	MVS
IEAVNPCA	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVNPCD	Reconfiguration	5650-ZOS	5752SC1CZ	MVS
IEAVNPCF	Nucleus initialization program (NIP)	5650-ZOS	5752SC1C8	MVS
IEAVNPCI	PCIE services	5650-ZOS	5752SCIQP	MVS
IEAVNPD1 - IEAVNPD2	Dumping services	5650-ZOS	5752SCDMP	MVS
IEAVNPD5	Contents supervision (CSV)	5650-ZOS	5752SC1CJ	MVS
IEAVNPD6	Recovery termination manager (RTM)	5650-ZOS	5752SCRTM	MVS
IEAVNPD8	Real storage manager (RSM)	5650-ZOS	5752SC1CR	MVS
IEAVNPE2	Security access facility (SAF)	5650-ZOS	5752SC1BN	MVS
IEAVNPE5	Contents supervision (CSV)	5650-ZOS	5752SC1CJ	MVS
IEAVNPE6	Service processor interface (SPI)	5650-ZOS	5752SCSPI	MVS
IEAVNPEx, IEAVNPFx, IEAVNPMx, IEAVNPXx	Nucleus initialization program (NIP)	5650-ZOS	5752SC1C8	MVS
IEAVNSxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVNUCM	Nucleus initialization program (NIP)	5650-ZOS	5752SC1C8	MVS
IEAVNWTO	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVR601	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVRxxx	Timer supervision	5650-ZOS	5752SC1CV	MVS
IEAVSExx	Task management	5650-ZOS	5752SC1CL	MVS
IEAVSI00	Master scheduler of command processing	5650-ZOS	5752SC1B8	MVS
IEAVSPDM	Service processor interface (SPI)	5650-ZOS	5752SCSPI	MVS

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

Module prefix	Component name	Product ID	Component ID	Product, element name, or optional feature
IEAVSPIP	Contents supervision (CSV)	5650-ZOS	5752SC1CJ	MVS
IEAVSSxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVSTA0 - IEAVST0x	Recovery termination manager (RTM)	5650-ZOS	5752SCRTM	MVS
IEAVSTA2	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVSTAA	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVSVxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVSWxx	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVTABx	Dumping Services	5650-ZOS	5752SCDMP	MVS
IEAVTACR	Alternate CPU recovery (ACR)	5650-ZOS	5752SCACR	MVS
IEAVTBxx	Task management	5650-ZOS	5752SC1CL	MVS
IEAVTCxx - IEAVTESPx	Recovery termination manager (RTM)	5650-ZOS	5752SCRTM	MVS
IEAVTEST	Task management	5650-ZOS	5752SC1CL	MVS
IEAVTEXx - IEAVTPEx	Recovery termination manager (RTM)	5650-ZOS	5752SCRTM	MVS
IEAVTJBN	Started task control of address space services	5650-ZOS	5752SC1CU	MVS
IEAVTPMx	Virtual storage management (VSM)	5650-ZOS	5752SC1CH	MVS
IEAVTRxx	Recovery termination manager (RTM)	5650-ZOS	5752SCRTM	MVS
IEAVTSxx	Dumping Services	5650-ZOS	5752SCDMP	MVS
IEAVTSxx	Recovery termination manager (RTM)	5650-ZOS	5752SCRTM	MVS
IEAVTTxx	Task management	5650-ZOS	5752SC1CL	MVS
IEAVTVxx	Dumping Services	5650-ZOS	5752SCDMP	MVS
IEAVVCxx	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVVJxx - IEAVVMxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVVRxx	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVVSxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVVTxx	Timer supervision	5650-ZOS	5752SC1CV	MVS
IEAVVWxx	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVWxxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEAVX6xx - IEAV2xxx	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEAVXAxx	Program Call authorization (PC/AUTH) service routines	5650-ZOS	5752SCXMS	MVS
IEAVXD0x - IEAVXTxx	Program Call authorization (PC/AUTH) service routines	5650-ZOS	5752SCXMS	MVS
IEAXPxxx	Extended floating point	5650-ZOS	5752SC1CP	MVS
IEAXSxxx	Supervisor control	5650-ZOS	5752SC1C5	MVS
IEB	Utilities (IEBCOMPR, IEBCOPY, IEBDG, IEBEDIT, IEBGENER, IEBIMAGE, IEBPTPCH, IEBUPDTE)	5650-ZOS	5695DF114	DFSMSdfp
IEC	Basic (non-VSAM) access methods (BAM)	5650-ZOS	5695DF102	DFSMSdfp
IEC	Device Support: DASD (ERP) DASD error recovery program (ERP)	5650-ZOS	5695DF111	DFSMSdfp

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

Module prefix	Component name	Product ID	Component ID	Product, element name, or optional feature
IEC	• Device Support: Tape/Unit record (SIO Exits) • Device Support: DASD (SIO Exits) • Start I/O (SIO) exits	5650-ZOS	5695DF110, 5695DF111	DFSMSdfp
IEC	Device Support Services (AOM) Asynchronous operations manager (AOM)	5650-ZOS	5695DF113	DFSMSdfp
IECDAFxx	Basic (non-VSAM) access methods (BAM)	5650-ZOS	5695DF102	DFSMSdfp
IECDAxxx	Dumping Services	5650-ZOS	5752SCDMP	MVS
IECIxxxx, IECLxxxx, IECTxxxx	Input/output supervisor (IOS)	5650-ZOS	5752SC1C3	MVS
IECVDAxx	Execute channel program (EXCP) processor	5650-ZOS	5752SC1C6	MVS
IECVDDxx - IECVERxx	Input/output supervisor (IOS)	5650-ZOS	5752SC1C3	MVS
IECVEXxx	Execute channel program (EXCP) processor	5650-ZOS	5752SC1C6	MVS
IECVFxxx - IECVOIxx	Input/output supervisor (IOS)	5650-ZOS	5752SC1C3	MVS
IECVOPxx	Execute channel program (EXCP) processor	5650-ZOS	5752SC1C6	MVS
IECVPxxx - IECVSxxx	Input/output supervisor (IOS)	5650-ZOS	5752SC1C3	MVS
IECVTxxx	Execute channel program (EXCP) processor	5650-ZOS	5752SC1C6	MVS
IECVXxxx	Input/output supervisor (IOS)	5650-ZOS	5752SC1C3	MVS
IED	TSO terminal input/output controller (TIOC)	5650-ZOS	5752SC1T3	VTAM
IEE	Device Independent Display Operator Console Support (DIDOCS)	5650-ZOS	5752SC1C4	MVS
IEE70110	System management facilities (SMF) and SMF scheduler	5650-ZOS	5752SC100	MVS
IEE70111 - IEE9	Master scheduler of command processing	5650-ZOS	5752SC1B8	MVS
IEEAB400 - IEEAB401	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEEBASEx	Master scheduler of command processing	5650-ZOS	5752SC1B8	MVS
IEECB867	Dumping Services	5650-ZOS	5752SCDMP	MVS
IEECB900 - IEECB912	Command processing and master scheduler	5650-ZOS	5752SC1B8	MVS
IEECB913	System management facilities (SMF) and SMF scheduler	5650-ZOS	5752SC100	MVS
IEECB914, IEECB915	Command processing and master scheduler	5650-ZOS	5752SC1B8	MVS
IEECB916	System management facilities (SMF) and SMF scheduler	5650-ZOS	5752SC100	MVS
IEECB917 - IEECB923	Command processing and master scheduler	5650-ZOS	5752SC1B8	MVS
IEECB924 - IEECB925	System trace	5650-ZOS	5752SC142	MVS
IEECB926	Command processing and master scheduler	5650-ZOS	5752SC1B8	MVS
IEECB927	Reconfiguration	5650-ZOS	5752SC1CZ	MVS
IEECB928 - IEECB930	Command processing and master scheduler	5650-ZOS	5752SC1B8	MVS
IEECBxxx, IEECB801 - IEECB866	Command processing and master scheduler	5650-ZOS	5752SC1B8	MVS
IEECVxxx, IEEDCCB	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEEDIxxx	System resources manager (SRM)	5650-ZOS	5752SC1CX	MVS
IEEDMxxx	Reconfiguration	5650-ZOS	5752SC1CZ	MVS

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

Module prefix	Component name	Product ID	Component ID	Product, element name, or optional feature
IEEJxxx - IEELxxx	Master scheduler of command processing	5650-ZOS	5752SC1B8	MVS
IEEMB803 - IEEMB819	Master scheduler of command processing	5650-ZOS	5752SC1B8	MVS
IEEMB82x, IEEMB83x, IEEMB842, IEEMB846, IEEMB848	System management facilities (SMF) and SMF scheduler	5650-ZOS	5752SC100	MVS
IEEMB860	Master scheduler of command processing	5650-ZOS	5752SC1B8	MVS
IEEMB876 - IEEMB880	Command processing	5650-ZOS	5752SC1B8	MVS
IEEMB881 - IEEMB883	Master scheduler of command processing	5650-ZOS	5752SC1B8	MVS
IEEMB884 - IEEMB888	Command processing	5650-ZOS	5752SC1B8	MVS
IEEMPxxx	Reconfiguration	5650-ZOS	5752SC1CZ	MVS
IEEMSJxx	Master scheduler of command processing	5650-ZOS	5752SC1B8	MVS
IEEMTxxx	Reconfiguration	5650-ZOS	5752SC1CZ	MVS
IEEPAxxx - IEEPRTxx	Master scheduler of command processing	5650-ZOS	5752SC1B8	MVS
IEEPRTN2, IEEPRWxx	Started task control of address space services	5650-ZOS	5752SC1CU	MVS
IEERECON	Loadwait/Restart	5650-ZOS	5752SCLWT	MVS
IEERxxxx - IEESAxxx	Reconfiguration	5650-ZOS	5752SC1CZ	MVS
IEESCxxx - IEEVxxxx	Reconfiguration	5650-ZOS	5752SC1CZ	MVS
IEEUxxxx	Reconfiguration	5650-ZOS	5752SC1CZ	MVS
IEEVDCxx	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEEVESAI, IEEVEXSN	Loadwait/Restart	5650-ZOS	5752SCLWT	MVS
IEEVIPL	Master scheduler of command processing	5650-ZOS	5752SC1B8	MVS
IEEVJCL, IEEVMNT1, IEEVSTAR	Master scheduler of command processing	5650-ZOS	5752SC1B8	MVS
IEEVSEND, IEEVSDIO	OPERATOR SEND command	5650-ZOS	566528502	TSO/E
IEEVSTOP	Loadwait/Restart	5650-ZOS	5752SCLWT	MVS
IEEXxxxx, IEEZB8xx, IEE0- IEE70109	Master scheduler of command processing	5650-ZOS	5752SC1B8	MVS
IEF	External writer (XWTR)	5650-ZOS	5752SC1B2	JES2
IEFAxxxx, IEFBxxxx	Allocation/unallocation	5650-ZOS	5752SC1B4	MVS
IEFCNxxx	Converter/interpreter	5650-ZOS	5752SC1B9	MVS
IEFD0xxx	Dynamic output (DYNOUT) of scheduler services	5650-ZOS	5752BB131	MVS
IEFDBxxx	Allocation/unallocation	5650-ZOS	5752SC1B4	MVS
IEFEBxxx	Allocation/unallocation	5650-ZOS	5752SC1B4	MVS
IEFENxxx	Event notification facility (ENF) of scheduler services	5650-ZOS	5752BB131	MVS
IEFIxxxx	Initiator/terminator	5650-ZOS	5752SC1B6	MVS
IEFJSWT	Started task control of address space services	5650-ZOS	5752SC1B8	MVS
IEFJxxxx	Master subsystem/subsystem interface (MSI and SSI)	5650-ZOS	5752SC1B6	MVS
IEFMxxxx	JES/scheduler services	5650-ZOS	5752SC144	MVS
IEFNxxxx	Converter/interpreter	5650-ZOS	5752SC1B9	MVS

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

Module prefix	Component name	Product ID	Component ID	Product, element name, or optional feature
IEFQxxxx	Scheduler work area (SWA) manager	5650-ZOS	5752SC1B5	MVS
IEFRxxxx	Scheduler restart	5650-ZOS	5752SC1B3	MVS
IEFSDxxx	Master subsystem/subsystem interface (MSI and SSI)	5650-ZOS	5752SC1B6	MVS
IEFSJxxx	Scheduler JCL facility (SJF) of scheduler services	5650-ZOS	5752BB131	MVS
IEFSMxxx	System management facilities (SMF) and SMF scheduler	5650-ZOS	5752SC100	MVS
IEFSSxx	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEFSSxx	Master scheduler/SSI	5650-ZOS	5752SC1B6	MVS
IEFTAxxx - IEFTB71x	Scheduler JCL facility (SJF) of scheduler services	5650-ZOS	5752BB131	MVS
IEFTB72x	System management facilities (SMF) and SMF scheduler	5650-ZOS	5752SC100	MVS
IEFTB73x - IEFTZxxx	Scheduler JCL facility (SJF) of scheduler services	5650-ZOS	5752BB131	MVS
IEFVxxxx	Converter/interpreter	5650-ZOS	5752SC1B9	MVS
IEFXxxxx	Scheduler restart	5650-ZOS	5752SC1B3	MVS
IEH	Utilities (IEHINITT, IEHLIST, IEHMOVE, IEHPROGM)	5650-ZOS	5695DF114	DFSMSdfp
IEW	Program management	5650-ZOS	5752SCLDR	MVS
IEWB	Binder	5650-ZOS	5752SCLDR	MVS
IEZ	Communications task (COMMTASK)	5650-ZOS	5752SC1CK	MVS
IEZ	Converter/interpreter	5650-ZOS	5752SC1B9	MVS
IEZ	Master scheduler of command processing	5650-ZOS	5752SC1B8	MVS
IFA	System management facilities (SMF) and SMF scheduler	5650-ZOS	5752SC100	MVS
IFB	Environmental Record Editing and Printing (EREP) program	5650-ZOS	565826001	EREP
IFB	Logrec error recording	5650-ZOS	5752SCOBR	MVS
IFC	Environmental Record Editing and Printing (EREP) program	5650-ZOS	565826001	EREP
IFC	IFCDIP00 service aid	5650-ZOS	5752SCOBR	MVS
IFD	Online test executive program (OLTEP)	5650-ZOS	5752SC106	MVS
IFH	IFHSTATR utility	5650-ZOS	5695DF110	DFSMSdfp
IGB	DFSMS Common Services	5650-ZOS	5695DF104	DFSMSdfp
IGC	Basic access methods (BAM)	5650-ZOS	5695DF102	DFSMSdfp
IGC	Catalog	5650-ZOS	5695DF105	DFSMSdfp
IGC	Checkpoint/restart	5650-ZOS	5695DF109	DFSMSdfp
IGC	Common VTOC access facility (CVAF)	5650-ZOS	5695DF133	DFSMSdfp
IGC	Data set password	5650-ZOS	5695DF133	DFSMSdfp
IGC	Direct access device space management (DADSM)	5650-ZOS	5695DF133	DFSMSdfp
IGC	External writer (XWTR)	5650-ZOS	5752SC1B2	JES2
IGC	Generalized trace facility (GTF)	5650-ZOS	5752SC111	MVS

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

Module prefix	Component name	Product ID	Component ID	Product, element name, or optional feature
IGC	JES2	5650-ZOS	5752SC1BH	JES2
IGC	OPEN/CLOSE/EOV	5650-ZOS	5695DF107	DFSMSdfp
IGC	TSO/E TEST	5650-ZOS	566528503	TSO/E
IGC	TSO terminal input/output controller (TIOC)	5650-ZOS	5752SC1T3	VTAM
IGC0001G, IGC0003C	Input/output supervisor (IOS)	5650-ZOS	5752SC1C3	MVS
IGC0003D	Command processing	5650-ZOS	5752SC1B8	MVS
IGC0005I	Online test executive program (OLTEP)	5650-ZOS	5752SC106	MVS
IGC0006A	TSO/E TEST	5650-ZOS	566528503	TSO/E
IGC0007F	Logrec error recording	5650-ZOS	5752SCOBR	MVS
IGC0009G	TSO/E TEST	5650-ZOS	566528503	TSO/E
IGC0010{	FIB SVC 100	5650-ZOS	566528502	TSO/E
IGC0403D	Command processing	5650-ZOS	5752SC1B8	MVS
IGC047	Timer supervision	5650-ZOS	5752SC1CV	MVS
IGC116	Supervisor control	5650-ZOS	5752SC1C5	MVS
IGD	Storage management subsystem (SMS)	5650-ZOS	5695DF101	DFSMSdfp
IGE	3890 document processor	5650-ZOS	5752SC1DF	DFSMSdfp
IGE	Unit record error recovery program (ERP)	5650-ZOS	5695DF110	DFSMSdfp
IGE0025F	Logrec error recording	5650-ZOS	5752SCOBR	MVS
IGE00xxx	Input/output supervisor (IOS)	5650-ZOS	5752SC1C3	MVS
IGE0125F	Logrec error recording	5650-ZOS	5752SCOBR	MVS
IGE066A	Dynamic device reconfiguration (DDR)	5650-ZOS	5752BB1CS	MVS
IGF2xxxx	Command processing	5650-ZOS	5752SC1B8	MVS
IGFDxxxx	Dynamic device reconfiguration (DDR)	5650-ZOS	5752BB1CS	MVS
IGFPBxxx	Initial program load (IPL)	5650-ZOS	5752SC1C9	MVS
IGFPMxxx, IGFPTxxx, IGFPXxxx	Machine check handler (MCH)	5650-ZOS	5752BB1CT	MVS
IGG	Catalog	5650-ZOS	5695DF105	DFSMSdfp
IGG	Checkpoint/restart	5650-ZOS	5695DF109	DFSMSdfp
IGG	Direct access device space management (DADSM)	5650-ZOS	5695DF133	DFSMSdfp
IGG	Direct Access Method (DAM)	5650-ZOS	5695DF102	DFSMSdfp
IGG	OCR	5650-ZOS	5752SC1D5	MVS
IGG	OPEN/CLOSE/EOV (end-of-volume)	5650-ZOS	5695DF107	DFSMSdfp
IGG	Partitioned Access Method (PAM)	5650-ZOS	5695DF102	DFSMSdfp
IGG	Sequential Access Method (SAM)	5650-ZOS	5695DF102	DFSMSdfp
IGG	TSO terminal input/output controller (TIOC)	5650-ZOS	5752SC1T3	VTAM
IGU	Device console services	5650-ZOS	28463	DFSMSdfp
IGVAxxxx - IGVDxxxx	Virtual storage management (VSM)	5650-ZOS	5752SC1CH	MVS
IGVExxxx	Initial program load (IPL)	5650-ZOS	5752SC1C9	MVS
IGVFxxxx - IGVLxxxx	Virtual storage management (VSM)	5650-ZOS	5752SC1CH	MVS

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

Module prefix	Component name	Product ID	Component ID	Product, element name, or optional feature
IGVNxxxx	Initial program load (IPL)	5650-ZOS	5752SC1C9	MVS
IGVRxxxx - IGVVxxxx	Virtual storage management (VSM)	5650-ZOS	5752SC1CH	MVS
IGW	SSF	5650-ZOS	5695DF115	DFSMSdfp
IGX	Asynchronous operations manager (AOM)	5650-ZOS	5695DF113	DFSMSdfp
IGX	Device support	5650-ZOS	5695DF110	DFSMSdfp
IGX	DFSMShsm	5650-ZOS	5695DF170	DFSMShsm
IGX	System management facilities (SMF) and SMF scheduler	5650-ZOS	5752SC100	MVS
IGX	Virtual Storage Access Method (VSAM)	5650-ZOS	5695DF106	DFSMSdfp
IGX0xxxx	TSO and TSO/E scheduler	5650-ZOS	566528502	TSO/E
IGZ	COBOL Library	5650-ZOS	568819802	Language Environment
IHA	Mapping macros of supervisor control	5650-ZOS	5752SC101	MVS
IHB	System macros	5650-ZOS	5752SC1CL	MVS
IHJ	Checkpoint/restart	5650-ZOS	5695DF109	DFSMSdfp
IKJ	TSO/E	5650-ZOS	5665285xx	TSO/E
IKJ	TSO terminal input/output controller (TIOC)	5650-ZOS	5752SC1T3	VTAM
IKJEHxxx	TSO Utilities	5650-ZOS	5695DF114	DFSMSdfp
IKJELxxx	Command processing	5650-ZOS	5752SC1B8	MVS
IKJL	LINK/LOADGO prompter	5650-ZOS	5695PMB01	Program Management
IKT	TSO Virtual Telecommunications Access Method (VTAM)	5650-ZOS	SC1T9	VTAM
IKY	PKI Services	5650-ZOS	5752XXPKI	Cryptographic Services
ILR	Auxiliary storage manager (ASM)	5650-ZOS	5752SC1CW	MVS
INM	TSO/E interactive data transmission facility	5650-ZOS	566528504	TSO/E
IOE	z/OS Distributed File Service	5650-ZOS	569694200	Distributed File Service SMB Server
IOE	z/OS File System (zFS)	5650-ZOS	5696EFS00	z/OS File System (zFS)
IOS	Input/output supervisor (IOS)	5650-ZOS	5752SC1C3	MVS
IPX	Initial program load (IPL)	5650-ZOS	5752SC1C9	MVS
IQP	PCIE services	5650-ZOS	5752SCIQP	MVS
IRA	System resources manager (SRM)	5650-ZOS	5752SC1CX	MVS
IRR	Resource Access Control Facility (RACF)	5650-ZOS	5752XXH00	RACF
IRR	Security Support	5650-ZOS	5752SC1BN	RACF
IRX	TSO/E REXX	5650-ZOS	566528508	TSO/E
ISG	Global resource serialization	5650-ZOS	5752SCSDS	MVS
ISN	Service processor interface (SPI)	5650-ZOS	5752SCSPI	MVS
IST	Virtual Telecommunications Access Method (VTAM)	5650-ZOS	569511701	Communication Server for z/OS SNA Services
ITR	System trace	5650-ZOS	5752SC142	MVS
ITT	Component trace	5650-ZOS	5752SCTRC	MVS
ITV	Data-in-virtual	5650-ZOS	5752SCDIV	MVS

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

Module prefix	Component name	Product ID	Component ID	Product, element name, or optional feature
ITZ	Transaction trace	5650-ZOS	5752SCTTR	MVS
IWM	Workload management (WLM)	5650-ZOS	5752SCWLM	MVS
IXC	Cross-system coupling facility (XCF)	5650-ZOS	5752SCXCF	MVS
IXG	System logger	5650-ZOS	5752SCLOG	MVS
IXL	Cross-system extended services (XES)	5650-ZOS	5752SCIXL	MVS
IXM	XML Toolkit for z/OS	5655-J51	5655D4401, 5655D4403	MVS
IXP	Input/output configuration program (IOCP)	5650-ZOS	566529101	MVS
IXX	Systems Application Architecture®	5650-ZOS	5665IXX00	TSO/E
IZUC	z/OSMF Capacity Provisioning	5650-ZOS	5655S2806	z/OSMF
IZUCA	z/OSMF Configuration Assistant	5650-ZOS	5655S28CA	z/OSMF
IZUD	z/OSMF Software Management	5650-ZOS	5655S2804	z/OSMF
IZUG	WebSphere Liberty Profile	5650-ZOS	5655S28WL	z/OSMF
IZUG	z/OSMF Console UI	5650-ZOS	5655S28CU	z/OSMF
IZUG	z/OSMF Core Functions	5650-ZOS	5655S28SM	z/OSMF
IZUG	z/OSMF restfiles	5650-ZOS	5655S28RF	z/OSMF
IZUG	z/OSMF RESTJOBS	5650-ZOS	5655S28RJ	z/OSMF
IZUG	z/OSMF TSO REST Services	5650-ZOS	5655S28TS	z/OSMF
IZUIS	z/OSMF ISPF	5650-ZOS	5655S2801	z/OSMF
IZUP	z/OSMF Incident Log	5650-ZOS	5655S2805	z/OSMF
IZUR	z/OSMF Resource Monitoring	5650-ZOS	5655S2802	z/OSMF
IZUW	z/OSMF WLM	5650-ZOS	5655S2803	z/OSMF
IZUWF	z/OSMF WORKFLOW	5650-ZOS	5655S2807	z/OSMF
SGS	Stand-alone dump (SADMP)	5650-ZOS	5752SC115	MVS

Chapter 2. Specifying symptoms

Table 2 on page 19 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   VRAOPT   VRASKP   VRAEND   VRAMINSL   VRAREQ
```

Table 2. VRADATA macro KEY values related to symptoms

Key numbers	KEY value	Keyword		Source data		Explanation
		MVS	RETAIN	Label	Fm	
DATA FROM FIXED AREAS OF SDWA MAIN STRUCTURE						
X'3E9'	EFABS	AB/S	AB/S	SDWACMPC	H	ABEND CODE-SYSTEM. The system obtains this data for all dumps, if the data is available.
X'3EA'	EFABU	AB/U	AB/U	SDWACMPC	H	ABEND CODE-USER
X'3EB'	EFLDMD	MOD/	RIDS/ name#L	SDWAMODN	E	LOAD MODULE NAME
X'3EC'	EFCSCT	CSECT/	RIDS/	SDWACSCT	E	ASSEMBLY MODULE CSECT NAME
X'3ED'	EFREX	REXN/	RIDS/ name#R	SDWAREXN	E	RECOVERY ROUTINE CSECT NAME
X'3F3'	EFPSW	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/FE000.
FROM SDWARC1 - DATA FROM EXTENSIONS OF SDWA						
X'44D'	E1CID1C	CID1/	VALU/C	SDWACID	E	COMPONENT IDENTIFIER
X'44E'	E1SUB1C	SUB1/	VALU/C	SDWASC	E	COMPONENT SUBFUNCTION
X'451'	E1AMD1C	AMD1/	VALU/C	SDWAMDAT	E	MODULE ASSEMBLY DATE
X'452'	E1VRS1C	VRS1/	VALU/C	SDWAMVRS	E	VERSION-PTF/PRODUCT IDENTIFIER
X'454'	E1HRC1C	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.
X'456'	E1RRL1C	RRL1/	FLDS/	SDWARRL	E	RECOVERY ROUTINE LABEL
X'45A'	E1CDB1C	CDB1/	VALU/C	SDWACIDB	E	BASE COMPONENT ID

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Table 2. VRADATA macro KEY values related to symptoms (continued)

Key numbers	KEY value	Keyword		Source data		Explanation
		MVS	RETAIN	Label	Fm	
X'45C'	E1CCR1C	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.
X'45E'	E1HLH1C	HLH1/	VALU/H	SDWAHLHI	H	HIGHEST LOCK HELD INDICATOR. The current lock held.
X'460'	E1SUP1C	SUP1/	VALU/H	SDWASUPR	H	PSASUPER FLAGS
X'464'	E1SPN1C	SPN1/	VALU/H	SDWASPN	H	LCCASPIN FLAGS
X'466'	E1FI1C	FI/	VALU/H	SDWAFAIN	H	FAILING INSTRUCTION AREA
X'468'	E1FRR1C	FRR1/	VALU/H	SDWAFRRE	H	FRR PARAMETER 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.
X'46A'	E1ASID1C	ASID1/	VALU/H	SDWAASI1	H	TASK RELATED ASID
X'46C'	E1ORCC1C	ORCC1/	PRCS/	SDWAOCMP	H	ORIGINAL COMPLETION CODE
X'46E'	E1ORRC1C	ORRC1/	PRCS/	SDWAOCRC	H	ORIGINAL REASON CODE
X'470'	E1PIDSIC	PIDS/	PIDS/	SDWACID	E	PRODUCT/COMPONENT ID
FROM SDWARC2 EXTENSION OF SDWA						
X'483'	E2MCIC	MCI2/	VALU/H	SDWAMCIC	H	MACHINE CHECK INTERRUPT CODE
FROM ABDUMP SYMPTOM AREA PRDHDR (See the AMDDATA macro.)						
X'3E9'	EFABS	AB/S	AB/S	PRDSMABD	H	ABEND CODE-SYSTEM. The system obtains this data for all dumps, if the data is available.
X'3EA'	EFABU	AB/U	AB/U	PRDSMABD	H	ABEND CODE-USER
X'3EB'	EFLDMD	MOD/	RIDS/ name#L	PRDSMLMN	E	LOAD MODULE NAME
X'3EC'	E1FI1C	FI/	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	PRDSMGPR	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'0'-X'FFF'. For a failing PSW address that is less than 512, the symptom generated is REGS/FE000.
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/	PTFS/		E	MODULE/PRODUCT PTF IDENTIFIER
X'06'	VRARC	VARC/	PRCS/		E	ABEND REASON CODE or REASON CODE
X'07'	VRAQVOD	VQVOD/	VALU/H		H	QUEUE VERIFIER DATA. Defined by the IHAQVOD macro.

Table 2. VRADATA macro KEY values related to symptoms (continued)

Key numbers	KEY value	Keyword		Source data		Explanation
		MVS	RETAIN	Label	Fm	
X'08'	VRAQERR	VQERR/	VALU/H		H	QUEUE ERROR DATA
X'09'	VRALVLS	VLVLS/	LVLS/		E	RELEASE or LEVEL. The release of the system or level of the program product or component on which the problem occurred.
X'10'	VRARRP	VRRP/	VALU/H		H	RECOVERY ROUTINE PARAMETER
X'11'	VRACBM	VCBM/	FLDS/		E	MAPPING MACRO NAME
X'12'	VRACB	VCB/	VALU/H		H	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.
X'13'	VRACBF	VCBF/	FLDS/		E	CONTROL BLOCK FIELD NAME
X'14'	VRACBA	VCBA/	ADRS/		H	CONTROL BLOCK ADDRESS
X'15'	VRACBO	VCBO/	ADRS/		H	CONTROL BLOCK FIELD OFFSET
FROM SDWAVRA - CREATED IN VRADATA MACRO FORMAT						
X'16'	VRACBL	VCBL/	VALU/H		H	CONTROL BLOCK LENGTH
X'18'	VRACBI	VCBI/	VALU/H		H	CONTROL BLOCK ID NUMBER
X'19'	VRACBIA	VCBIA/	VALU/H		H	CONTROL BLOCK ID AND ADDRESS
X'1A'	VRACBI2	VCBI2/	VALU/H		H	CONTROL BLOCK ID AND DATA
X'20'	VRAPLI	VPLI/	FLDS/		E	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.
X'21'	VRAPL	VPL/	VALU/H		H	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.
X'22'	VRAFPI	VFPI/	PCSS/		E	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.
X'23'	VRAFP	VFP/	VALU/H		H	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.
X'24'	VRAPA	VPA/	VALU/C		E	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.
X'25'	VRAP2	VP2/	VALU/C		E	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.

Table 2. VRADATA macro KEY values related to symptoms (continued)

Key numbers	KEY value	Keyword		Source data		Explanation
		MVS	RETAIN	Label	Fm	
X'26'	VRALK	VLK/	FLDS/		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.
X'27'	VRAWAI	VWAI/	PCSS/		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.
X'28'	VRAWA	VWA/	VALU/H		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.
X'29'	VRAWAP	VWAP/	ADRS/		H	WORK AREA ADDRESS
X'30'	VRALBL	VLBL/	FLDS/		E	LABEL RELATED TO FAILURE
X'31'	VRARRL	VRRL/	FLDS/		E	RECOVERY ROUTINE LABEL
X'33'	VRAMID	VMID/	MSG/		E	MESSAGE IDENTIFIER
X'34'	VRAMSG	VMSG/	MSG/		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.
X'35'	VRAERR	VERR/	VALU/C		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.
X'36'	VRAEHX	VEXH/	VALU/H		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.
X'37'	VRAHID	VHID/	PCSS/		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.
X'38'	VRAHEX	VHEX/	VALU/H		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.
X'39'	VRAEBC	VEBC/	VALU/C		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.
X'3A'	VRAAID	VAID/	VALU/H		H	CALLER'S ASID
X'3B'	VRATCB	VTCB/	ADRS/		H	TCB ADDRESS
X'3C'	VRACA	VCA/	ADRS/		H	CALLER'S ADDRESS
X'3D'	VRACAN	VCAN/	RIDS/		E	MODULE NAME OF CALLER
X'40'	VRAOA	VOA/	PRCS/		H	ORIGINAL ABEND CODE

Table 2. VRADATA macro KEY values related to symptoms (continued)

Key numbers	KEY value	Keyword		Source data		Explanation
		MVS	RETAIN	Label	Fm	
X'41'	VRAPSW	VPSW/	VALU/H		H	RELATED FAILING PSW
X'42'	VRAINS	VINS/	VALU/H		H	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.
X'43'	VRAREGS	VREGS/	VALU/H		H	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.
X'44'	VRAREGA	VREGA/	ADRS/		H	REGISTER AREA ADDRESS
X'45'	VRAOR15	VOR15/	PRCS/		H	ORIGINAL CONTENTS OF REGISTER
X'46'	VRADSN	VDSN/	PCSS/		E	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.
X'47'	VRADEV	VDEV/	PCSS/		E	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.
X'48'	VRASN	VSN/	VALU/H		H	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.
X'49'	VRAST	VST/	VALU/H		H	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.
X'4A'	VRAU	VU/	VALU/C		H	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.
X'4B'	VRACCW	VCCW/	VALU/H		H	CCW
X'4C'	VRACSW	VCSW/	VALU/H		H	CSW
X'4D'	VRADVT	VDVT/	VALU/H		H	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.
X'4E'	VRAVOL	VVOL/	VALU/C		E	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.
X'60'	VRAFREG	VFREG/	VALU/H		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.

Table 2. VRADATA macro KEY values related to symptoms (continued)

Key numbers	KEY value	Keyword		Source data		Explanation
		MVS	RETAIN	Label	Fm	
X'63'	VRACSCB	VSCB/	VALU/H		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.
X'64'	VRACSCBA	VSCBA/	ADRS/		H	CSCB CONTROL BLOCK ADDRESS
X'65'	VRAJOB	VJOB/	PCSS/		E	FAILING JOB NAME
X'66'	VRASTP	VSTP/	PCSS/		E	FAILING STEP NAME
X'67'	VRACMD	VCMD/	PCSS/		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.
X'68'	VRAJCL	VJCL/	PCSS/		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.
X'73'	VRAEPN	VEPN/	RIDS/		E	ENTRY POINT NAME
X'77'	VRAETF	VETF/	ADRS/		H	ENTRY POINT ADDRESS
X'78'	VRACTF	VCTF/	ADRS/		H	FAILING CSECT ADDRESS
X'79'	VRALTF	VLTF/	ADRS/		H	FAILING LOAD MODULE ADDRESS
X'7A'	VRAMO	VMO/	ADRS/		H	CSECT OFFSET IN LOAD MODULE
X'7B'	VRAILO	VILO/	ADRS/		H	OFFSET IN LOAD MODULE
X'7C'	VRAIMO	VIMO/	ADRS/		H	OFFSET IN ASSEMBLY MODULE
X'7D'	VRAFID	VFID/	PCSS/		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.
X'7E'	VRAPID	VPID/	PCSS/		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.
X'A0'	VRAIAP	VIAP/	RIDS/		E	ANALYTIC PROCEDURE NAME
X'A1'	VRAIAL	VIAL/	VALU/H		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.
X'A2'	VRAICL	VICL/	VALU/H		H	PARAMETER LIST FOR PROGRAM
X'A3'	VRAIDP	VIDP/	RIDS/		E	PROGRAM TO RUN

Table 2. VRADATA macro KEY values related to symptoms (continued)

Key numbers	KEY value	Keyword		Source data		Explanation
		MVS	RETAIN	Label	Fm	
X'C8'	VRARRK	@nnn/	VALU/C		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: **Keys 200–224** EBCDIC data **Keys 225–234** Hexadecimal data **Keys 235–239** Flag data
X'C9'	VRARRK1	@nnn/	VALU/C		E	
X'CA'	VRARRK2	@nnn/	VALU/C		E	
X'CB'	VRARRK3	@nnn/	VALU/C		E	
X'CC'	VRARRK4	@nnn/	VALU/C		E	
X'CD'	VRARRK5	@nnn/	VALU/C		E	
X'CE'	VRARRK6	@nnn/	VALU/C		E	
X'CF'	VRARRK7	@nnn/	VALU/C		E	
X'D0'	VRARRK8	@nnn/	VALU/C		E	
X'D1'	VRARRK9	@nnn/	VALU/C		E	
X'D2'	VRARRK10	@nnn/	VALU/C		E	
X'D3'	VRARRK11	@nnn/	VALU/C		E	
X'D4'	VRARRK12	@nnn/	VALU/C		E	
X'D5'	VRARRK13	@nnn/	VALU/C		E	
X'D6'	VRARRK14	@nnn/	VALU/C		E	
X'D7'	VRARRK15	@nnn/	VALU/C		E	
X'D8'	VRARRK16	@nnn/	VALU/C		E	
X'D9'	VRARRK17	@nnn/	VALU/C		E	
X'DA'	VRARRK18	@nnn/	VALU/C		E	
X'DB'	VRARRK19	@nnn/	VALU/C		E	
X'DC'	VRARRK20	@nnn/	VALU/C		E	
X'DD'	VRARRK21	@nnn/	VALU/C		E	
X'DE'	VRARRK22	@nnn/	VALU/C		E	
X'DF'	VRARRK23	@nnn/	VALU/C		E	
X'E0'	VRARRK24	@nnn/	VALU/C		E	
X'E1'	VRARRK25	@nnn/	VALU/H		H	
X'E2'	VRARRK26	@nnn/	VALU/H		H	
X'E3'	VRARRK27	@nnn/	VALU/H		H	
X'E4'	VRARRK28	@nnn/	VALU/H		H	
X'E5'	VRARRK29	@nnn/	VALU/H		H	
X'E6'	VRARRK30	@nnn/	VALU/H		H	
X'E7'	VRARRK31	@nnn/	VALU/H		H	
X'E8'	VRARRK32	@nnn/	VALU/H		H	
X'E9'	VRARRK33	@nnn/	VALU/H		H	
X'EA'	VRARRK34	@nnn/	VALU/H		H	
X'EB'	VRARRK35	@nnn/	VALU/B		F	
X'EC'	VRARRK36	@nnn/	VALU/B		F	
X'ED'	VRARRK37	@nnn/	VALU/B		F	
X'EE'	VRARRK38	@nnn/	VALU/B		F	
X'EF'	VRARRK39	@nnn/	VALU/B		F	

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:

SYSEVENT	Code
QSCEST	X'0C'
TGETTPUT	X'22'
REQILMT	X'86'

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

SYSEVENT	Code
USERRDY	X'04'
SWOUTCMP	X'0F'
RSMCNSTS	X'16'
AVQLOW	X'17'
AVQOK	X'18'
SQALOW	X'19'
SQAOK	X'1A'
HOLD	X'32'
NOHOLD	X'33'
DIRECTPO	X'38'
MSCHECK	X'3A'
OMVSWAIT	X'3B'
AUXTREQ	X'4C'
REQFASD	X'51'
SCTCNV	X'6C'
SDUMP	X'84'

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 3 on page 28 lists all SYSEVENTs in alphabetical order with their associated codes.

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Table 3. SYSEVENT list

SYSEVENT	Code (in hexadecimal)
ALTCPREC	21
APPCREC	4D
AUXTREQ	4C
AVAILPUP	49
AVQLOW	17
AVQOK	18
CANCEL	7F
CHANNEL	48
CHKSWIN	50
CLSFYENC	5A
CMDEND	40
CMDSTART	3F
CONFIGCH	1D
COPYDMDT	28
COPYTXSH	6D
CPUTCONV	4A
DDR	47
DEVALLOC	1C
DIRECTPO	38
DONTSWAP	29
EASINIT	1B
ENCASSOC	6A
ENCCREAT	57
ENCDELET	58
ENCEWLM	7D
ENCREADY	71
ENCREG	79
ENCSTATE	65
ENCS97	6F
ENCXSYS	70
ENQHOLD	14
ENQRLSE	15
FREEAUX	6E
FULLPRE	81
HOLD	32
HSPCQRY	66
INITATT\	0A

Table 3. SYSEVENT list (continued)

SYSEVENT	Code (in hexadecimal)
INITDET	0B
INITID	4E
IODEL	75
IOVIOLAT	74
IWMRESET	6B
JOBSELCT	08
JOBTERM	09
LPARMGMT	72
MEMCREAT	06
MEMDEL	07
MSCHECK	3A
NEWOPT	34
NEWSTSI	76
NIOWAIT	03
NOHOLD	33
OKSWAP	2A
OMVSWAIT	3B
PBGDD	82
PPMODE	00
QRYCONT	83
QRYTNT	85
QSCECMP	0D
QSCEFL	12
QSCEST	0C
QVS	77
RCVPADAT	56
REALSWAP	78
REQASCL	5B
REQASD	52
REQFASD	51
REQILMT	86
REQPGDAT	27
REQSERVC	26
REQSRMST	55
REQSVDAT	31
RSTORFL	2B
RESETPG	1F

Table 3. SYSEVENT list (continued)

SYSEVENT	Code (in hexadecimal)
RSMCNSTS	16
RSTORCMP	13
SCTCNV	6C
SADBRSTR	4F
SDUMP	84
SETDMN	6C
SQALOW	19
SQAOK	1A
STATEXIT	59
STGIFAIL	3E
STGTEST	4B
SUBSSORT	73
SWINFL	11
SWINSTAT	10
SWOUTCMP	0F
TERMWAIT	02
TGETTPUT	22
TIME	05
TIMEREXP	01
TRANSWAP	0E
TRAXERPT (or EVENT53)	35
TRAXFRPT (or EVENT54)	36
TRAXRPT (or EVENT55)	37
UCBCHG	46
USERRDY	04
VERIFYPG	1E
VIOVSAV	39
WLMCOLL	54
WLMQUEUE	69
WLMSTCHG	53

Summary of system events

The Table 4 on page 31 table lists the SYSEVENTs in order by hexadecimal code.

Table 4. SYSEVENTs listed in order by hexadecimal code

Code (hex)	Meaning
00	**Mnemonic:** PPMODE **Meaning:** A time sharing command, or a subcommand of EDIT or TEST, is to be run. **Circumstances:** 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. **Locks Required:** Local **Inputs:** Reg 0, bytes 0-1: ASID. Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Contains the first 4 characters of the command or subcommand name. Reg 15: Contains the last 4 characters of the command or subcommand name. **Outputs:** None.
01	**Mnemonic:** TIMEREXP **Meaning:** Time of day (TOD) clock initialized. **Purpose:** At TOD clock initialization, the SYSEVENT schedules SRM time-driven routines. Subsequent scheduling is done through SYSEVENT 05 (Time). **Circumstances:** TOD clock initialized. **Locks Required:** Local **Inputs:** Reg 0, byte 3: SYSEVENT code. Reg 1, byte 3: Contains X'01' to indicate entry from system TOD clock initialization. **Outputs:** None.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
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 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
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 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
06	**Mnemonic:** MEMCREAT **Meaning:** Address space create. **Purpose:** 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. **Circumstances:** At the earliest point where the ASID is known and the space for the ASCB is obtained (Phase 1). After RSM has allocated the IARRAX, Phase 2 is called. **Locks Required:** Local **Inputs:** Reg 0, bytes 0-1: ASID. Reg 0, byte 2: SYSEVENT type **X'01'** - If START command (Phase 1) **X'02'** - If LOGON command (Phase 1) **X'03'** - If MOUNT command (Phase 1) **X'11'** - If START command (Phase 2) **X'12'** - If LOGON command (Phase 2) **X'13'** - If MOUNT command (Phase 2) Reg 0, byte 3: SYSEVENT code. **Outputs:** 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.
07	**Mnemonic:** MEMDEL **Meaning:** Address space deletes. **Purpose:** Indicates the deletion of an address space to SRM, allowing SRM to release resources that are assigned to that address space. **Circumstances:** The memory delete function is about to free the storage for the ASCB and unassign the ASID. **Locks Required:** Local **Inputs:** Reg 0, bytes 0-1: ASID. Reg 0, byte 2: Contains X'80' indicating that no more swap-ins are to be started until the next MEMDEL SYSEVENT. Reg 0, byte 3: SYSEVENT code. **Outputs:** Reg 1, byte 3: contains X'00' indicating that the memory delete function can proceed.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

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

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
0B	**Mnemonic:** INITDET **Meaning:** Detach by initiator. **Purpose:** Indicates that an initiator detached a task. **Locks Required:** Local **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.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
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.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
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).

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
0F	**Mnemonic:** SWOUTCMP **Meaning:** Swap-out completed. **Purpose:** Indicates that swap-out processing has completed. **Circumstances:** All I/O needed to swap-out this address space has just completed. **Locks Required:** RSMAD **Inputs:** Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Address of a parameter list. The format is as follows: **Word 1** The number of pages swapped out **Word 2** The working set size (the number of pages to be swapped in) **Word 3, bytes 0-2** Reserved **Word 3, byte 3** Flag byte: **Bits 0-6** Reserved **Bit 7** 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. **Outputs:** None.
10	**Mnemonic:** SWINSTAT **Meaning:** Swap-in status. **Circumstances:** Swap-in processing for an address space that has just started, or just completed. **Locks Required:** None **Inputs:** Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. Reg 1, byte 3: contains: **X'00'** Swap-in is starting. **X'01'** Resources needed to perform the swap-in were obtained. **X'02'** Swap-in is complete. **Outputs:** None.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
11	**Mnemonic:** SWINFL **Meaning:** Swap-in failed. **Circumstances:** Swap-in processing failed to obtain or initialize the LSQA and fixed pages for the specified address space. **Locks Required:** Local **Inputs:** Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. Reg 1, byte 3: contains: **X'01'** Swap-in failed because there are not enough page control blocks (PCBs) available to complete the swap-in. **X'02'** Swap-in failed because there are not enough frames available for the working set. **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. **X'04'** Swap-in failed because there are not enough frames available for the address space's segment table. **Outputs:** None.
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 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
13	**Mnemonic:** RSTORCMP **Meaning:** Restore completed. **Purpose:** Permits an assessment of whether an address space, suspected of having left long wait status, is in fact ready. **Note:** The swapped in interval is defined to begin with this SYSEVENT. **Circumstances:** 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. **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 ready. **X'80'** If the address space is in a long wait. **Outputs:** None.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
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.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
15	**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.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
16	**Mnemonic:** RSMCNSTS **Meaning:** Real storage manager constants **Purpose:** Notifies SRM that the amount of online real storage has changed and that SRM should calculate new storage threshold values. **Circumstances:** Issued when the amount of online real storage has changed. **Locks Required:** RSMGL (under certain conditions) **Inputs:** Reg 0, byte 3: SYSEVENT code. Reg 1, byte 3: contains: **X'00'** If the RSM frame counts are not being initialized. **X'04'** If the RSM frame counts are being initialized. **X'08'** If expanded storage reconfiguration is underway. **X'0C'** If expanded storage reconfiguration is complete. **Outputs:** None.
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 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
18	**Mnemonic:** AVQOK **Meaning:** Available frame queue above limit. **Purpose:** Notifies SRM that the number of frames on the available frame queues has risen above a predefined limit. **Circumstances:** 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. **Locks Required:** RSMGL **Inputs:** Reg 0, byte 3: SYSEVENT code. **Outputs:** None.
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 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
1A	**Mnemonic:** SQAOK **Meaning:** Unallocated SQA and CSA above threshold. **Purpose:** Indicates that the amount of unallocated SQA has risen above one of two predefined thresholds. **Circumstances:** 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. **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.
1B	**Meaning:** A system component address space is initiated for operation. **Mnemonic** EASINIT **Purpose:** 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. **Circumstances:** Before the completion of the master scheduler initialization, a system component address space is initialized for the operation. **Locks Required:** Local **Inputs:** Reg 0, bytes 0 and 1: The ASID of the address space that is initialized. Reg 0, byte 3: SYSEVENT code. Reg 1, byte 2: A flag byte identifying attributes of the address space that is initialized. The flag is: **X'80'** An address space that is defined as privileged. (If using ASCRE to create the address space, this corresponds to the PRIV attribute). Reg 1, byte 3: A type code identifying the kind of address space that is initialized. The type code is: **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). **other** An address space in which high priority system services do not execute. **Outputs:** None.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
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* for more information on IWMRESET.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
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 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
26	**Mnemonic:** REQSERVC **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 REQSERVC 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

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
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 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
2A	**Mnemonic:** OKSWAP **Meaning:** Address space is now swappable. **Purpose:** Indicates to SRM that the issuing address space can now be swapped. **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 swappable was honored. **X'04'** If the request is not for the current address space. **X'08'** If the request was not authorized.
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.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
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 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
33	This SYSEVENT is not traced by GTF. **Mnemonic:** NOHOLD **Meaning:** No longer hold the address space from being swapped out. **Purpose:** Notify SRM that the issuing space which has previously issued a HOLD (SYSEVENT X'32'), can be considered for swapping. **Circumstances:** The issuing program no longer has a requirement that its address space be non-swappable. **Locks Required:** None **Inputs:** Reg 0, bytes 0-1: ASID or zero. Reg 0, byte 3: SYSEVENT code. **Outputs:** None.
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 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
35	This SYSEVENT is not traced by GTF. **Mnemonic:** TRAXERPT or EVENT53 **Meaning:** Report the start time and service data 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 the data needed for RMF to report the number of transactions, the average elapsed time per transaction, and the service used. **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 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.
36	This SYSEVENT is not traced by GTF. **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 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
37	This SYSEVENT is not traced by GTF. **Mnemonic:** TRAXRPT or EVENT55 **Meaning:** Report the start 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. 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. **X'10'** Reporting is inoperative. The clock is in error, or the reporting facility is not installed. No statistics can be reported.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
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.
39	This SYSEVENT is not traced by GTF. **Mnemonic:** VIOVSAV **Meaning:** Can SAVE processing be performed for a VIO data set. **Purpose** 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. **Circumstances:** This SYSEVENT will be issued when ASM receives a SAVE request for data in expanded storage. **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:** 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.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
3A	This SYSEVENT is not traced by GTF. **Mnemonic:** MSCHECK **Meaning:** Check migration swap directions. **Purpose:** RSM issues MSCHECK to determine whether or not a swapped out address space should be moved from expanded to auxiliary storage. **Circumstances:** RSM issues the MSCHECK SYSEVENT to determine if primary or secondary working set pages should be migrated. **Locks Required:** RSM lock **Inputs:** Reg 0, byte 3: SYSEVENT code. **Output:** 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
3B	**Mnemonic:** OMVSWAIT **Meaning:** z/OS UNIX System Services wait. **Purpose:** Signal to SRM that z/OS UNIX System Services is changing status with respect to either an input or output wait. **Circumstances:** 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. **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

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
3E	**Mnemonic:** STGIFAIL **Meaning:** SYS1.STGINDEX data set is 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
3F	**Mnemonic:** CMDSTART **Meaning:** Command start. **Purpose:** Notify SRM that the current transaction is the first transaction for a TSO/E command. **Circumstances:** 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. **Locks Required:** Local **Inputs:** Reg 0, bytes 0-1: ASID. Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Contains the address of a fixed parameter list. The format of the parameter list is: Word Offset Length Description Word 1, byte 0 0 1 X'80': Command came from an “in-storage” list. Word 1, bytes 1-3 1 3 Reserved Words 2-3 4 8 Command name (left-justified, EBCDIC padded with blanks). **Outputs:** None.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
40	This SYSEVENT is not traced by GTF. **Mnemonic:** CMDEND **Meaning:** Command end. **Purpose:** Notify SRM that the transaction is the last transaction for the current command. **Circumstances:** A TSO/E command processor has just ended and control is returned to the terminal monitor program. **Locks Required:** None **Inputs:** Reg 0, byte 3: SYSEVENT code. Reg 1, byte 0: Contains X'80' if this command put the next command on an in-storage list. Reg 1, bytes 1-3: Reserved.
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.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
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 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
4B	**Mnemonic:** STGTEST **Meaning:** Storage test. **Purpose:** Indicate a snapshot of storage utilization. **Circumstances:** Used as an aid in determining how much storage can be exploited by an application. **Locks Required:** None **Inputs:** Reg 0, byte 0-1: ASID Reg 0, byte 2: Request type, as follows: **X'80'** Request for addressable storage (read, expanded, and auxiliary) **X'00'** Request for block addressable storage (expanded only) Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Address of the return area. **Outputs:** The contents of the return area are as follows: **Word 1** 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. **Word 2** The amount of processor storage available, with some increased paging or as directed by the installation through storage isolation, in units of 4K bytes. **Word 3** The amount of total virtual storage available including auxiliary in units of 4K bytes. Reg 15, byte 3: Contains X'00' if processing was successful.
4C	**Mnemonic:** AUXTREQ **Meaning:** Auxiliary storage shortage threshold request. **Purpose:** Obtain the auxiliary storage shortage threshold. **Locks Required:** None **Inputs:** Reg 0, byte 3: SYSEVENT code. **Outputs:** Reg 1, bytes 0-3: Auxiliary storage shortage threshold.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
4D	**Mnemonic:** APPCREQ **Meaning:** APPC Request. **Purpose:** Record APPC conversations. **Circumstances:** There is an APPC request that requires a corresponding verb complete signal. **Locks Required:** None **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, bytes 0-3: Parameter list mapped by the IRAICSP mapping macro. **Outputs:** None.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
4F	**Mnemonic:** SADBRSTR **Meaning:** System activity display block (SADB) restart. **Purpose:** Asynchronous notification of the completion of a SADB request. **Circumstances:** A SADB failure is encountered and a restart is attempted. **Locks Required:** None **Inputs:** Reg 0, byte 3: SYSEVENT code. Reg 1, bytes 0-3: Address of a three word parameter list. **Outputs:** None.
50	**Mnemonic:** CHKSWIN **Meaning:** Check address space status. **Purpose:** Determine whether an address space is currently swapped in, is in the process of being swapped in, or is ready to be swapped in. **Circumstances:** Issued by SMF to avoid unnecessary system overload. **Locks Required:** None **Inputs:** Reg 0, bytes 0-1: ASID. Reg 0, byte 3: SYSEVENT code. **Outputs:** Reg 15, byte 3: Return code: **X'00'** Address space is swapped in, in the process of being swapped in, or ready to be swapped in. **X'04'** Otherwise.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
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 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
53	**Mnemonic:** WLMSTCHG **Meaning:** WLM state change **Circumstances:** Issued when reporting is impacted due to a change in the state of the system. **Locks Required:** WLM local lock **Inputs:** Reg 0, byte 3: SYSEVENT code **Outputs:** None
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 IWMWRCAA 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.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
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 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
58	**Mnemonic:** ENCDELET **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:** STATEXIT **Meaning:** WLM sysplex management state change exit **Purpose:** WLM uses STATEXIT when a state change occurs on a remote system. **Circumstances:** WLM uses STATEXIT 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.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
5B	**Mnemonic:** REQASCL **Meaning:** Request address space classification attributes **Purpose:** To query classification attributes of an address space **Circumstances:** Application dependent. **Locks Required:** SRM lock **Inputs:** Reg 0, byte 3: SYSEVENT code. Reg 1: address of parameter list mapped by IRARASC. **Output:** Reg 15, bytes 0-3: Contains one of the following return codes: **X'00'** Normal completion. **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). **X'08'** Input parameter list is not properly initialized (eyecatcher, version or size specified is too small) **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.
65	**Mnemonic:** ENCSTATE **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 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
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: 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 IRAEVPL. **Outputs:** Reg 15, bytes 0-3: Contains the return code. The values are documented in IRAEVPL.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
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 IRAWLMPL Reg 0, byte 3: SYSEVENT code Reg 1, bytes 0-3: Contains the address of the parameter list mapped by IRAWLMPL. **Outputs:** Reg 1, byte 3: Contains the return code. The values are documented in IRAWLMPL.
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.
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

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
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
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.

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
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 4. SYSEVENTs listed in order by hexadecimal code (continued)

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

Table 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
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 4. SYSEVENTs listed in order by hexadecimal code (continued)

Code (hex)	Meaning
83	**Mnemonic:** QRYCONT **Meaning:** Query contention. **Purpose:** Returns contention information about SRM managed contentions for address spaces or enclaves. **Circumstances:** Application dependent **Locks Required:** Local **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. **Outputs:** None.
84	**Mnemonic:** SDUMP **Meaning:** SDUMP Query. **Purpose:** Returns information needed by DUMPSERV. **Locks Required:** None.
85	**Mnemonic:** QRYTNT **Meaning:** Collect tenant resource group consumption data. **Purpose:** To collect the CPU service consumption of tenant resource groups defined in the WLM service definition when a caller issues the IWM4QTNT service. **Circumstances:** Application dependent. **Locks Required:** None. **Inputs:** Reg 0, byte 3: SYSEVENT code Reg 1, bytes 0-3: Address of IWM4QTNT parameter list **Outputs:** Reg 15: Return code: **X'00'** Successful completion. **X'08'** Insufficient space for data.
86	**Mnemonic:** REQILMT **Meaning:** Query service for zCX. **Purpose:** Returns information needed by zCX. **Locks required:** None.

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 IGX00*nnn*, 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.
- Register 7 – Address of the ASCB.
- Register 14 – Return address.
- Other registers – Unpredictable.

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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 209.

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 8-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 SCVTSVCT field in the SCVT points to the SVC table.

For details about the CVT and SCVT control blocks, see *z/OS MVS Data Areas*.

Each word entry in the SVC table contains the following information:

- Byte 0, bit 0 indicates the AMODE.
- Bytes 0 - 3 contain the SVC entry point address.
- Byte 4 indicates the SVC type and authorization:

Byte-4 bits	SVC type and authorization
`000. ....`	Type 1.
`100. ....`	Type 2.
`110. ....`	Type 3 or 4.
`001. ....`	Type 6.
`.... 0...`	Unauthorized SVC.
`.... 1...`	Authorized SVC.
`.... .1..`	Extended SVC.
`.... ..1.`	Non-preemptive SVC.
`.... ...1`	SVC can be assisted.

- Byte 5 indicates the SVC attributes:

Byte-5 bits	SVC attributes
1...	SVC can be issued in access register mode.

- Byte 6 indicates which locks are to be obtained by the SVC first level interruption handler (FLIH) before the SVC routine is processed:

Byte 6	Locks to obtain
X'80'	LOCAL lock
X'40'	CMS lock
X'20'	SRM lock
X'10'	SALLOC lock
X'08'	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 Generalized Trace Facility (GTF) in *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 5 on page 79 contains a list of decimal SVC numbers, showing the associated macros for each SVC.
- Table 6 on page 85 contains a list of macros in alphabetical order showing the associated SVC number for each.

Table 5. SVC numbers and associated macros

DEC	HEX	Macro
0	(00)	EXCP XDAP

Table 5. SVC numbers and associated macros (continued)

DEC	HEX	Macro
1	(01)	PRTOV WAIT WAITR
2	(02)	POST
3	(03)	EXIT
4	(04)	GETMAIN (TYPE 1) (get storage below 16 megabytes - with R operand)
5	(05)	FREEMAIN (TYPE 1)
6	(06)	LINK LINKX
7	(07)	XCTL XCTLX
8	(08)	LOAD
9	(09)	DELETE
10	(0A)	FREEMAIN (free storage below 16 megabytes) GETMAIN (get storage below 16 megabytes - with R operand)
11	(0B)	TIME
12	(0C)	SYNCH SYNCHX
13	(0D)	ABEND
14	(0E)	SPIE
15	(0F)	ERREXCP
16	(10)	PURGE
17	(11)	RESTORE
18	(12)	BLDL (TYPE D) FIND (TYPE D)
19	(13)	OPEN
20	(14)	CLOSE
21	(15)	STOW
22	(16)	OPEN (TYPE = J)
23	(17)	CLOSE (TYPE = T)
24	(18)	DEVTYPE
25	(19)	TRKBAL
26	(1A)	CATALOG INDEX LOCATE
27	(1B)	OBTAIN
28	(1C)	Reserved

Table 5. SVC numbers and associated macros (continued)

DEC	HEX	Macro
29	(1D)	SCRATCH
30	(1E)	RENAME
31	(1F)	FEOV
32	(20)	REALLOC
33	(21)	IOHALT
34	(22)	MGCR/MGCRE QEDIT
35	(23)	WTO WTOR
36	(24)	WTL
37	(25)	SEGLD SEGWT
38	(26)	Reserved
39	(27)	LABEL
40	(28)	EXTRACT
41	(29)	IDENTIFY
42	(2A)	ATTACH ATTACHX
43	(2B)	CIRB
44	(2C)	CHAP
45	(2D)	OVLYBRCH
46	(2E)	STIMERM(CANCEL OPTION) STIMERM(TEST OPTION) TTIMER
47	(2F)	STIMER STIMERM(SET OPTION)
48	(30)	DEQ
49	(31)	Reserved
50	(32)	Reserved
51	(33)	SDUMP SDUMPX SNAP SNAPX
52	(34)	RESTART
53	(35)	RELEX
54	(36)	DISABLE
55	(37)	EOV

Table 5. SVC numbers and associated macros (continued)

DEC	HEX	Macro
56	(38)	ENQ RESERVE
57	(39)	FREEDBUF
58	(3A)	RELBUF REQBUF
59	(3B)	OLTEP
60	(3C)	ESTAE STAE
61	(3D)	No macro
62	(3E)	DETACH
63	(3F)	CHKPT
64	(40)	RDJFCB
65	(41)	Reserved
66	(42)	BTAMTEST
67	(43)	Reserved
68	(44)	SYNADAF SYNADRLS
69	(45)	BSP
70	(46)	GSERV
71	(47)	ASGNBFR BUFINQ RLSEBFR
72	(48)	No macro
73	(49)	SPAR
74	(4A)	DAR
75	(4B)	DQUEUE
76	(4C)	No macro
77	(4D)	Reserved
78	(4E)	LSPACE
79	(4F)	STATUS
80	(50)	Reserved
81	(51)	SETDEV SETPRT
82	(52)	Reserved
83	(53)	SMFEWTM,BRANCH=NO SMFWTM

Table 5. SVC numbers and associated macros (continued)

DEC	HEX	Macro
84	(54)	GRAPHICS
85	(55)	No macro
86	(56)	ATLAS (obsolete)
87	(57)	DOM
88	(58)	Reserved
89	(59)	Reserved
90	(5A)	Reserved
91	(5B)	VOLSTAT
92	(5C)	TCBEXCP
93	(5D)	TGET TPG TPUT
94	(5E)	GTDEVSIZ GTSIZE GTTERM STATTN STAUTOCP STAUTOLN STBREAK STCC STCLEAR STCOM STFSMODE STLINENO 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
106	(6A)	Reserved
107	(6B)	MODESET
108	(6C)	Reserved

Table 5. SVC numbers and associated macros (continued)

DEC	HEX	Macro
109	(6D)	ESPIE IFAUSAGE MFDATA(RMF) MFSTART(RMF) MSGDISP OUTADD OUTDEL
110	(6E)	Reserved
111	(6F)	No Macro
112	(70)	PGRLSE
113	(71)	PGANY PGFIX PGFREE PGLOAD PGOUT
114	(72)	EXCPVR
115	(73)	Reserved
116	(74)	CALLDISP CHNGNTRY IECTATNR IECTCHGA IECTRDTI RESETPL
117	(75)	DEBCHK
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
128	(80)	Reserved

Table 5. SVC numbers and associated macros (continued)

DEC	HEX	Macro
129	(81)	Reserved
130	(82)	RACHECK
131	(83)	RACINIT
132	(84)	RACLIST RACXTRT ICHEINTY
133	(85)	RACDEF
134	(86)	Reserved
135	(87)	Reserved
136	(88)	Reserved
137	(89)	ESR(TYPE 6)
138	(8A)	PGSER
139	(8B)	CVAF CVAFDIR CVAFDSM CVAFSEQ CVAFVOL CVAFVRF
143	(8F)	CIPHER EMK(TYPE 4) GENKEY RETKEY
144	(90)	No macro
145	(91)	Reserved
146	(92)	BPESVC

Table 6. Macros and associated SVC number

Macro	DEC	HEX
ABEND	13	(0D)
AQCTL	102	(66)
ASGNBFR	71	(47)
ATLAS	86	(56)
ATTACH	42	(2A)
ATTACHX	42	(2A)
BLDL (TYPE D)	18	(12)
BPESVC	146	(92)
BSP	69	(45)
BTAMTEST	66	(42)
BUFINQ	71	(47)
CALLDISP	116	(74)

Table 6. Macros and associated SVC number (continued)

Macro	DEC	HEX
CATALOG	26	(1A)
CHAP	44	(2C)
CHKPT	63	(3F)
CHNGNTRY	116	(74)
CIPHER	143	(8F)
CIRB	43	(2B)
CLOSE	20	(14)
CLOSE (TYPE=T)	23	(17)
CVAF	139	(8B)
CVAFDIR	139	(8B)
CVAFDSM	139	(8B)
CVAFSEQ	139	(8B)
CVAFVOL	139	(8B)
CVAFVRF	139	(8B)
DAR	74	(4A)
DEBCHK	117	(75)
DELETE	9	(09)
DEQ	48	(30)
DETACH	62	(3E)
DEVTYPE	24	(18)
DISABLE	54	(36)
DOM	87	(57)
DQUEUE	75	(4B)
DYNALLOC	99	(63)
EMK (TYPE 4)	143	(8F)
ENQ	56	(38)
EOV	55	(37)
ERREXCP	15	(0F)
ESPIE	109	(6D)
ESR (TYPE 1)	116	(74)
ESR (TYPE 2)	122	(7A)
ESR (TYPE 4)	109	(6D)
ESR (TYPE 6)	137	(89)
ESTAE	60	(3C)
EVENTS (TYPE 1)	125	(7D)
EVENTS (TYPE 2)	122	(7A)
EXCP	0	(00)

Table 6. Macros and associated SVC number (continued)

Macro	DEC	HEX
EXCPVR	114	(72)
EXIT	3	(03)
Extended LINK	122	(7A)
Extended LOAD	122	(7A)
Extended XCTL	122	(7A)
EXTRACT	40	(28)
FEOV	31	(1F)
FIND (TYPE D)	18	(12)
FREEDBUF	57	(39)
FREEMAIN (TYPE 1)	5	(05)
FREEMAIN (free storage above 16 megabytes - TYPE 1)	120	(78)
FREEMAIN (free storage below 16 megabytes)	10	(0A)
GENKEY	143	(8F)
GETMAIN (TYPE 1) (get storage below 16 megabytes - with R operand)	4	(04)
GETMAIN (get storage above 16 megabytes - TYPE 1)	120	(78)
GETMAIN (get storage below 16 megabytes - with R operand)	10	(0A)
GRAPHICS	84	(54)
GSERV	70	(46)
GTDEVSIZ	94	(5E)
GTSIZE	94	(5E)
GTTERM	94	(5E)
IDENTIFY	41	(29)
IECTATNR	116	(74)
IECTCHGA	116	(74)
IECTRDTI	116	(74)
IFAUSAGE	109	(6D)
IKJEFFIB (applies to TSO/E only)	100	(64)
IKJEGS6A (applies to TSO/E only)	61	(3D)
IKJEGS9G (applies to TSO/E only)	97	(61)
IMGLIB	105	(69)
INDEX	26	(1A)
IOHALT	33	(21)
LABEL	39	(27)
LINK	6	(06)
LINK - Extended LINK	122	(7A)
LINKX	6	(06)
LOAD	8	(08)

Table 6. Macros and associated SVC number (continued)

Macro	DEC	HEX
LOAD - Extended LOAD	122	(7A)
LOCATE	26	(1A)
LSPACE	78	(4E)
MFDATA(RMF)	109	(6D)
MFSTART(RMF)	109	(6D)
MGCR/MGCRE	34	(22)
MODESET	107	(6B)
MSGDISP	109	(6D)
No macro	72	(48)
No macro	76	(4C)
No macro	111	(6F)
No macro	144	(90)
OBTAIN	27	(1B)
OLTEP	59	(3B)
OPEN	19	(13)
OPEN (TYPE=J)	22	(16)
OUTADD	109	(6D)
OUTDEL	109	(6D)
OVLYBRCH	45	(2D)
PGANY	113	(71)
PGFIX	113	(71)
PGFREE	113	(71)
PGLOAD	113	(71)
PGOUT	113	(71)
PGRLSE	112	(70)
PGSER	138	(8A)
POST	2	(02)
PROTECT	98	(62)
PRTOV	1	(01)
PURGE	16	(10)
PURGEDQ	123	(7B)
QEDIT	34	(22)
QTIP	101	(65)
RACDEF	133	(85)
RACHECK	130	(82)
RACINIT	131	(83)
RACLIST	132	(84)

Table 6. Macros and associated SVC number (continued)

Macro	DEC	HEX
RDJFCB	64	(40)
REALLOC	32	(20)
RELBUF	58	(3A)
RELEX	53	(35)
RENAME	30	(1E)
REQBUF	58	(3A)
RESERVE	56	(38)
Reserved	28	(1C)
Reserved	38	(26)
Reserved	49	(31)
Reserved	50	(32)
Reserved	65	(41)
Reserved	67	(43)
Reserved	77	(4D)
Reserved	80	(50)
Reserved	82	(52)
Reserved	88	(58)
Reserved	89	(59)
Reserved	90	(5A)
Reserved	106	(6A)
Reserved	108	(6C)
Reserved	110	(6E)
Reserved	115	(73)
Reserved	118	(76)
Reserved	126	(7E)
Reserved	127	(7F)
Reserved	128	(80)
Reserved	129	(81)
Reserved	134	(86)
Reserved	135	(87)
Reserved	136	(88)
RESETPL	116	(74)
RESTART	52	(34)
RESTORE	17	(11)
RETKEY	143	(8F)
RLSEBFR	71	(47)
SCRATCH	29	(1D)

Table 6. Macros and associated SVC number (continued)

Macro	DEC	HEX
SDUMP	51	(33)
SDUMPX	51	(33)
SEGLD	37	(25)
SEGWT	37	(25)
Service Processor Call	122	(7A)
SETDEV	81	(51)
SETPRT	81	(51)
SMFEWTM,BRANCH=NO	83	(53)
SMFWTM,BRANCH=NO	83	(53)
SNAP	51	(33)
SNAPX	51	(33)
SPAR	73	(49)
SPIE	14	(0E)
STAE	60	(3C)
STATTN	94	(5E)
STATUS	79	(4F)
STAUTOCP	94	(5E)
STAUTOLN	94	(5E)
STAX	96	(60)
STBREAK	94	(5E)
STCC	94	(5E)
STCLEAR	94	(5E)
STCOM	94	(5E)
STFSMODE	94	(5E)
STIMER	47	(2F)
STIMERE	122	(7A)
STIMERM (CANCEL option)	46	(2E)
STIMERM (SET option)	47	(2F)
STIMERM (TEST option)	46	(2E)
STLINENO	94	(5E)
STOW	21	(15)
STSIZE	94	(5E)
STTMPMD	94	(5E)
STTRAN	94	(5E)
SYNADAF	68	(44)
SYNADRLS	68	(44)
SYNCH	12	(0C)

Table 6. Macros and associated SVC number (continued)		
Macro	**DEC**	**HEX**
SYNCHX	12	(0C)
SYSEVENT	95	(5F)
TCBEXCP	92	(5C)
TCLEARQ	94	(5E)
TESTAUTH	119	(77)
TGET	93	(5D)
TIME	11	(0B)
TOPCTL	104	(68)
TPG	93	(5D)
TPIO	124	(7C)
TPUT	93	(5D)
TRKBAL	25	(19)
TTIMER	46	(2E)
VALIDATE	122	(7A)
VOLSTAT	91	(5B)
VSAM	121	(79)
WAIT	1	(01)
WAITR	1	(01)
WTL	36	(24)
WTO	35	(23)
WTOR	35	(23)
XCTL	7	(07)
XCTLX	7	(07)
XDAP	0	(00)
XLATE	103	(67)

SVC descriptions

SVC 0 (0A00)

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

Calls module IECVEXCP, entry point IGC000.

GTF data is:

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:

Bytes
Contents

0-3
Address of the ECB.

4-7
Address of the ASCB for the address space that contains the ECB

8-11
Address of the ERRET routine.

12
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.

SVC 3 (0A03)

EXIT macro - is type 1, gets LOCAL lock.

Calls module IEAVEOR, entry point IGC003.

GTF data is:

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.

Bytes

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 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	cccccccc	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:

Bytes
Contents

0-3
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.

4
Indicates an extended parameter list. If X'80'.

5
DCB address or zero.

8
Contains the address of routine to get control on error (ERRET parameter) if byte 4 is X'80'.

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	cccccccc	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:

Bytes
Contents

0-3
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.

4
No applicable data.

5
DCB address or zero.

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 twos-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:

Bits	Register 0 contents
.... 0000	32-bit unsigned binary number representing the number of elapsed timer units. (A timer unit is approximately 26.04 microseconds.)
.... 0001	Elapsed time in hundredths of a second.
.... 0010	Packed decimal digits representing elapsed time in hours, minutes, seconds, tenths of a second, and hundredths of a second (HHMMSShh).
.... 0011	Elapsed time where bit 51 of doubleword is equivalent to one microsecond.
.... 0100	The current TOD clock value is to be returned.
.1..	The routine specified by the ERRET operand gets control on an environmental error.
1...	GMT values are to be returned.

SVC 12 (0A0C)

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

Calls module CSVSYNCH, 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:

Bytes
Contents

0
Flag bits as follows:

1...	....	Restore R2 - R12 at exit.
.000	00..	Reserved (must be zero).
....	..00	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.

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:

Bytes
Contents

0
Flag byte

Bits		
1...	....	DUMP option.
.1..	....	STEP option.
..1.	....	DUMPOPT specified.
...1	....	Entry to RTM for memory purge.
....	1...	Exit to RTM (normal end of task).
....	.1..	REASON parameter specified.
....	..xx	Reserved.

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.

PICA	Address	Comments
PICA	xxxxxxxx	PICA from the associated SPIE macro instruction.

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	cccccccc	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:

Flag			Comments
IOSERR	..1.	....	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	....	.1..	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.
	xx.x	x.xx	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	cccccccc	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	PPLOPT1 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	PPLOPT2			Option byte 2, present if PPLOPT1, 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.
	PPLOTCB	....	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.
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:

1	PIROPT	Option byte, bits meaning:		
	PIROTCB	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.
		0...	....	Restore the I/O requests to the restoring TCB.
	PIRSUPCK	.1..	....	Perform the RESTORE TCB validity check even though the caller can be in supervisor state.
		.0..	....	Perform the TCB validity check based on the state of the caller.
		..xx	xxxx	Reserved; must be zero.
2	PIRCNT	Number of PIRRSTR entries in the PIRL.		
3-4	Reserved			
5-8	PIRRSTR	The pointer to the I/O request list in the form required by the appropriate driver.		
9-C	PIRDVRU	The pointer to additional data the driver maintains.		

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.)

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

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

Byte	Description
0	Reserved.
1	Start concatenation number.
2	Stop concatenation number.
3	Flags: `1... ....`: BLDL NOCONNECT option specified. `.1.. ....`: BLDL BYPASSLLA option specified. `..1. ....`: BLDL NODEBCHK option specified. `...1 ....`: BLDL START= option specified. `.... 1...`: BLDL STOP= option specified.
4 - 7	Length of prefix.

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.
	....	0000	INPUT.
	....	1111	OUTPUT.
	....	0100	UPDAT.
	....	0111	OUTIN.
	....	0011	INOUT.
	....	0001	RDBACK.
	....	1110	EXTEND.
	....	0110	OUTINX.
1-3	ACB or DCB address.		

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:

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 zeros.

4-7 ACB or DCB address.

SVC 20 (0A14)

CLOSE macro - is type 4, gets LOCAL lock.

Calls module IGC00020.

If MODE=24 (R1 is not zero), 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; 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:

Byte	Bits	Description
0	1...	Last entry indicator
	.000	DISP
	.100	REWIND
	.010	FREE
	.011	LEAVE
	.001	REREAD
1 - 3	*	ACB or DCB address

If MODE=31 (R1 is 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:

Byte	Bits	Description
0	1...	Last entry indicator
	.000	DISP
	.100	REWIND
	.010	FREE
	.011	LEAVE
	.001	REREAD
1 - 3	zeros	
4 - 7	*	ACB or DCB address

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:

R0	R1	Action
+	+	ADD
+	-	REPLACE
-	+	DELETE
-	-	CHANGE
0	+	INIT

DDNAME	cccccccc	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:

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	cccccccc	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.

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

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 a OS/VS CAMLST. The CAMLST macro is used to generate the CAMLST when the CATALOG, INDEX, or LOCATE macro issues the SVC call.

Note: Note that for an unauthorized caller, the address provided in register 1 for the parameter list, as well as any storage referenced by that parameter list, must match the PSW key of the SVC 26 issuer. For these purposes, the term "unauthorized" means programs running in problem state, key 8 through 15, regardless of whether APF-authorized or not.

CAMLST Bytes:

-4 - -1	**CTGPLXPT**	**CPL prefix pointer**
0	First option byte:	
	Bits	
	1...	CVOL specified. CVOLs are no longer supported.
	.1..	Reserved.
	..1.	CATALOG or CATBX specified.
	...1	RECAT (re-catalog) specified.
	.... 1...	UNCAT or UCATDX specified.
	.... .1..	Reserved.
	.... ..1.	LOCATE by TTR specified.
	1	Reserved.
1	Second option byte:	
	Bits	
	1...	Do not allocate CVOL. **Note:** CVOLs are no longer supported.
	.1..	BLDX/CATBX specified.
	..1.	BLDG specified.
	...1	BLDA specified.
	.... 1...	LNKX specified.
	.... .1..	DLTX/UCATDX specified.
	.... ..1.	DSCB TTR specified.
	1	DLTA specified.

-4 - -1	**CTGPLXPT**	**CPL prefix pointer**
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.
	.... .11.	Reserved.
	0	The caller supplied a CAMLST.
	1	The caller supplied a CTGPL.
3	Maximum generation count for GDG or zeros.	
4 - 7	Address of the name or TTR if byte 0, bit 6 is ON.	
8 - 11	Address of the CVOL volser, or zeros 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.	

CTGPLEXT - 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.

Offset Dec (Hex)	Bytes/bits	Field name	Description
0 (0)	48	CTGPLEXT	CPL extension.
0 (0)	10	CTGXHDR	Extension header.
0 (0)	6	CTGXID	Extension ID 'CPLEXT'.
6 (6)	s	CTGXVERN	Extension version number.
8 (8)	2	CTGXLEN	Extension length.
10 (A)	2		Reserved.
12 (C)	4	CTGXFLD	Extension fields.
12 (C)	1	CTG2FUNC	Secondary function byte.

Offset Dec (Hex)	Bytes/bits	Field name	Description
13 (D)	1	CTGXFG01	Extension flag byte 1.
	1...	CTGNBCS	No BCS update.
	.1..	CTGNVVDS	No VVDS update.
	..1.	CTGNBCK	No BCS check.
	...1	CTGTCOMP	Component name of temporary data set name passed.
	.... 1...	CTGTSMS	SMS managed temporary data set.
	.... .111		Reserved.
14 (E)	1	CTGXFG02	Extension flag byte 2.
15 (F)	1	CTGXFG03	Extension flag byte 3.
16 (10)	s	CTGXUCBP	UCB address list pointer.
20 (14)	4	CTNVRBA	NVR RBA.
20 (14)	3	CTGDIRBA	Compressed data/index RBA.
24 (18)	4	CTGLBDAT	Last backup date pointer.
		CTGLRDAT	Last referenced date pointer.
28 (1C)	4	CTGDADSM	DADSM parm list pointer.
32 (20)	12	CTGDIAG	Diagnostic information.
32 (20)	4		Reserved.
36 (24)	4	CTGSFI	Catalog subfunction information.
36 (24)	1	CTGCATPC	Catalog problem code.
37 (25)	1	CTGOPNER	ACBERFLG (open error).
38 (26)	2		Reserved.
40 (28)	4	CTGRPLER	RPL feedback word.
44 (2C)	4		Reserved.

DSN/CI `ccccc....` Data set name/control interval name.

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

Bytes
Contents

0 - 1
Number of 12-byte volume list entries to follow.

2 - 5
UCB device code.

6 - 11
Volume serial number.

12 - 13
Reserved.

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:

Bytes
Contents

0-1
Operation code. X'C100' SEARCH for DSNAME; X'C080' SEEK for track address.

2
Option byte.

Bit	Description
1...	Bypass TIOT ENQ, enqueued by caller.
.1..	Do not build a dummy format-1 DSCB.
..1.	Do not allocate catalog in obtains address space.
...1	Authorized caller wants name hiding.
.... 1...	EADSCB=OK keyword is specified.
.... .1..	NOQUEUE=ON. Do not wait if the resource is not available.

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
Volume number (cccccc) of an associated volume.

DSN/CCHHR
Data set name (ccccc...) 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:

Byte	Bits	Description
0	0100 0001	Operation code (set to X'41' for SCRATCH).
1	1...	Dynamic unallocation by job or step ending.
	.1..	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.
	..xx xxxx	Reserved set to zeros.
2	1...	Dynamic unallocation; TIOT is enqueued by the caller.
	.1.0	Check purge date.
	.1.1	Override purge date.
	.... 1...	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.
	.... .1..	When set to 1, all DASD tracks occupied by the data set will be erased (made unreadable) before being released for reuse.
	..x. ..xx	Reserved set to zeros.
3	xxxx xxxx	Reserved set to zeros.
4 - 7	*	Address of data set name.
8 - 11	*	Reserved set to zeros.
12 - 15	*	Address of the volume list.

DSN cccc.... Data set name.

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

Bytes
Contents

0 - 1
Number of 12-byte volume list entries to follow.

2 - 5
UCB device code.

6 - 11
Volume serial number.

12
SCRATCH secondary status code. (X'80' if SCRATCH successful and the user has RACF authority).

13
Scratch status byte.

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:

Bytes
Contents

0-3
X'C1002000' If bit 1 of byte 1 is set to 1 and JSCBPASS=1 then the RACDEF macro is not issued.

4-7
Address of the old data set name.

8-11
Address of the new data set name.

12-15
Address of the volume list.

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:

Bytes
Contents

0-1
Number of 12-byte volume list entries to follow.

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 IGC0003A.

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	cccccccc	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.

Bytes
Description

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.

Bits	Description
1...	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.
.1..	Space must be allocated from track-managed space.
..1.	Reserved; set to zeros. 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.
.... .x..	Unused.
.... ..11	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. 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) or optionally 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.

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
Device number (cccc) from the UCB pointed to by R1.

DSN
Data set name (cccc...) 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 IAR-XCT* for more information.)

R1
Contents:

Bytes
Contents

0-1
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.

2
Ignored

3
Input Option

= "01"
use IOS HALT I/O subroutine.

= "81"
use EXCP CCW modify subroutine.

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:

Bytes
Contents

0
Ignored

1
Input Option

= "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)

MGCR/MGCRE/QEDIT macro - is type 4, gets LOCAL and CMS lock.

Calls module IEE0003D.

For a system task issuing SVC34:

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

SVC 35 (0A23)

WTO / WTOR 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 WTOR. 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.
....	1...	Tape library.
....	.1..	Disk library.
....	..1.	Unit record pool.
....	...1	Teleprocessing control (TPCNTL).

Routing second byte bit settings:

1...	....	System security.
.1..	....	System error/maintenance/system programmer information.
..1.	....	Programmer information.
...1	....	Emulator information.
....	1...	For installation use.
....	.1..	For installation use.
....	..1.	For installation use.
....	...1	For installation use.

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.

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:

Bytes
Contents

0
High order bit is set to 1, others set to 0.

1
Message length + 4.

2-3
MCS flag bytes (same as in WTO PLIST).

4-11
First 8 bytes of the message text. Normally, the message ID.

12-115
WPX. Its format follows:

1
Version level.

2
MPF/SUBSMOD flags.

3
Length of reply buffer.

4
Reserved.

5-6
Extended MCS flags.

7-8
Reserved.

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
Message's priority.

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.

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

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

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:

Bytes
Contents

0-1
Length of PLIST in bytes.

2-3
Reserved.

4-nn
Message text.

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:

Bytes
Contents

0-3
Branch instruction to a SVC 45.

4-7
Address of the referred-to-symbol.

8
"TO" segment number.

9-11
Previous caller or zero.

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:

Bytes
Contents

0-2

- C00004 REWIND option.
- C00000 UNLOAD option.

3
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.

4-7
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.

8-11
Address of the volume label set.

12-13
Length of one volume label.

14
Number of labels in the volume label set.

15
Command byte of the control CCW.

16-19
Address of the first 10 bytes of the volume header label.

20-22
Flags bytes for communicating with the calling program.

Bytes
Contents

20
First flags byte - Bits as follows:

1... ....
LACS message issued during SVC.

.1.. ....
Extended PLIST passed in.

..1. ....
SERVO INIT without permission.

...1 ....
Do not do SERVO INIT.

.... 1...
Cannot SERVO INIT.

.... .1..
RACHECK authorization failure.

.... ..1.
ANSI access passed in.

....1
SPLUCLST is set for XTIOT support - UCB list passed in SPLDDPTR.

21
Second flags byte - Bits as follows:

1... ....
Second load of SVC 39 not available.

.1.. ....
ANSI label requested.

..1. ....
Do not read mounted volume label ('READLBL=NO' specified).

...1 ....
NUMBTAPE specified in INITT statement.

.... xxxx
Reserved.

22
Third flags byte - Reserved.

23
Requested ANSI access code.

24
LACS error return code.

25-26
LACS error reason code.

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:

Bits		Comments
1...	....	Address of the general register save area.
.1..	....	Address of the floating point register save area.
..0.	....	Reserved.
...1	....	Address of the end-of-task exit routine.

Bits		Comments
....	1...	Limit priority and dispatching priority.
....	.1..	Task completion code.
....	..1.	Address of the TIOT.
....	...1	Address of the command scheduler communication list in the CSCB.

9
Flag Byte 2

Bits		Comments
1...	....	Address of a byte. If the high order bit is 1, it indicates a TS address space.
.1..	....	Address of the protected storage control block.
..1.	....	ASID (only if a TS address space). Where AUTH ONLY is indicated, the parameter is valid only for an authorized task-authorized by system key, supervisor state, or APF authorized. If the attaching task is not authorized, the parameter is ignored.
...1	....	ASID.
....	xxxx	Reserved.

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:

R15
No applicable data.

R0
Entry point name address or zero.

R1
Address of the entry point name being added or of the parameter list.

EPNAME	cccccccc	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:

R15
Address of the parameter list being passed to the SVC routine (SUPRVLIST).

R0
No applicable data.

R1
Address of the parameter list being passed to the called program, or zeros (no parameter list being passed).

SUPRVLIST -
The parameter list passed to the SVC routine is 72 or 100 bytes long. Format is:

Bytes
Contents

0-3
Entry Address.

4-7
DCB address.

8-11
ECB address.

1... ....
Indicates new format; else old format.

12-15
Give subpool value or list address.

16-19
Share subpool value or list address.

20-23
ETXR address.

24-25
Dispatching priority.

26
Limit priority.

27
Option flags.

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

28-35
Program name.

36-39
JSCB address.

40-43
STAI/ESTAI parameter list address.

44-47
STAI/ESTAI exit routine address.

48-51
Tasklib DCB address.

52
Flag byte.

1... ....
ATTNSHLV field indicator.

.1.. ....
RSAPF indication.

..1. ....
Reserved.

...1 ....
Term indication.

.... 1...
ESTAI present indication.

.... .1..
ASYNCH indication.

.... ..11
PURGE parameter values.

53
Task ID.

54-55
Length of parameter list.

56-59
NSHSPV or NSHSPL parameter list.

60
Flag byte

1... ....
Directory entry indication.

.1.. ....
Give subpool list indication.

..1. ....
Share subpool list indication.

...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 IQE's 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.

TCB	Address	Comment
CHAP TCB	hhhhhhhh	Address of the TCB whose priority is to be changed. Must be a subtask of the current task.

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:

Bytes
Contents

0-3
Branch instruction to SVC 45.

4-7
Address of the referred-to symbol.

8
"To" segment number.

9-11
Previous caller or zero.

SVC 46 (0A2E)

TTIMER macro and STIMERM 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.

Bytes
Contents

0-2
Reserved.

3
Flag bits, as follows:

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

R4
Points to requester's TCB.

R5
Points to the SVRB.

R7
Points to the ASCB.

R14
Contains the return address.

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

R15
No applicable data.

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

Bytes
Contents

0
Flag bits, as follows:

000.	....	Reserved; must be zero.
...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.
....	1...	"ID=ALL" option.
....	.1..	ERRET option. Routine specified by the ERRET parameter gets control on an environmental error. Register 15 contains the return code.
....	..1.	MIC option. Interval remaining is returned to the specified address in microseconds. (Bit 51 is equivalent to approximately 1 microsecond.)
....	...1	CANCEL option. Specified time interval is to be cancelled.

1-2
Reserved; must be zero.

3
Flag bits as follows: Level number of the parameter list. Must be X'01'

4-7
Pointer to 4-byte area containing the TQE ID.

8-11
Pointer to area in which interval remaining will be stored. If "TU" is specified, the area must be 4 bytes. If "MIC" is specified, the area must be 8 bytes.

12-16
Reserved; must be zero.

R1
Flag bytes formatted as follows:

Bytes
Contents

0-2
Reserved; must be zero.

3
Flag bits, as follows:

0000	....	Reserved; must be zero.
....	1...	STIMERM macro present.
....	.000	Reserved; must be zero.

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 STIMERM 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).

R0
Contents:

Bytes
Contents

0
STIMER option byte, as follows:

0...	....	Indicates old format parameters.
1...	....	Indicates new format parameters.
.000	....	TUINTVL option.
.001	....	BINTVL option.
.010	....	MICVL option.
.011	....	DINTVL option.
.110	....	GMT option.
.111	....	TOD option.
....	1...	ERRET option. Control is returned because of errors. Register 15 is set to 8.
....	.0..	STIMER macro present.
....	..00	Task request. Decrease the interval only when the task is active.
....	..01	Wait request. Decrease the interval continuously and put the task in a wait state until the interval expires.
....	..11	Real request. Decrease the interval continuously.

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:

Bytes
Contents

0
Flag bits as follows:

0000	0...	Reserved; must be zero.
....	.1..	STIMERM macro present.
....	..00	Reserved; must be zero.

1-3
Reserved; must be zero.

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

Bytes
Contents

0
Flag bits, as follows:

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
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 the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary)).

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 the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary).

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.
REPCKIDL	H	Length of check ID.
REPCHKID	4F	Check ID.
REPDDNM	2F	DD Name of the checkpoint data set.
REPPPM	F	Low order address of the P/P area.
REPPPE	F	Size of the P/P area.
REPBLKSI	H	Checkpoint data set blocksize.
REPTIOTL	H	Length of the TIOT.
REPFLAGS	CL1	Checkpoint flag byte 1.
REPWACL	CL3	Checkpoint work area length.
REPFLAG2	CL1	Checkpoint flag byte 2.
RSCKPPML	CL4	V=R Tests.

SVC 53 (0A35)

RELEX macro - is type 3, gets no lock.

Calls module IGC0005C.

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:

```
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.
DCB	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:

R15
31-bit address of AMB or DCB.

R0
IOB address if:

DCBOFLGS = ...1 ....
DCBMACRF = 0... ....

DDNAME	cccccccc	DDNAME associated with this request.

SVC 56 (0A38)

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:

....	.0..	RNL=YES
1...	....	End-of-list indicator; if zero, the parameter list includes another resource request.
.1..	....	Old options are in effect (bits have no meaning).
.01.	....	Indicates LOC=ANY specified on a RESERVE request. The UCB may reside in 31-bit storage.
.0.1	....	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...	Format word indicator. If zero, the list of PELS does not have the MASID format prefix.
.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 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:

0...	....	Exclusive request.
1...	....	Shared request.
.0..	0...	Scope of the minor name is STEP.
.0..	1...	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.
.1..	0...	Scope of the minor name is SYSTEM.
.1..	1...	Scope of the minor name is SYSTEMS.
..1.	....	Obsolete.
...1	....	Set `must complete` equal to STEP.

....	.000	RET=NONE.
....	.001	RET=HAVE.
....	.010	RET=CHNG.
....	.011	RET=USE.
....	.100	ECB=addr. The ECB address is contained in the parameter list prefix.
....	.111	RET=TEST.

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 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.

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.

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)

STAE- ESTAE and ESTAEX 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:

Bytes
Contents

0
Flag byte:

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 zeros 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 zeros 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 the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary).

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	hhhhhhhh	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:

Code

Meaning

X'00'

EXCP request.

X'01'

BPAM request.

X'02'

BSAM request.

X'03'

QSAM request.

X'04'

BDAM request.

X'05'

BISAM request.

X'06'

QISAM request.

X'07'

BTAM request.

X'09'

GAM request.

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:

Bytes
Contents

0
Mask indicating which bits in the graphic control byte (GCB) should be reset.

1-3
Address of a fullword field that identifies the DCB related to the GCB in which bits are to be reset.

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:

Bytes
Contents

0
Request byte; settings are:

04
Indicates ASGNBFR.

1-3
DCB address.

4-7
Address of the halfword field containing the number of bytes of buffer to be assigned.

Entry from RLSEBFR:

Bytes
Contents

0
Request byte; settings are:

08
RLSEBFR.

0C
RLSEBFR ALL.

1-3
DCB address.

4-7
Address of the halfword field containing the number of bytes of buffer to be released.

Entry from BUFINQ:

Bytes
Contents

0
Request byte; settings are:

10
Indicates BUFINQ.

1-3
DCB address.

4-7
Address of the table of buffer addresses (must be on a fullword boundary).

8-11
The number of bytes specified to be available for the table of buffer addresses.

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:

Offset
Contents

X'00'
Device service processor name.

X'08'
Console failure reason code.

X'09'
UCME address.

X'0C'
UCM base address.

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:

Bytes
Contents

0
Priority specified for the attention routine by the SPAR macro instruction.

1
Reserved.

2-3
Number of words in the parameter list.

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:

Bytes
Contents

0-1
Reserved.

2-3
Number of words in the parameter list.

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:

Bytes
Contents

0
Unit index to identify a particular 2260 display station; or 00 for a 2250 station.

1-3
GACB address.

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

Bytes
Contents

0-3
Address of the next IQE in the chain, or zeros.

4-7
No applicable data.

8-11
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.

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:

Return Code (hex)
Explanation

00
Recording to logrec recording medium complete

08
Storage not available (no recording attempted)

0C
One of the following:

- Space not available (no recording attempted). Record override switch set.
- Buffer overflow condition reached for log stream blocks.

10
One of the following:

- Permanent I/O error.
- Format error in the header record.

14
Record length error; the record would not fit in a logrec log stream block.

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* 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.

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

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

Register 0		Function	Register 1	Register 15
0000	0011	SRBs only	N/A*	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 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	cccccccc	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.
..xx	..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.
..xx	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.

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.

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 the 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:

Bits		
1...	....	TGET specified.
0...	....	TPUT specified.
.1..	....	Reserved.
..1.	....	Reserved for TPUT.
...1	....	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.
...0	....	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.
....	1...	Reserved for TPUT.
....	.1..	Reserved for TPUT.
....	..10	Reserved for TPUT.
....	..01.	ASIS specified; normal or minimal editing will be performed.
....	..00.	EDIT specified; further editing will be performed in addition to the normal (ASIS) editing.

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:

Bytes
Contents

0-1
Reserved.

2-3
Buffer size.

4-7
Address of buffer.

8-11
Reserved.

12
Flag 2.

Bits		
1...	....	End of list.
.111	11..	Reserved.
....	..1.	TPG specified.
....	...1	NOEDIT specified.
1...	....	Reserved for TGET.
0...	....	Reserved for TPUT.
.1..	....	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).

R0
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.

R1
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.
....	.0..	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:

R0
The high order bit is set

R1
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.

1...	....	TGET specified.
0...	....	TPUT specified.
.1..	....	USERID specified.
..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 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.
...0	....	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.
....	1...	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.
....	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 the output line.
....	.0..	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.

5-7
Buffer address.

8-11
USERID if specified.

12
Bits

1...	....	End of list.
.111	11..	Reserved.
....	..1.	Reserved for TPG macro.
....	...1	NOEDIT specified; indicates that the message will be transmitted completely unedited.

13-15
Reserved.

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:

0	01	Entry code.
1-3	0	Reserved.

R1
Byte contents, as follows:

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

Entry from STBREAK:

R15
No applicable data.

R0
Byte contents, as follows:

0	04	Entry code.
1-3	0	Reserved.

R1
Byte contents, as follows:

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

Entry from STCOM:

R15
No applicable data.

R0
Byte contents, as follows:

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.

R1

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.

0	**Flag byte; bit settings are:**		
	.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 STAUTOLN:

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
1-3	0	Reserved.

R1
No applicable data; The default is zero.

Entry from STTRAN:

R15
No applicable data.

R0
Byte contents, as follows:

0	**0F**	**Entry code**	
	1	Flag byte	
	1...	....	NOTRAN specified.
	.1..	....	NOCHAR specified.
	..1.	....	TCHAR and SCHAR specified.
2	Terminal character to be translated in the system.		
3	System character to be translated at the terminal.		

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:

0	10	Entry code.
1-3	Reserved; should be zeros.	

R1
Byte contents, as follows:

0	Reserved; should be zeros.
1-3	Erasure character string address.

Entry from GTTERM:

R15
No applicable data.

R0
Byte contents, as follows:

0	11	Entry code.
1-3	0	Reserved.

R1
Parameter list address.

Entry from STFSMODE:

R15
No applicable data.

R0
Byte contents, as follows:

0	12	Entry code.
1-3	0	Reserved.

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:

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:

Bytes
Contents

0-1
Zeros, address space identifier (ASID), or not applicable.

2
Contents variable.

3
SYSEVENT code.

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:

Bytes
Contents

0-3
Address of the user program to get control at the time of the attention interruption.

4-5
Size of the input buffer (max 4095).

6-7
Size of the output buffer (max 4095).

8-11
Address of the output buffer.

12-15
Address of the input buffer.

16
STAX option flag byte; bit settings are:

1...	....	Reserved.
.0..	....	REPLACE = YES.
.1..	....	REPLACE = NO.
..1.	....	DEFER = YES.
...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".

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:

Bytes
Contents

0
Entry code.

Entry code	Function
01	ADD function.
02	REPLACE function.
03	DELETE function.
04	LIST function.
05	TTR function.

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

Entry code	Function
000000	Add function.
000000	Replace function.
000000	Delete function.
hhhhhh	LIST function - address of an 80-byte buffer.

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* 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* 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:

Bytes
Contents

0-3
Address of the TMP parameter list.

4-7
Pointer to the parameter list extension for OPERATOR or PROFILE processors.

8-11
Error return code.

12-19
Failing macro name.

20-21
Caller's ID number.

22-23
Length of the user-defined extension.

24-31
Reserved.

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:

R15
Contents:

Bytes
Contents

0
Zero.

1-3
Depends on the entry code in R0:

Entry

Code
R15 Contents (Bytes 1-3)

00
Not applicable.

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.

R0
Contents:

Bytes
Contents

0-2
Zeros.

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.

FUNCTION	BYTE 0	BYTES 1-3
Opctl/network control	X'84'	Pointer to the APCIB.
Move in address space	X'08'	From pointer.
	X'00'	To pointer.
	X'80'	Pointer to the length.
Tpost to ready queue	X'0C'	Pointer to the RCB.
	X'00'	Pointer to the RCB.
	X'80'	Reserved.
	X'8C'	Pointer to the RCB.
Get/Read	X'90'	Pointer to the ECB.
Put/Write	X'94'	Pointer to the ECB.
Point	X'98'	Pointer to the ECB.
CKREQ	X'9C'	Pointer to the ECB.
Post ECB.	X'20'	Pointer to the ECB.
	X'80'	Pointer to the ASID.
Qreset.	X'A4'	Pointer to the ECB.

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.
hhhh	hhhh	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:

0-2	Reserved (must be zero).		
3	Indicator bits:		
	0000	....	No action.
	0001	....	Invalid.

0010	....	Place the TCB key in the RBOPSW field of the RB.
0011	....	Set the RBOPSW key to zero.
....	0000	No action.
....	0100	Turn on the state bit in RBOPSW field of the RB (problem state).
....	1000	Invalid.
....	1100	Turn off the state bit in RBOPSW field of the RB (supervisor state).

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.

4
ESPIE set function.

8
ESPIE reset function.

12
ESPIE test function.

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.

Code (Hex)	Macro	Description
00		Reserved
01		Reserved
02		Reserved
03		Reserved
04		Reserved
05	GTFSRV	
06		Reserved.
07	MFSTART(RMF)	Authorization required - gets no locks.
08		Reserved
09		Reserved
0A		Reserved
0B		Reserved
0C		Reserved

Code (Hex)	Macro	Description
0D		Reserved
0E		Reserved
0F		Reserved
10		Reserved
11		Sort SVC.
12		Reserved
13		Reserved
14		Reserved
15		Reserved
16	MFDATA(RMF)	Internal data collection for RMF, authorization required - gets no locks.
17		Reserved
18	HSM	Calls module IGX00024
19	IFAUSAGE	SMF transaction count (IFAUSAGE) calls module IGX00025, gets no locks.
1A	TSO/E	Gets local lock.
1B	TSO/E	Gets local lock.
1C	ESPIE	Gets local lock.
1D		VSAM CBUF and BWO (backup while open)
1E	MSGDISP	DFSMSdfp tape message display.
1F	SYNCDEV	Synchronize device and system
20	NOTE,POINT	Note and Point with TYPE=ABS. Register 0 points to an eight-byte parameter list.
21	OUTDEL, OUTADD	
22		MVS/bulk data transfer - Gets no locks.
23		Reserved.
24		ISPF Library Management Facility - calls module IGX00036, gets local lock.
25		Reserved.
26		DFSORT.
27		AOM in DFSMSdfp
28		Reserved.
29		Reserved.
2A		Reserved.
2B		Reserved.
2C		AOM in DFSMSdfp.
2D - 2E		Reserved.
2F		Reserved.
30 - 3B		Reserved.
3C		IBMInfoSphere® Classic Federation and Data Replication.
3D - C7		Reserved.
C8 - FF		Reserved for customer use.

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.

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

Byte 0	Flags	Comments
Bit 0	(1... ....)	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.
Bit 1	(.1.. ....)	PGFIX is to be performed; reserved, set by macro instruction.
Bit 2	(..1. ....)	PGFREE is to be performed; reserved, set by macro instruction.
Bit 3	(...1 ....)	PGLOAD is to be performed; reserved, set by macro instruction.
Bit 4	(.... 1...)	PGRLSE is to be performed; reserved, set by macro instruction.
Bit 5	(.... 1...)	PGANY is to be performed; reserved, set by macro instruction.
Bit 6	(.... ..1.)	Long-term PGFIX is to be performed; reserved, set by macro instruction.
Bit 7	(.... ...1)	Reserved.

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

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

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.

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:

Code	Macro	Description
00	IECTRDTI	BTAM 3270 read initial UCB scan.
01	IECTATNR	BTAM 3270 attention reset.
02	CHNGNTRY	BTAM 3270 CHNGNTRY skip.
03	IECTCHGA	BTAM 3270 CHNGNTRY activate.
04	RESETPL	BTAM 3270 read initial.
05		Reserved.
06		Reserved.
07		Reserved.
08	CALLDISP	Dispatcher call.
09		Reserved.
0A		Reserved.
0B		Reserved.
0C		Reserved.
0D		Reserved.
0E		Reserved.

SVC 117 (0A75)

DEBCHK macro - is type 2, gets LOCAL lock.

GTF data is:

R0
Bits 0 - 7 indicate the access method:

Bits 0 - 7	Access method
X'82'	VTAM
X'81'	SUBSYS
X'40'	BDAM

Bits 0 - 7	Access method
X'20'	SAM
X'20'	BPAM
X'10'	TAM
X'08'	GAM
X'02'	EXCP
X'01'	VSAM
X'00'	None

Bits 8 - 31 indicate the function type code:

Bits 8 - 31	Function type code
X'000000'	VERIFY
X'000001'	ADD
X'000002'	DELETE
X'000003'	PURGE
X'000100'	LOCK
X'000200'	UNLOCK
X'000201'	ADDLOCKEXCL
X'000300'	LOCKEXCL
X'000301'	ADDLOCK

R1

Bits 0 - 7
The value 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

The GTG trace will not show some new parameters. The high four bytes of register 1 might contain a DEB address. Access register 0 might contain a TCB address. Access register 1 might contain an RB address.

R15
Contains the value 2

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:

Byte	Meaning		
0	Reserved - must be set to zero.		
1	Flag bits:		
	xxxx	....	Reserved.
	....	1...	RBLEVEL=2 (applies only to KEY and/or STATE).
	....	0...	RBLEVEL=1 (applies only to KEY and/or STATE).
	....	.1..	STATE=YES.
	....	.0..	STATE=NO.
	....	..1.	KEY=YES.
	....	..0.	KEY=NO.
	....	...1	No FCTN specified.
	....	...0	FCTN=code (see register 1 byte 3).
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.
	....	1...	CHECKZERO=YES was specified.

....	0...	CHECKZERO=NO was specified explicitly, or by default.
....	.1..	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.

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:

R15
Contains the pointer to the buffer control block.

R0
Contains the pointer to the place holder entry, used for a record management request.

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.

Code	Macro	Description
00		Reserved.
01		Reserved.
02		Reserved.
03		Reserved.
04		Reserved.
05	EVENTS	Gets local lock.

R0 Bytes have meaning as follows:

Bytes	Meaning	
0	Flag bits	
	1...	ENTRIES=n (create request); delete is requested if FC=5.
	.111 1111	Reserved.
1	Reserved.	
2-3	Number of ENTRIES requested or zero.	

R1 Address of the EVENT table if a delete is requested.

06 Service Processor Call — Gets no locks.

R1 Has the address of the parameter list. The two word parameter list has the following format:

WORD 1
Address of the requester's data block.

WORD 2
Address of the service processor command word.

07 Extended LINK macro is type 2, gets local and CMS locks. GTF data is:

R1 Address of the parameter list. The 20 byte parameter list has the following format:

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

11
Reserved.

12-15
ERRET address or zero.

16-19
Address of user optional parameter list.

Code	Macro	Description
08	Extended XCTL	macro is type 2, gets LOCAL and CMS locks. GTF data is:
	R1	Address of the parameter list. The 16 byte parameter list has the following format:

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

11
Reserved.

12-15
Address of user optional parameter list.

09	Extended LOAD	macro is type 2, gets LOCAL and CMS locks. GTF data is:

Code	Macro	Description
	R1	Address of the parameter list. The 16 byte parameter list has the following format: **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.
	R15	00 - LOAD function was successful. If greater than 00 - LOAD function was not successful.
0A	Service Processor Interface SVC is type 2, gets no locks.	
0B	ISNAXSVC is type 2, gets no locks.	
0C	Reserved.	
0D	CSVXCEFM is type 2, gets LOCAL lock.	
0E	Reserved.	
0F	CSVHFLDM is type 2, gets LOCAL lock.	
10	CSVHFDLM is type 2, gets LOCAL lock.	
11	IEAVEGUR is type 2, gets no locks.	
12	Reserved.	
13	Reserved.	

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:

0	Flag bits:		
	x...	....	Reserved.
	.1..	....	On LCPB indicates.
	Bits 2-7		**Code** **Meaning** **00** Specific request. **04** Any request. **08** Open. **0C** TPPOST. **0F** CLOSE ACB. **10** Session control request.
	1-3		DEB address.

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:

0	Flag bits

1...	....	WAIT=YES.
.1..	....	WAIT=NO.
..1.	....	ECB= address.
...1	....	Byte 1 contains a format number
....	1111	Reserved.

1 A one indicates format 1 input data.

2-3 Reserved.

R1
Address of the EVENT table.

SVC 126 (0A7E)

Reserved.

SVC 127 (0A7F)

Reserved.

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 *z/OS Security Server RACF Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary) for the ACHKL data area.

When SVC 130 is issued as a result of a RACROUTE request, and RACF is installed, GTF data is:

R0
Address of the parameter list. See *z/OS Security Server RACF Diagnosis Guide*.

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 *z/OS Security Server RACF Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary) for the RIPL data area.

When SVC 131 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
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 ICHRSV00.

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.

R1
Address of the parameter list. For RACLIST requests, see *z/OS Security Server RACF Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary) for the RLST data area. For RACXTRT requests, see *z/OS Security Server RACF Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary) for the RXTL data area. For ICHEINTY requests, see *z/OS Security Server RACF Diagnosis Guide*.

When SVC 132 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 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.

R1
Address of the parameter list. See *z/OS Security Server RACF Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary) for the RDDFL data area.

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.

Code (Hex)	Macro	Description
00	CALLDISP	Dispatcher call.
01		Reserved.
02		Reserved.
03		Reserved.
04		Reserved.
05		Reserved.
06		Reserved.

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. If R1 bit 0 = 1, then the register contains a 31-bit pointer to the first PSL in the user supplied PSL list.
R2-R3	Irrelevant	
R4	TCB address	
R5	RB address	
R6-R12	Irrelevant	
R13	Address of a standard 72 byte save area.	
R14	If R1 bit 0 = 0, for register format macro, then: Bits 0-15 Reserved Bits 16-23 Same as FUNC in PSL Bits 24-31 Same as FLAG2 in PSL If R1 bit 0 = 1, then R14 is irrelevant, and not examined by page services.	
R15	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.	

On return, the register contents will be as follows:

R0	Unpredictable
R1-R14	Same as for input
R15	Return code.

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 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:

Code	Meaning
0	Query function status.
1	Register named function.
2	Deregister named function.
3	Call named function.
4	Termination cleanup.

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.

Chapter 5. Program call services in the system function table

Table 7 on page 199 lists the program calls by number (in hexadecimal), with their related services and modules.

Table 7. Summary of z/OS program calls

PC number (hex)	Service description	Component or module
00000000	Linkage index reserve	IEAVXLRE
00000001	Linkage index free	IEAVXLFR
00000002	Entry table create	IEAVXECR
00000003	Entry table destroy	IEAVXEDE
00000004	Entry table connect	IEAVXECO
00000005	Entry table disconnect	IEAVXEDI
00000006	Authorization index reserve	IEAVXRFE
00000007	Authorization index free	IEAVXRFE
00000008	Authorization index extract	IEAVXRFE
00000009	Authorization index set	IEAVXSET
0000000A	Authorization table set	IEAVXSET
0000000B	PC/AUTH resource manager	IEAVXPAM
0000000C	For use by IBM code only	IEAVXREX
0000000D	ALESERV ADD/ADDPASN services	IEAVXALA
0000000E	ALESERV DELETE service	IEAVXALD
0000000F	ALESERV EXTRACT/EXTRACTH services	IEAVXALE
00000010	ALESERV SEARCH service	IEAVXALS
00000011	DualPool Router	
00000102	ENQ/DEQ/RESERVE resource termination manager	ISGGTRM1
00000103	Global resource serialization dump services	ISGDGCB0
00000104	Global resource serialization queue scan services (SCOPE is STEP, SYSTEM, or SYSTEMS)	ISGQSC
00000105	Global resource serialization storage management interface	ISGSMI
00000106	Global resource serialization QScan services (SCOPE is LOCAL or GLOBAL)	ISGQSC
00000107	Cross Memory DEQ Service, LINKAGE=SYSTEM	ISGGRT
00000108	Cross Memory ENQ Service, LINKAGE=SYSTEM	ISGGRT
00000109	Global resource serialization mainline ESTAE routine	ISGGEST0
0000010C	GRS Latch internal processing	ISGLRLQE
0000010D	GRS Latch CREATE service	ISGLCRTS
0000010E	GRS Latch internal processing	ISGLRTR

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Table 7. Summary of z/OS program calls (continued)

PC number (hex)	Service description	Component or module
0000010F	GRS Latch PURGE service	ISGLPRGS
00000110	GRS Latch internal processing	ISGLTM
00000111	GRS Latch internal processing -ISGLTM2	ISGLTM
00000112	GRS Latch PURGE by address space services	ISGLPRBA
00000113	GRS SETGRS command internal processing	ISGCSETP
00000114	GRS ISGECA service and DISPLAY GRS,ANALYZE command	ISGCDANG
00000115	GRS Latch internal processing	ISGLDELS
00000117	GRS Internal processing	ISGSCPME
0000011A	ISGENQ service	ISGGRT
0000011B	ISGQUERY service	ISGQPC
0000011C	ISGADMIN service	ISGGADMN
0000011D	Non-cross memory ENQ service (LINKAGE=SVC) redrives to GRS	ISGGRT
0000011E	Non-cross memory DEQ service (LINKAGE=SVC) redrives to GRS	ISGGRT
0000011F	Non-cross memory ENQ or DEQ services (LINKAGE=SVC) wait for redriving to GRS	ISGGRT
00000120	Generic PC to GRS address space to perform various functions	ISGGHOM
00000200	Display allocation tables manager	IEFHB410
00000201	DALT Dynamic Activate Config change	IEFHB420
000000202	Allocation Component Trace Record	IEFCTRCD
00000203	ATS Tape sharing Operations	IEFHB4IG
00000204	Allocation Device Management (offline, online, unload)	IEFHBPDF
00000300	VSM CPOOL build service	IGVCPBDP
00000301	VSM CPOOL expansion interface	IGVCPEXP
00000302	VSM CPOOL delete service	IGVCPDLP
00000303	VSMLIST service	IGVLISTP
00000304	VSMLOC service	IGVLOCP
00000305	CPUTIMER service	IEAVRT04
00000306	Virtual fetch CSVVFORK service	CSVVFORK
00000307	Data-in-virtual	ITVCCTL
00000308	Symptom records	ASRSERVP
00000309	LSEXPAND service	IEAVLSEX
0000030A	LOCASCB STOKEN= service	IEAVESTA
0000030B	Storage obtain	IGVVSTOR
0000030C	RTM dynamic resource manager	IEAVTR2C
0000030D	WAIT LINKAGE=SYSTEM service	IEAVEWTP
0000030E	POST LINKAGE=SYSTEM service	IEAVEPTP

Table 7. Summary of z/OS program calls (continued)

PC number (hex)	Service description	Component or module
0000030F	PC-ESTAE Service	IEAVSTAI
00000310	ASCRE/ASDES/ASEXT services	ASEMAIN
00000311	Storage release	IGVVSTOR
00000312	TCBTOKEN service	IEAVTTKN
00000313	TESTART service	IEAVXTAR
00000314	CSVQUERY Service	CSVQYSRV
00000315	For use by IBM code only	ITVCF
00000316	TIMEUSED Service	IEATTUSD
00000317	SRB SUSPEND with Token	IEAVSRBS
00000318	SRB RESUME with Token	IEAVSRBR
00000319	SRB Purge with Token	IEAVSRBP
0000031A	LLACOPY Service	CSVLLCPY
0000031B	RCFSTAT Service	IEEUSTAT
0000031C	RCFCONF Service	IEEULCFG
0000031D	AFFINITY Service	IEAVEAFN
0000031E	SDOM Connect service	COFMCONN
0000031F	SDOM Disconnect service	COFMDISC
00000320	CTRACEWR - Write Service	ITTTWRIT
00000321	PC TIME Service	IEATTIME
00000322	UCB Service Authorized	IOSVUPCR
00000323	UCB Service Unauthorized	IOSVUPCR
00000324	Configuration Change Manager	IOSVCCMI
00000325	Unit Verification Services	IEFEISO1
00000326	Name token services	IEANTCRS
00000327	Name token services	IEANTDLS
00000328	CONVTOD service	IEATCNVT
00000329	Dynamic APF service	CSVQUERY
0000032A	APPC service routine	ATBMIPTE
0000032B	Dynamic Exit Support	CSVEXPR
0000032C	CSRL16J service	CSRL16JP
0000032D	SCHEDIRB service	IEAVEIRB
0000032E	IOS Support	IOSVCOPR
0000032F	HCD microprocessor cluster support	CBDMSHSD
00000330	TESTART CADS ALET service	IEAVXTR1
00000331	SCHEDSRB	IEAVSCHD
00000333	HCD sysplex services (HSS) interface routine	CBDMSHSS

Table 7. Summary of z/OS program calls (continued)

PC number (hex)	Service description	Component or module
00000334	Captured UCB Services	IOSVCAPU
00000335	Allocation DD Service	IEFDIS01
00000336	ETR Information	IEATETRI
00000337	LOGGER Router	IXGL2RTE
00000338	RTM Linkage Stack Query	IEAVTLSQ
00000339	LOGGER Router	IXGL2RTI
0000033A	IOS Support	IOSVCDRP
0000033B	Dynamic Linklist	CSVDLPR
0000033C	Authorized Command Exit Manager	IEAVEAEM
0000033D	Logical Parmlib Service	IEFPIS01
0000033E	Context Services Router	CTXROUTE
0000033F	Product Enable/Disable	IFAEDPCT
00000340	Dynamic LPA	CSVLPPR
00000342	Enhanced PURGEDQ	IEAVPDQX
00000343	IEAMQRY	IEAVQRY
00000344	Context Services Router	CTXROUTE
00000345	IEAFP	IEAVEFPR
00000346	IEARR Service	IEAVSTA1
00000347	IEARR Service	IEAVSTA1
00000348	CSRSI Service	CSRSIPR
00000349	RRS Set Environment	ATRUMSEN
0000034A	RRS Retrieve Environment	ATRUMREN
0000034B	Client License Services	ILMPRPCT
0000034C	LE Services	CELSPCTK
0000034D	LE Services	CELSPCTK
0000034E	Create Name/Token Pair	IEAN4CRS
0000034F	Delete Name/Token Pair	IEAN4DLS
00000350	IPCS Storage Access	BLS1ACTV
00000351	ILMQUERY	ILMPQRY
00000352	RRS router	ATRBMIPC
00000353	Unicode services	CUNMZPC
00000354	Supervisor internal processing	IEAVIFAP
00000355	VSAM record management	IDA0DBUG
00000356	CTRACE	ITTTWRTX
00000357	IEAARR Service	IEAVTR4A
00000358	EAV DEVMAN service routine	DMODA002

Table 7. Summary of z/OS program calls (continued)

PC number (hex)	Service description	Component or module
00000359	IEAARR Service	IEAVTR4A
0000035A	CSV internal processing	CSVGETRP
0000035B	Autoconfiguration service routine	IOSVDACI
0000035C	HISUSER service routine	HISNUSER
0000035D	IEATXDC service routine	IEAVETX0
0000035E	JCL Symbol Retrieve service routine	IEFSJSR1
00000400	Consoles Cross-memory Service Routine	IEAVH600
00000401	MCSOPER service	IEAVG712
00000402	CONVCON service	CNZC1CVC
00000403	Consoles internal processing	IEAVH602
00000404	Consoles internal processing	IEAVH700
00000405	Consoles internal processing	IEAVG709
00000406	Consoles internal processing	IEAVH601
00000407	Reserved	IEAVQ701
00000408	Consoles internal processing	IEAVH701
00000409	CMDAUTH service	IEECB920
0000040A	Consoles internal processing	IEAVH702
0000040B	Consoles internal processing	IEAVQ702
0000040C	Consoles internal processing	IEAVH705
0000040D	Consoles internal processing	IEEMB914
0000040E	Consoles internal processing	IEAVH703
0000040F	Consoles internal processing	CNZM1CTW
00000410	IEEVARYD service	Master Scheduler
00000411	Consoles internal processing	IEAVH708
00000412	Reserved	IEAVG630
00000413	Consoles internal processing	IEAVH607
00000414	IEEQEMCS service	IEECB884
00000415	IEECMDS service	IEECB894
00000416	CNZTRKR service	CNZMTRIR
00000417	Consoles internal processing	CNZMTRLG
00000418	Consoles internal processing	CNZMTREX
00000419	Consoles internal processing	CNZMLPRG
0000041A	Consoles internal processing	CNZS1WQE
0000041B	Consoles internal processing	CNZS1TRC
0000041C	Consoles internal processing	CNZM2PRG
0000041D	Consoles internal processing	CNZM1QPR

Table 7. Summary of z/OS program calls (continued)

PC number (hex)	Service description	Component or module
0000041E	Consoles internal processing	CNZM1ERB
0000041F	Consoles internal processing	CNZH1CKB
00000420	Consoles internal processing	CNZC2GCI
00000421	Consoles internal processing	CNZM1CCI
00000422	CnzConv service	CNZC2CVC
00000423	Consoles internal processing	CNZMTWTL
00000500	System trace services System trace control block verification routine System trace environment alteration routine System trace processor alteration routine System trace processor snapshot routine System trace processor verification routine System trace table snapshot data extraction routine System trace table snapshot routine System trace ALTRTRC suspend, resume, PSTART routine System trace table snapshot filter routine Transaction Trace Entry Record Routine The system trace system-provided program call routines are established by system trace separately from the SFT.	IEAVETCV IEAVETEA IEAVETPA IEAVETPS IEAVETPV IEAVETSD IEAVETSN IEAVETSP IEAVETTF ITZRRCD
00000600	Virtual fetch CSVVFSCH service	CSVVFSCH
00000700	SMF buffering routine	IFAPCWTR
00000800	Library lookaside (LLA)	Contents Supervision
00000900	• Data space PC service - DSPSERV router • Data space PC service - Enabled data space page faults • Data space PC service - Disabled data space page faults	• RSM • RSM • RSM
00000A00	• Virtual lookaside facility - retrieve object • Virtual lookaside facility - define class • Virtual lookaside facility - purge class • Virtual lookaside facility - identify user • Virtual lookaside facility - remove user • Virtual lookaside facility - create object • Virtual lookaside facility - notify • Virtual lookaside facility - identify user (part 2) • Virtual lookaside facility - allocation notification • Virtual lookaside facility - identify user (part 1) • Virtual lookaside facility - trace	• VLF • VLF • VLF • VLF • VLF • VLF • VLF • VLF • VLF • VLF • VLF
00000B00	XCF	XCF
00000C00	Reserved for DFP use	DFP
00000D00	MVS/APPC Scheduler	APPC
00000E00	LLACOPY Service	Contents supervision
00000F00	SDOM Services	SDOM

Table 7. Summary of z/OS program calls (continued)

PC number (hex)	Service description	Component or module
00001000	MVS Message Service	MVS Message Service
00001100	MVS/APPC Scheduler	APPC
00001300	z/OS UNIX System Services space switch services	BPXJCSS
00001301	z/OS UNIX System Services nonspace switch services	BPXJCPC
00001302	z/OS UNIX System Services authorized space switch services	BPXJCPC
00001303	z/OS UNIX System Services space switch services for special callable services	BPXJCSS
00001400	Reserved	
00001401	Performance block (PB) create service	IWMX2CRE
00001402	Performance block (PB) delete service	IWMX2DEL
00001403	Performance block (PB) relate service	IWMX2REL
00001405	Performance block (PB) switch service	IWMX2SWC
00001406	Performance block (PB) disconnect service	IWMW2DIS
00001407	Performance block (PB) connect service	IWMW2CON
00001408	Work manager query service	IWMP2RSC
00001409	Policy management read service policy	IWMP2REQ
0000140A	Policy management vary policy service	IWMP2VRY
0000140B	Policy management install SVDEF service	IWMP2REQ
0000140C	Policy management read SVDEF service	IWMP2REQ
0000140D	Administrative application authorization service	IWMA2PMI
0000140E	Workload reporting collect service	IWMW3COL
0000140F	Workload reporting query service	IWMW3QRY
00001410	Policy management CDS state change service	IWMP2REQ
00001411	Work manager lock service	IWMW2LCK
00001412	Operations display WLM support	IWMO2REQ
00001413	Work manager query service	IWMW2QWK
00001414	Generic resource registration	IWMW4GRR
00001415	Generic resource selection	IWMW4GRS
00001416	Recovery and dumping SDATA (WLM) service	IWMM2DMP
00001417	Workload reporting RESMGR routine	IWMW3SRB
00001418	Enclave create	IWMW2CRE
00001419	Enclave delete	IWMW2DEL
0000141A	Enclave classification query	IWMW2EQY
0000141B	System capacity query	IWMW4SCQ
0000141C	Sysplex routing registration	IWMW4SR2
0000141D	Sysplex routing deregistration	IWMW4UR2

Table 7. Summary of z/OS program calls (continued)

PC number (hex)	Service description	Component or module
0000141E	Sysplex routing selection	IWMW4SRS
0000141F	Service definition install	IWMP2PRQ
00001420	Service definition extract	IWMP2PRQ
00001421	Return active classification rules	IWMP2RE2
00001422	Policy activation external	IWMP2PRQ
00001423	Work manager modify connect	IWMW2MCO
00001424	Queue manager connect	IWMQ2CON
00001425	Queue manager disconnect	IWMQ2DIS
00001426	Queue manager insert	IWMQ2INS
00001427	Queue manager delete	IWMQ2DEL
00001428	Server environment manager connect	IWME2CON
00001429	Server environment manager disconnect	IWME2DIS
0000142A	Server environment manager select	IWME2SEL
0000142B	Execution delay register	IWMX2REG
0000142C	Execution delay deregister	IWMX2DRG
0000142D	Enclave join service	IWMW2JOI
0000142E	Enclave leave service	IWMW2LEA
0000142F	Begin server transaction service	IWME2BGN
00001430	End server transaction service	IWME2END
00001431	Environment manager command interface	IWME2REQ
00001432	Reserved	
00001433	Sysplex routing find server service	IWMW4FSV
00001434	Verify data structures for QM and EM	IWMQ2VEQ
00001435	Write symptom record	IWMM2SYM
00001436	EM Server Refresh	IWME2SRF
00001437	Scheduling Environment Query Service	IWMS4QRY
00001438	Scheduling Environment Set Service	IWMS4SET
00001439	Scheduling Environment Validate Service	IWMS4VAL
0000143A	Scheduling Environment Determine Execution Service	IWMS4DES
0000143B	Batch Queue Registration	IWME2REG
0000143C	Batch Queue Deregistration	IWME2DRG
0000143D	Sysplex Router Query Service	IWMW4DNS
0000143E	Reset Job Service Routine	IWMW2RES
0000143F	Update Service Class Token	IWMP2RE3
00001440	WLM OE Get Address Space	IWME2WON
00001441	WLM OE Delete Address Space	IWME2FGT

Table 7. Summary of z/OS program calls (continued)

PC number (hex)	Service description	Component or module
00001442	WLM OE Get work Service	IWME2NOW
00001443	Sysplex Capacity Query Service	IWMD3BAT
00001444	Batch Init Connect	IWME2BCN
00001445	Batch Init Job Select	IWME2BSL
00001446	Server Manager Inform Service	IWME2INF
00001447	Application Environment Limit Service	IWME2LIM
00001448	Demand Batch Select Locator	IWME2BLC
00001449	Demand Batch Initiator Requestor	IWME2BRQ
0000144A	Batch Queue Query Service	IWME2BQY
0000144B	Batch Initiator Placement	IWME2RIP
0000144C	BQS Queue Verifier	IWMD3BQV
0000144D	EM Select Secondary Service	IWME2SEM
0000144E	EM Delete Secondary Work	IWME2SV1
0000144F	WLM Control Region Register	IWMW4CRR
00001450	WLM Control Region Deregister	IWMW4CRD
00001451	WLM Control Region Get Group Names	IWMW4GCN
00001452	WLM Build Routing Group	IWMW4BRG
00001453	WLM Control Region Recommend	IWMW4CRI
00001454	WLM Build Routing Table	IWMW4BRT
00001455	WLM Control Region Reporting	IWMW4CRN
00001456	WLM Export Service	IWMC3EXP
00001457	WLM Import Service	IWMC3IMP
00001458	WLM Undo Export Service	IWMC3UEX
00001459	WLM Undo Import Service	IWMC3UIM
0000145A	Export/Import Connect Service	IWMC3CON
0000145B	Export/Import Disconnect Service	IWMC3DIS
0000145C	Cleanup Latch resources	IWMC3CLR
0000145D	Get PB Transaction Trace token from active	IWMW2GPB
0000145E	Dynamic Channel Path Management Timestamp Service	IWMC4TMP
0000145F	Dynamic Channel Path Management Project I/O Velocity Service	IWMC4PIV
00001460	LPAR Management CPU Affinity Service	IWMC4CAF
00001461	Dynamic Channel Path Management Switch Timestamp Service	IWMC4SWT
00001462	Temporal Affinity Service	IWME2TAF
00001463	Delete Region Work	IWME2SV2
00001464	WLM Enclave Register Service	IWMW2ERG
00001465	WLM Enclave Deregister Service	IWMW2EDR

Table 7. Summary of z/OS program calls (continued)

PC number (hex)	Service description	Component or module
00001466	Queue IRD Command	IWML4QIC
00001467	Reserved	
00001468	Reserved	
00001469	Reserved	
0000146A	Change an Enclave	IWMW2ERE
0000146B	WLM Contention Notification Service	IWMR2CNT
0000146C	Define Application Environment	IWMQ2DAE
0000146D	Work Request Start Service	IWMW2WRS
0000146E	Work Request Stop Service	IWMW2WRP
0000146F	Work Request Block Service	IWMW2WRB
00001470	Work Request Unblock Service	IWMW2WRU
00001471	Correlator Retrieval Service	IWMW2GCR
00001472	ARM Services Router	IWMA3BRI
00001473	EWLM Function Router	IWMA3PCR
00001475	EWLM Get Completion Phase 1	IWMA3RC1
00001476	Response Time Objective Routine	IWMW3RTO
00001477	Generic Delay Description	IWMX2GDD
00001478	Generic PC Interface	IWMP2GIF
00001479	Enclave Query 64bit	IWM4EQRY
0000147A	Reserved	
0000147B	Reserved	
0000147C	Reserved	
0000147D	Reserved	
0000147E	Reserved	
0000147F	SRM SYSEVENT	IWMSRPCR
00001480	WLM OPT Parmlib Query	IWMW2OPQ
00001481	WLM Health Data Query	IWMW4QHT
00001504	System Logger	Logger
00001600	BOSS	BOSS
00001700	IOS Space Switching Service	IOSVIOSW
00001800	BCPii services	
00001900	HIS Services	HISSSERV

Chapter 6. Serialization summary

This topic describes the use of locks and system ENQ/DEQ names. In Table 8 on page 209, 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 8. Summary of locks

Lock Name	Description	Category	Type	PSACLHS (or PSACLHSE) bit
RSMGL	Real storage manager (RSM) lock.	Global	Spin/Class	00 08 00 00
VSMFIX	Virtual storage management (VSM) fixed subpools lock - serializes global VSM queues and the VSMWK for global fixed subpools.	Global	Spin	00 04 00 00
ASM	Auxiliary storage manager (ASM) lock - serializes ASM resources on an address space level.	Global	Spin/Class	00 00 08 00
ASMGL	ASM global lock - serializes ASM resources on a global level.	Global	Spin/Class	00 02 00 00
RSMDS	RSM lock.	Global	Spin/Class	00 00 01 00
RSMST	RSM lock.	Global	Spin/Class	00 01 00 00
RSMCM	RSM lock.	Global	Spin/Class	00 10 00 00
RSMXM	RSM lock.	Global	Spin/Class	00 00 80 00
RSMAD	RSM lock.	Global	Spin/Class	00 00 40 00
RSM	RSM lock.	Global	SHR/EXCL	08 00 00 00
BMFLSD	BMF Class lock.	Global	Spin/Class	80 00 00 00 (in PSACLHSE)
VSMPAG	VSM pageable subpools lock - serializes the VSWK for the VSWK for global pageable subpools.	Global	Spin	00 00 20 00
XCFDS	Cross-system coupling facility (XCF) data space lock.	Global	Spin/Class	40 00 00 00 (in PSACLHSE)
SSD	Supervisor lock.	Global	Spin/Class	00 01 00 00 (in PSACLHSE)
DISP	Dispatcher - serializes certain global functions, for example, TIMER queues.	Global	Spin	00 00 10 00
SALLOC	Space allocation lock - serializes external routines that enable a processor for either an emergency signal (EMS) or a malfunction alert (MA).	Global	Spin	00 00 04 00
IXLDS	Cross-system extended services (XES) data space lock.	Global	Spin/Class	01 00 00 00 (in PSACLHSE)
IXLSCH	Cross-system extended services (XES) subchannel lock.	Global	Spin/Class	04 00 00 00 (in PSACLHSE)
IXLREQST	Cross-system extended services (XES) request lock.	Global	Spin/Class	00 20 00 00 (in PSACLHSE)
IXLSHELL	Cross-system extended services (XES) shell lock.	Global	Spin/Class	00 80 00 00 (in PSACLHSE)

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Table 8. Summary of locks (continued)

Lock Name	Description	Category	Type	PSACLHS (or PSACLHSE) bit
IXLSHR	Cross-system extended services (XES) SHR/EXCL lock.	Global	SHR/EXCL	02 00 00 00 (in PSACLHSE)
XCFRES	XCF signalling path lock.	Global	Spin/Class	20 00 00 00 (in PSACLHSE)
IOSYNCH	I/O supervisor (IOS) synchronization locks - serializes IOS resources, such as intermediate status processing, IOS storage manager page scanning, and HOT I/O.	Global	Spin/Class	00 00 02 00
IOSUCB	IOS unit control block (UCB) lock - serializes access and updates to the UCBs. One IOSUCB exists per UCB.	Global	Spin/Class	00 00 00 80
IOSULUT	IOS lock.	Global	SHR/EXCL	00 40 00 00 (in PSACLHSE)
IOS	IOS lock - serializes storage access maintained by the IOS IOQ storage manager.	Global	SHR/EXCL	02 00 00 00
HCWDRLK1	HCWDRLK1 lock.	Global	Spin/Class	00 00 01 00 (in PSACLHSE)
HCWDRLK2	HCWDRLK2 lock.	Global	Spin/Class	00 00 02 00 (in PSACLHSE)
XCFQ	XCF queue lock.	Global	SHR/EXCL	10 00 00 00 (in PSACLHSE)
REGSRV	Registration services lock used to serialize registration services structures	Global	SHR/EXCL	00 02 00 00 (in PSACLHSE)
CONTEXT	Context services lock used to serialize context services structures.	Global	Spin/Class	00 04 00 00 (in PSACLHSE)
TPACBDEB	ATCAM lock.	Global	Spin/Class	00 00 00 08
SRM	System resource management (SRM) lock - serializes SRM control blocks and associated data.	Global	Spin	00 00 00 04
WLMRES	WLMRES lock - workload management lock.	Global	Spin/Class	00 10 00 00 (in PSACLHSE)
WLMQ	WLMQ lock - workload management lock.	Global	SHR/EXCL	00 08 00 00 (in PSACLHSE)
TRACE	Trace lock (shared exclusive) - serializes the system trace buffer structure.	Global	SHR/EXCL	04 00 00 00
ETRSET	Timer supervision lock.	Global	Spin	08 00 00 00 (in PSACLHSE)
CPU	Processor lock - provides legal disablement.	Global	Legal disablement lock	80 00 00 00
CMSSMF	SMF cross memory services (CMS) lock - serializes SMF functions and control blocks.	Global	Suspend	00 00 00 02
CMSEQDQ	ENQ/DEQ CMS lock - serializes ENQ/DEQ functions and control blocks.	Global	Suspend	00 00 00 02
CMS	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.	Global	Suspend	00 00 00 02

Table 8. Summary of locks (continued)				
Lock Name	**Description**	**Category**	**Type**	**PSACLHS (or PSACLHSE) bit**
CML	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.	Local	Suspend	00 00 00 01
LOCAL	Local storage lock - serializes functions and storage within a local address space. One LOCAL lock exists per address space.	Local	Suspend	00 00 00 01

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 CMSLACTCH) 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 77.

ENQ/DEQ summary

Table 9 on page 211 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 9. Summary of major and minor ENQ/DEQ names and resources		
Major (QNAME)	**Minor (RNAME)**	**Resource - using modules**
BWODSN	Cluster name	Serializes the deletion of a VSAM cluster.
IGDCDS	COMMDS, ACDS, or SCDS data set name	SMS IGDCSDSS
IGDCDSXS	COMMDS, ACDS, or SCDS data set name	SMS IGDCSDSS. This is a device RESERVE rather than an ENQ macro.
SERLOG	LOGREC data set	LOGREC data set - IFCZIHND
SPFDSN	dsname	ISPCRESV, ISPCRELS

Table 9. Summary of major and minor ENQ/DEQ names and resources (continued)

Major (QNAME)	Minor (RNAME)	Resource - using modules
SPFEDIT	dsname + *membername* (blank for sequential data set)	ISPCNQ, ISPCDQ
SYSDSN	dsname	Data sets. Normally issued under initiator TCB.
SYSIEA01	DMPDSENQ	Serializes DUMPDS commands. IEECB923, IEECB926, IEECB910
	DPLxxx	Used as serialization mechanism for SVC dumps (data set initialization).
	DPLCHAIN	Serializes captured dump queue.
	IEA	Serializes dump data sets. IEAVTABD.
	SDDSQ	Serializes dump data set queue.
	SDPOSTEX	IEAVTDSV, IEAVTSDC, IEAVAD00
	SDUMPENQ	Serializes SVC dump's scheduled dump. IEAVTSDT, IEAVAD00

Table 9. Summary of major and minor ENQ/DEQ names and resources (continued)

Major (QNAME)	Minor (RNAME)	Resource - using modules
SYSIEFSD	ALLOCTP	Serializes teleprocessing device allocations.
	ALLOC_PARAMETERS	Using Allocation parameters. Enqueue: IEFAB4A2, IEFAB493, IEFBB401, IEFDAPRM, IEFDB400, IEFEIS01, IEFSALLC Dequeue: IEFAB4A2, IEFAB4E4, IEFAB493, IEFBB401, IEFDAPRM, IEFDB400, IEFDB402, IEFEIS01, IEFSALLC
	CHNGDEVS	UCB. IEEMB813, ALLOCATION, DFSMSdss
	DDRTPUR	Swap unit record or tape device. IGFDU0, IGFDT0, ALLOCATION
	DDRDA	Swap DASD device. IGFDD0, ALLOCATION
	Q4	UCB. IEEVCPU, IEEVPTH, ALLOCATION. Dequeue only: IGC0A05I, CNZK1V38, CNZK1V41, CNZK1V42, CNZK1V51, CNZK1V57.
	Q6	Protect key resource. IEFSD161, IEFSD166. Dequeue only: IEFIB620.
	Q10	CSCB. IEECB800, IEECB866, IEEMB810, IEEVMNT1, IEEVND6, IEEVSTAR, IEEVWAIT, IEE0303D, IEE0703D, IEE0803D, IEE3703D, IEE5103D, IEFIRECM, IEFJRECM, IEEMB881, IEECB894, IEECFCLS, IEEMB860, IEEVIPL, IEE24110, IEE7903D. Dequeue: IEESB665, IEFISEXR, IEECB894, IEECFCLS, IEEMB860, IEEVIPL, IEE24110, IEE7903D.
	RPLL	Job journal data set. IEFXB501
	STCQUE	Started task control. IEFJSWT, IEEVWAIT, IEEMB860 Dequeue: IEESB670, IEEMB860.
	TSOQUE	TSO/E data sets. IEFJSWT, IEEVWAIT. IEEMB860 Dequeue: IEESB670, IEEMB860.
	VARYDEV	Vary device command: CNZK1V38, CNZK1V41, CNZK1V42, CNZK1V51, CNZK1V57, IEEMB813, IEE22110 Dequeue: CNZK1V38, CNZK1V41, CNZK1V42, CNZK1V51, CNZK1V57, IEEMB813, IEE22110 IOS: IOSVCMMN Dequeue: IOSVCMMN, IOSVCMES
SYSIEWLP	dsname for SYSLMOD	Data set - HEWLFINT. Dequeue only: HEWLFFNL.
SYSIGGV1	Catalog name	Serializes catalog (BCS) opens.
SYSIGGV2	Catalog name	Serializes access to catalog (BCS) data sets and control blocks.
SYSIKJBC	RBA	TSO/E broadcast data set (RBA = relative block address) - IEEVSND2, IEEVSND3, IEEVSDN8, IKJEES10, IKJEES40, IKJEES75, IKJRBBCR

Table 9. Summary of major and minor ENQ/DEQ names and resources (continued)

Major (QNAME)	Minor (RNAME)	Resource - using modules
SYSIKJUA	OPENUADS	User attribute data set - IKJEFA10, IKJEFA20, IKJEFA30, IKJEFLE, IKJEFLL, IKJRBBCR
	userid	TSO/E users - IKJEFA12, IKJEFA20, IKJEFA30, IKJEFLB, IKJRBBCR, IKJRBBU0. Dequeue only: IKJEFLS.
SYSSMF01	data set	SYS1.MAN data set - IEEMB829, IFASMFDP
SYSVSAM	dsncatnameL1L2L3*	Used by VSAM OPEN/CLOSE/EOV to serialize these three functions for VSAM data sets. • dsn = data set name • catname = catalogname • L1 = RNAME length • L2 = data set name length • L3 = catalog name length • * = ENQ/DEQ control indicator
SYSVTOC	volser	IGC0007H, IGG020P1, IGG0290E, IGG03001, IGG03213, IGG0325A, IGG0325E, IGG0553A. Serialize volume labeling SCOPE=SYSTEMS This is usually a device RESERVE rather than an ENQ macro. IGG0290E, IGG03001, IGG03213, IGG0325A, IGG0325E, IGG0553A, IXGC4RPC, IXGD2WRT, IXGL1SDS. The reserve is dequeued by IGC0107H, IGG0RR0E, IGG020P3, IGG03217, IGG0325H, IXGC4DIS, IXGC4RBE, IXGC4RPC, IXGD2WRT, IXGF2WRT, IXGL1SDS, IXGL1TSK.
SYSZ#SSI	SSI	Control structures associated with the subsystem interface (SSI).
	SUBSYS_ + name of subsystem	A specific subsystem
SYSZADRC	Cloud Container	Serializes a container in cloud storage for DFSMS.
SYSZADRO	Object prefix	Serializes a set of objects in cloud storage for DFSMS.
SYSZAPPC	APPC_ADDRESS_SPACE	
	APPC_PARMLIB	
	ATBTRACE.dataset_name	Serializes the use of the API trace data set
	LUM_WORK_QUEUE	
	SDFMDSN.dataset_name	Serializes the use of the TP profile data set
SYSZASCH	ASBSCAD	
	ASBSCIN	
	ASCH_ASBSCAD	
	ASCH_ASBSCST	
	ASCH_PARMLIB	

Table 9. Summary of major and minor ENQ/DEQ names and resources (continued)

Major (QNAME)	Minor (RNAME)	Resource - using modules
SYSZATR	gname-COMPRESSION	Serializes resource manager restart processing with other RRS log stream processing.
	lgname-RESTART	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.
	lgname-ACTIVE-sysname	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.
	lgname-RM-rmname	Serializes access to the use of a particular resource manager name that is identified in *rmname* in an installation-defined group of systems or the sysplex that is identified in *lgname*.
	RRS-INITIALIZATION-PROCESS	Serializes access to initialization processing for RRS.
SYSZATS	NED <ned>	Tape Device Serialization. ALLOCATION. For self describing devices, where NED is followed by the node descriptor of the device.
	DEV <devnum>	Tape Device Serialization. ALLOCATION. For devices that do not support self description, where DEV is followed by the 4-digit hexadecimal device number.
SYSZATST	DEVICETYPE <devtype>	Device Type Serialization. ALLOCATION. Where *devtype* is one of 3420, 3480, 348X, 3490, 3590.
	EPIVALUE <epival>	Device Type Serialization. ALLOCATION. Where *epival* is the EPI value of a 3590 device.
SYSZAUDT	• ENQDEQ • GVTNQMON.SERIALIZATION • dataset name of EQDQ monitor output	• Serializes GRS EQDQ Monitor Instances - ISGAUDIT • Serializes GRS EQDQ Monitor processing - ISGAUDIT, ISGAMED1 • Used to serialize access to a GRS EQDQ Monitor output dataset that is defined by the user - ISGAUDIT, ISGAMEDM, ISGAMED2
SYSZAVM	AVM PROCESS QUEUE	Serializes various internal AVM queues and data areas - Various AVM modules.
SYSZAXR	AXR	Used to ensure that only one System REXX address space is active in the system. AXRINIT.
SYSZBDT	Installation's MVS/Bulk Data; Transfer Node Name	Controlled resource: BITMAPS.

Table 9. Summary of major and minor ENQ/DEQ names and resources (continued)

Major (QNAME)	Minor (RNAME)	Resource - using modules
SYSZBNDX	volser	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 exclusize, 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. 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* automatic tasks.
	ICKDSF HELD	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. This version of SYSZBNDX should not be in SYSTEMS exclusion RNL. For RNL details, see in .
	volserRESERVE	Used by ICKDSF to ensure a RESERVE command is issued against a volume that is being processed. It is recommended that this generic resource of SYSZBNDX is not defined to be converted to a global enqueue in the global resource serialization convert RNL.
SYSZBPX	AUTOMOUNT_APPEND	Used to serialize automount appends.
	BPX_ADDRESS_SPACE	Used for ENQing OpenMVS address space.
	BPXDYNSV	Used to serialize dynamic service.
	BPXOINIT	Used to lock BPXOINIT.
	CHECKPOINT	Used to serialize checkpoint processing.
	DUB_WAITING	Used to serialize dub wait counting.
	LatchCleanup	Used to serialize latch query/cleanup.
	PROCINIT	Used to lock process initialization.
	SHARED_LIBRARY	Used to lock Shared Library Structure.
	SHUTDOWN	Used to serialize shutdown processing against other external commands.
	SoftShutDown	Used to prevent multiple systems from doing this simultaneously.
	STEPLIB_STSL	Used to lock Steplib sanction list.
	SYSPLEX	Used to lock Sysplex Join.
	TempOPTN	Used to lock Temp OPTN.
	USERID_ALIAS	Used to lock Userid Alias list.

Table 9. Summary of major and minor ENQ/DEQ names and resources (continued)

Major (QNAME)	Minor (RNAME)	Resource - using modules
SYSZBPXF	OFSB-CABChain	Used to serialize colony PFS address space initialization and termination.
	Cab#ID	Used to serialize processing for a specific colony PFS.
SYSZCAXW	CAXW	Serializes access to catalog (BCS) control blocks
SYSZCEA	CEA	Used to ensure that only one Common Event Adapter (CEA) address space is active in the system. CEAINIT.
SYSZCMDS	MTTSWAP	Master trace command - CNZM1TRC
SYSZCNZ	CONNAME#consname	Serializes on the console name.
	USERID#username or USERID#username|*consname*|	Serializes on the user ID attempting logon.
SYSZCOMM	Various	Serialize access to global resource work areas and processing.
SYSZCSD	CSDCPUJS	CSD field - IEEVCPU, IEFICPUA. Dequeue only: IEF1B620.
SYSZCSV	CSVDYNL	Serializes LNKLST set for the LNKLST concatenation.
SYSZCT	CTAB or ITTaaaa	Resource: aaaa is an address. Serializes component trace data areas.
SYSZDAE	DATA SET	Serializes updates to the DAE data set in the Sysplex environment.
SYSZDMO	DMO_REFVTOC_VOLSER_volser	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.
SYSZDSCB	volserno + x + dsname	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.
SYSZDSN	DATA SET NAME	Serializes the root file system. (In a shared file system environment, the "root file system" is known as the version file system.) See Mounting the root file system for execution in *z/OS UNIX System Services Planning* for more information on serialization of the root file system.
SYSZDSTB	ASID + JCT address	Data Set Information Table - ENQ/DEQ: IEFAB490, IEFAB4A2. DEQ Only: IEFAB4E8, IEFAB4DE.
SYSZDTSK	ISPF/TSO_WINDOW_SERIALIZATION + unique ID for the TSO address space	ISPF GUI with TSO line mode support: ISPDTTSK and ISPDTPC ISPF SVC 93 exit: ISPSC93 and ISPSC93X
SYSZEC16	PURGE	Purge data set - IOSPURGA
SYSZGGLG	UCB address and CCHHR of block	Block in a direct (BDAM) data set.
SYSZGLZ	<jobname>	Use to ensure that there is only one instance of this zCX instance in the sysplex - GLZINPVT.
SYSZGLZ	STORAGETEST	Serializes checks of system storage to ensure that any given instance of zCX does not use enough storage to severely degrade overall system performance - GLZINPVT.
SYSZGSYS	group name	The name of a group of systems in a sysplex, as defined by the IEEGSYS member of SYS1.SAMPLIB.

Table 9. Summary of major and minor ENQ/DEQ names and resources (continued)

Major (QNAME)	Minor (RNAME)	Resource - using modules
SYSZGTF1	GTF	Generalized trace facility (GTF) processing.
SYSZGTZ	IBM Generic Tracker for z/OS	Used to serialize IBM Generic Tracker startup - GTZINIT.
SYSZHIS	HIS	Serializes hardware instrumentation services startup.
SYSZHZR	HZR	Used to serialize Runtime Diagnostics startup - HZRINIT.
	RMT	Used to ensure that internal invocations of Runtime Diagnostics to itself are only done from one system in a sysplex at a time - HZRWXCOM.
SYSZHZS	IBM Health Checker For z/OS	Used to serialize IBM Health Checker startup - HZSINIT.
	IBM Health Checker For z/OS	Used to ensure that the identified global health check is only run on one system in a sysplex- HZSTKSCH.
SYSZIAT	none	In a JES3 environment, include an entry for the checkpoint data set. The name must be generic. This is a device RESERVE rather than an ENQ macro.
SYSZIEF	IEFOPZ	Serializes processing of IEFOPZxx data.
SYSZIGDI	ICMRT.CMDSADDR_LOCKED SWITCH_CONFIGURATION SMS VECTOR TABLE IGDSSI00 IGDSSI01	SMS IGDICMS0, IGDSSI00, IGDSSI01
SYSZIG	DDRSSI	Serialize DDR calls to SSI. IGFDT2, IGFDV1, IGFDL1, IGFDI1, IGFDW0. Dequeue Only: IGFDE1
SYSZIGG3	Catalog name	For driving AccessSphereNonRLS.
SYSZIGG4	Catalog name	Used when the catalog is suspended to cause requests to wait.
SYSZIGG5	Catalog name	Used to change the state of catalogs (RLS enable, RLS quiesce, suspended, locked).
SYSZIGGI	ASID	TSB - IGC0009C, IGG09302
SYSZIGW0		PDSE
SYSZIGW1		PDSE
SYSZIGW3	IGWSHC01	Serializes updates to the VSAM RLS Sharing Control Data Set.
	0	Serialization for VSAM RLS • Initialization • Lock rebuild • Display command.
SYSZIGW5	PDSEASRESTART	Insures only one PDSE restart.
SYSZIO	VIOPGDEL	Serializes PAGEDEL command processing.
SYSZILRD	Cluster name of pagespace + volser	Serializes the deletion of a pagespace.

Table 9. Summary of major and minor ENQ/DEQ names and resources (continued)

Major (QNAME)	Minor (RNAME)	Resource - using modules
SYSZIOEZ	IOEZNS	Locks the z/OS File System (zFS) V1R11 namespace across the sysplex.
	IOEZJOIN	Serializes joining the zFS V1R11 namespace across the sysplex.
	IOEZDC.*sysname.aggregatename*	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.
	IOEZTM.*aggregatename*	Serializes administration of an aggregate.
	IOEZLT.*aggregatename*	Indicates ownership of an aggregate.
	IOEZLR.*aggregatename*	Indicates ownership of a R/O aggregate by a system before V1R11.
	IOEZLQ.*aggregatename-qsysname*	Indicates that an aggregate that is attached R/O is quiesced. The *qsysname* is the system that issued the quiesced.
SYSZIOS	DISPRSV	Serializes IOS Display Reserve processing.
	DYNAMIC	Serializes against dynamic configuration changes.
	DYNAMIC.*groupname*	Serializes against dynamic channel path management changes.
	EKM	Serializes against changes to the Encryption Key Manager parameters.
	LPEP	Serialize around checking for devices to Vary online in IOSVLPEP.
	LPEPSYSRES	Serializes multiple instances of IOSVLPEP processing a no paths condition on the SYSRES.
	MIH	Serializes against changes to the MIH information for devices.
	QRQUEUE	Serializes the IOACTION STOP|RESUME system command.
	SETIOS.*groupname*	Serializes the SETIOS DCM=ON|OFF system command.
	SWITCH	Serializes against accessing the SWITCH table.
	VSWITCH.*groupname*	Serializes the vary switch command.
SYSZIQP	IQP	Serializes access to initialization processing for PCIE. Only one PCIE address space is created.
SYSZISTC	Configuration Restart Data Set ddname	RDT segment/checkpoint data set.
SYSZJES2		Look at SYSZxxxx below
SYSZJES2	*vvvvvvxxxxx...*	*vvvvvv* - Parameter is CKPTDEF CKPTI = (VOLSER=vvvvvv); *xxxxx...* is the 44- character dsname for the checkpoint data set. Parameter is CKPTDEF CKPTI = (DSNAME=*xxxxx...*).
SYSZJWTP	JSCBWTP	Job step messages.
	RPL + *asid*	Message data set - (RPL = request parameter list pointer, asid = address space identifier). CNZS1WTP, IEEAB401.
SYSZLLA1	UPDATE	LLACOPY

Table 9. Summary of major and minor ENQ/DEQ names and resources (continued)

Major (QNAME)	Minor (RNAME)	Resource - using modules
SYSZLOGR	L *logstreamname*	Log stream name - System logger in a PLEXCFG=MULTISYSTEM environment.
	L *systemname logstreamname*	Log stream name - System logger in a PLEXCFG=MONOPLEX environment, or on a system using a single-system scope CDS data type (LOGRY or LOGRZ).
	LOGRY	Serializes the system use of LOGRY single-system scope CDS data type for the sysplex - IXGBLF01.
	LOGRZ	Serializes the system use of LOGRZ single-system scope CDS data type for the sysplex - IXGBLF01.
	RECORDER	LOGREC data set — IFBSVC76, IFCDIP00, IFCZIHND.
SYSZMCS	CNZSCLOT	Serializes WTO CONNECT processing.
	DELAYED_SVC_PROCESSING	Serializes the delayed issue queue.
	EMCSMDS#IEAMxxxx	Serializes on the EMCS message dataspace.
	MFATABLE	Serializes multiple SET MSGFLD=xx commands.
	MPFTABLE	Serializes on the MPF and general user exit (GENX) table.
	PDMODE_CHANGE	Serializes changes to the PDMODE of the system console.
	ROUTE-GROUP--CNID	Serializes the ROUTE EMCS console during ROUTE group or ROUTE *ALL command processing.
	SETCON MODE COMMAND IN PROGRESS	Serializes the SET CON= command.
	SETCONMIGRATE	Serializes a system joining a sysplex that is undergoing a console services mode migration.
	SMT	Serializes the cleanup of the SMT during system partitioning.
	SMT2	Serializes the overall cleanup of a system during system partitioning.
	SYSMCS#MCS, SYSMCS#CL1, SYSMCS#CL2, SYSMCS#CL3, SYSMCS#EMCS	Serializes on all MCS/EMCS console updates and sysplex-wide console commands.
	UCMSSET	Serializes on subsystem entry table.
SYSZMMF1	various	Serialization for RLS Locking
SYSZNIP	CONSOLE	SVC 35 and 87 paths and SVCUPDTE calls for SVC 35 and 87.
SYSZOPEN	dsname	Opening data sets - IGC0002B
SYSZPCCB	PCCB	Private catalog control block (PCCB) - ALLOCATION
SYSZPGAD	PAGEADD	(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.
SYSZPGDL	PAGEDEL	Serializes PAGEDEL command processing.
SYSZPSWD	dsname	Password data set - IFG0195U, IFG0195V. Dequeue only: IFG0RR0E.
SYSZRBMF	ACTIVE	Indicates that MF/1 is already active - IRBMFMFC

Table 9. Summary of major and minor ENQ/DEQ names and resources (continued)

Major (QNAME)	Minor (RNAME)	Resource - using modules
SYSZRCF	CHPREG	Reconfiguration commands: CONFIG CHP, VARY PATH, DISPLAY M=CHP (IEEVCHTR, IEEVRCHP)
SYSZRMM	BUFFER CONTROL	Buffer management SCOPE=STEP
	EDGINERS.volser	Serialize volume labeling SCOPE=SYSTEMS
	EXIT_IS_ACTIVE	Exit recovery serialization SCOPE=SYSTEM
	EXIT_id_UNAVAIL	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
	HSKP.dsn.volser	Inventory management data set serialization SCOPE=SYSTEMS
	INACTIVE	Serialize DFSMSrmm activation enabling only a single WTOR to be issued to the operator SCOPE=SYSTEM
	MASTER.RESERVE	DFSMSrmm control data set serialization at startup and when the CDSID is not yet known SCOPE=SYSTEMS
	MASTER.RESERVE.cdsid	RMM control data set serialization SCOPE=SYSTEMS
	MHKP.ACTIVE	Serialize inventory management functions on the same DFSMSrmm subsystem SCOPE=SYSTEM
	MHKP.dsn.volser	Inventory management data set serialization SCOPE=SYSTEMS
	RMM.ACTIVE	Ensure only one system run per MVS image SCOPE=SYSTEM
	SHUTDOWN	Serialize DFSMSrmm shutdown and refresh processing SCOPE=SYSTEM
	WTOR_ENQ	Exit recovery serialization SCOPE=SYSTEM
SYSZRPLW	Catalog name + catalog ACB address	Serializes request parameter list waits
SYSZssss	MONITOR	Monitor - IGTD00. **Note:** *ssss* represents the subsystem name
SYSZSCM1	various	Used by VSAM RLS when DFSMS CF cache structures or volumes are changing state.
SYSZSCM2	various	Used when the VSAM RLS command V SMS,SMSVSAM,FALLBACK is issued.
SYSZSCM3	various	Used for >4K DFSMS CF cache processing for VSAM RLS.
SYSZSCM4	various	Used for >4K DFSMS CF cache processing for VSAM RLS.
SYSZSCM5	various	Used to serialize special lock requests for VSAM RLS.
SYSZSCM6	various	Used during VSAM RLS initialization to serialize >4 K DFSMS CF cache processing.
SYSZSCM7	various	Serialization for RLS Locking
SYSZSCM8	various	Used for TVS display processing.
SYSZSCM9	various	Used for TVS initialization.
SYSZSCMA	various	Used for TVS peer recovery processing.
SYSZSDO	DLF resource names	Serialize various DLF resources.
SYSZSMF1	BUF	SMF buffer.

Table 9. Summary of major and minor ENQ/DEQ names and resources (continued)

Major (QNAME)	Minor (RNAME)	Resource - using modules
SYSZSMFD	ExitTable	Used by IFASMFDL, IFASMFDP, and SET SMF=xx/SETSMF processing to serialize exit tables built for exit validation.
SYSZSMFL	Logstream name	Used by IFASMFDL to serialize read and deleting from the logstream that is specified in the minor name.
SYSZSPI	LISTENERS	
	SERVICECALL	
SYSZSVC	TABLE	Programs that update the SVC table while saving the previous data.
SYSZSYM	ASASYMBL	Used to serialize updates to system symbols.
SYSZTIOT	ASID + DSAB QDB address	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.
SYSZTRC	SYSTEM TRACE	System trace address space creation - IEAVETAC, IEAVETRM, IEECB8924
SYSZUSRL	ucbaddr	User label tracks - IFG0202C, IFG0554L

SYSZVARY	CPU	Reconfiguration commands:
		`CONFIG CPU (IEECB927)`
		`DISPLAY M (IEEMPDM, IEEMPDEV)`

	PATH	Reconfiguration commands:
		`CONFIG CHP (IEECB927)`
		`DISPLAY M (IEEMPDM, IEEMPDEV)`
		`VARY PATH (IEEVPTH)`

	PFID	Reconfiguration commands:
		`CONFIG PFID (IEECB927)`
		`CONFIG ONLINE/OFFLINE (IEEDMSD1)`
		`DISPLAY M (IEEMPDV1)`

	STORAGE	Reconfiguration command:
		`CONFIG STOR (IEECB927)`
		`DISPLAY M (IEEMPDM, IEEMPDEV)`

SYSZVMV	ucbaddr	Volume mount and verify - ALLOCATION
SYSZVOLS	volserno	tape or disk volume - ALLOCATION, IFG0194C, IFG0194F, IGF01960, IFG0552N, IFG0554L, IGC0002B, IGC0008B. Dequeue only: IFG0194A, IGG0290D, IFG0194J, IGC0K05B.
SYSZVVDS	catalog name	Serializes access to the catalog's VVDS parameter list
	volser	Serializes access to a VVDS
	volser + relative control interval number	Serializes access to a VVDS record

Table 9. Summary of major and minor ENQ/DEQ names and resources (continued)

Major (QNAME)	Minor (RNAME)	Resource - using modules
SYSZWLM	WLM_SERVICE_DEFINITION_ INSTALL	Programs that install and extract a service definition from the WLM couple data set.
	WR_STATE_CHANGE	IEEMB812, IWMW3CST, IWMW3IN1, IWMW3RBD
	WLM_SYSTEM_IO_PRIORITY	IWMD45IO
	WLM_SYSTEM_RECOVERY_LATCHES	IWMS2LPR
	WLM_SYSTEM_sysname	Where *sysname* is the name of a system in the sysplex. IWMS2TIS and IWMS2XRP
	WLM_CACHE_IDENTIFIER_TABLE	Controls access to the WLM cache identifier table used to identify LPAR cache entries in the WLM LPAR cluster structure. IWMC3CST, IWMC3DST, IWMC3EVP, IWMC3GLI, IWMC3LRP, IWMC3LSR, IWMC4TSK, IWMS2MON
	DCM_SYSZWLM_xxxxyyyy	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). IWMC4CPY, IWMC4DEL, IWMC4PRI, IWMC4PRO, IWMC4RFS, IWMC4SIO, IWMC4TM2, IWMC4TWK, IWMC4WRI
	SERVER4_appl_env	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. IWMW2CON acquires the ENQ; IWMW2DIS releases it. Global resource serialization releases it during task or memory termination of the connector.
	SERVER4_ttttaename	*tttt* is the 4-byte subsystem type; *aename* is the 32-byte application environment name. Both *tttt* and *aename* must be padded by blanks. IWMW2CON acquires the ENQ; IWMW2DIS releases it. Global resource serialization releases it during task or memory termination of the connector.
SYSZWTOR	REPLYnnnn	WTOR reply nnnn - CNZS1WTO, IEECB811
SYSZxxxx	TTABaddr	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.
	AWAITING SPOOL SPACE	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.
	CVCBnnnn	*nnnn* is the checkpoint version number.
	TRACK GROUP ALLOCATION	

Table 9. Summary of major and minor ENQ/DEQ names and resources (continued)

Major (QNAME)	Minor (RNAME)	Resource - using modules
SYSZZFSC	AGGREGATE NAME	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).
SYSZZFSG	GROUP NAME (default is IOEZFS)	Specified in uppercase. This is issued by zFS during initialization when joining the sysplex group and during termination when leaving the sysplex group.
SYSZZFSP	IOE.ZFS.CONFIG	This is issued by zFS when changing the size of the user cache, the client cache, the vnode cache, or the vnode cache limit.
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.

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 226 and Figure 2 on page 227 to help you locate the general placement of the control blocks and fields described in this topic. Figure 1 on page 226 shows the control blocks that contain system and address space indicators in effect during normal operations. Figure 2 on page 227 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 211.

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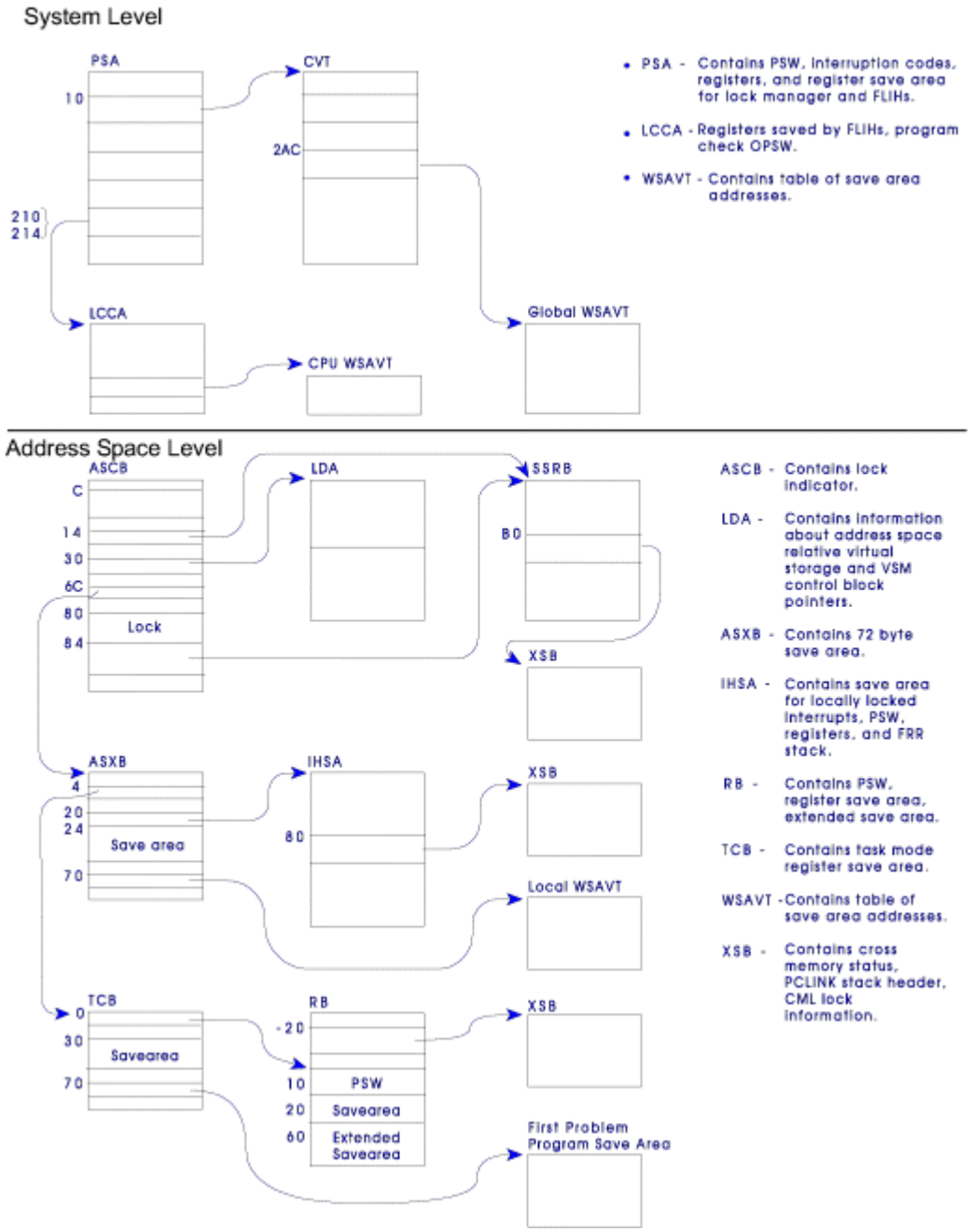

Figure 1. System and address space status indicator locations - normal status areas

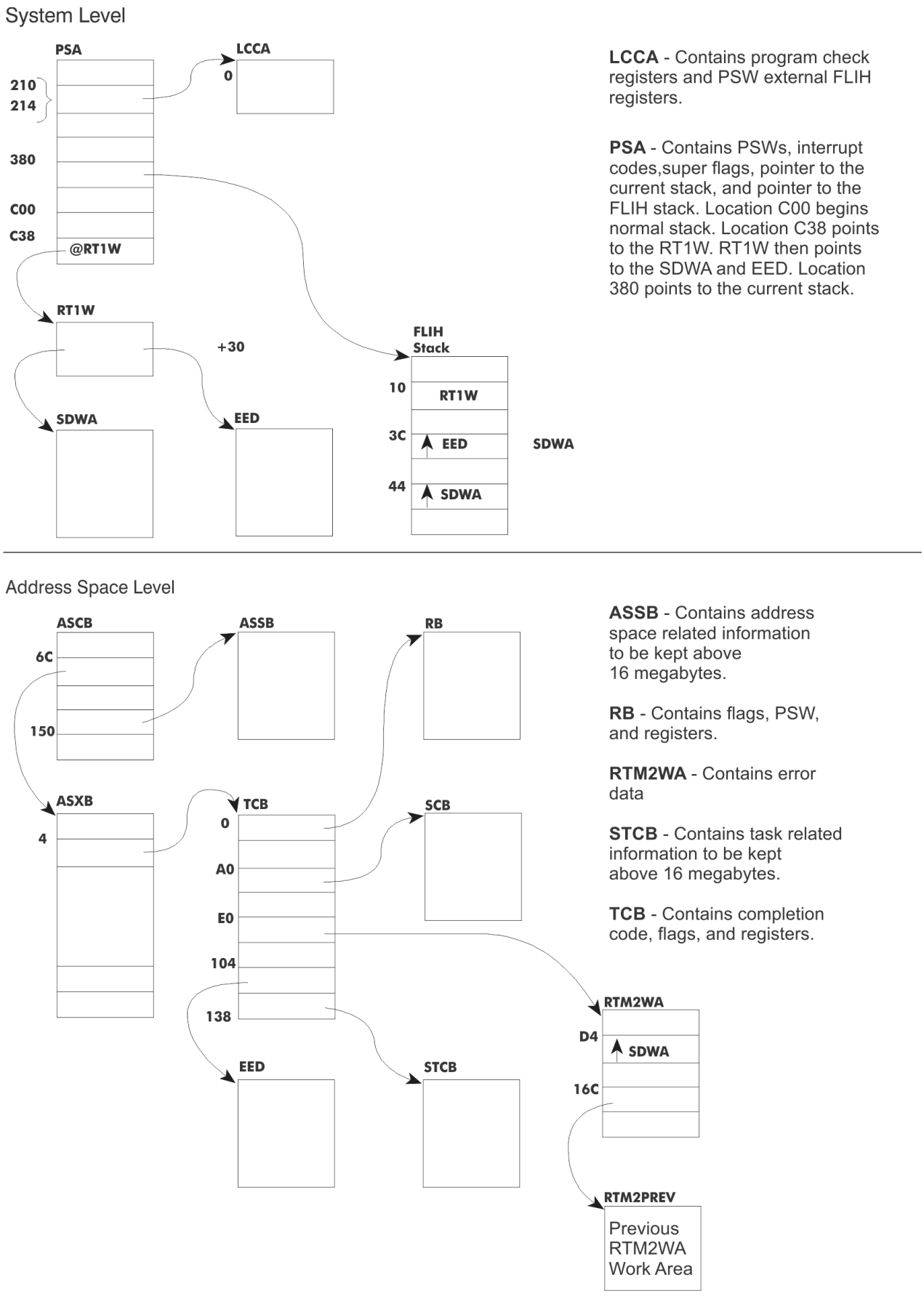

Figure 2. System and address space status indicator locations - error status areas

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)
   - 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 point 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 nondispatchable.
   - If bit 7 of TCBFLGS5 is set to 1, the reason its 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 the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary).

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.
- 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).

Chapter 8. Storage summary

This topic briefly describes the use of storage in MVS.

See *z/OS MVS Initialization and Tuning Guide* for more information about storage usage.

Storage maps

Figure 3 on page 231 and Figure 4 on page 232 describe the layout of virtual and central storage, respectively. For a description of the prefixed storage area (PSA), see the PSA control block section in *z/OS MVS Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary).

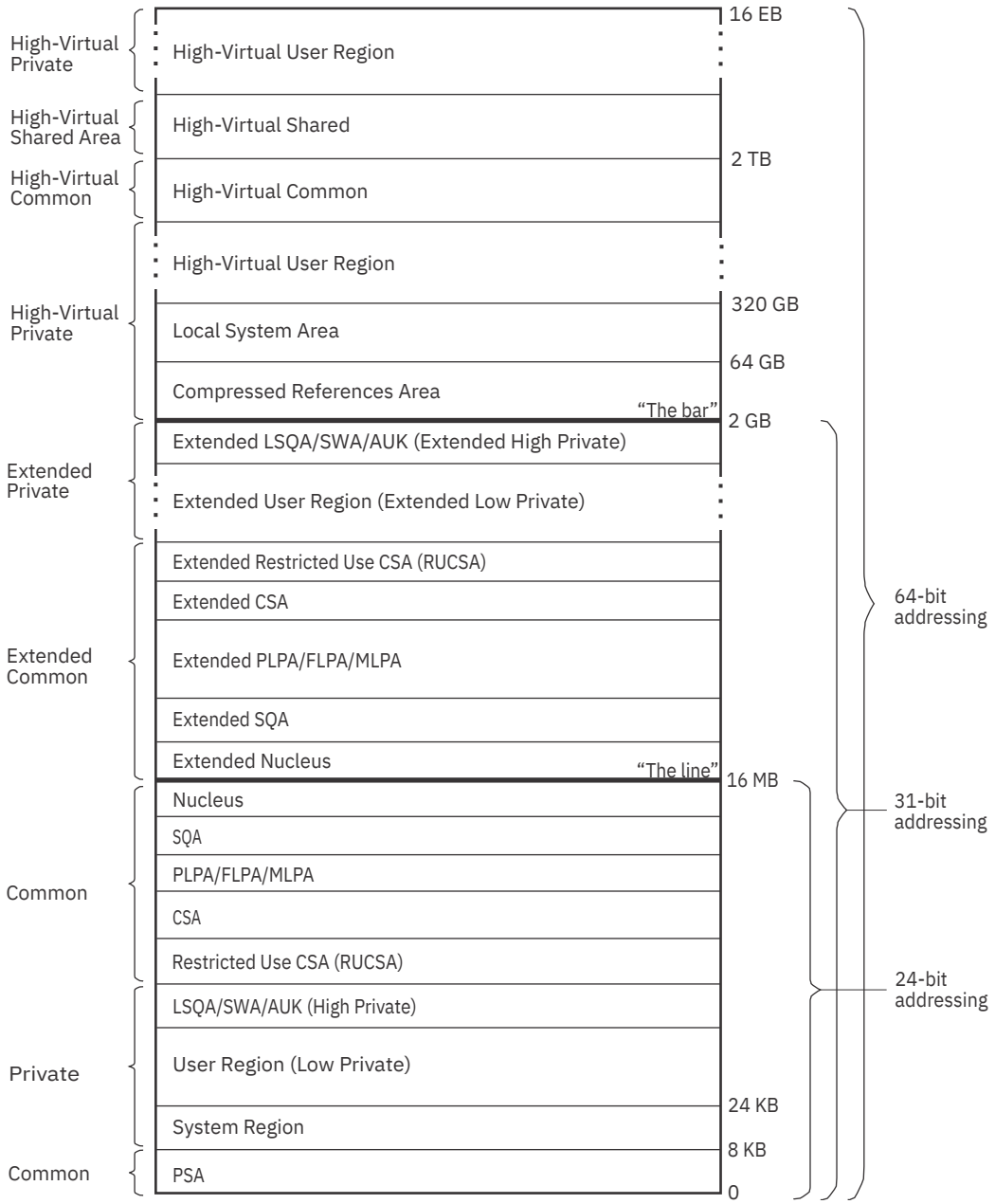

Figure 3. Virtual storage layout for single address space (not drawn to scale)

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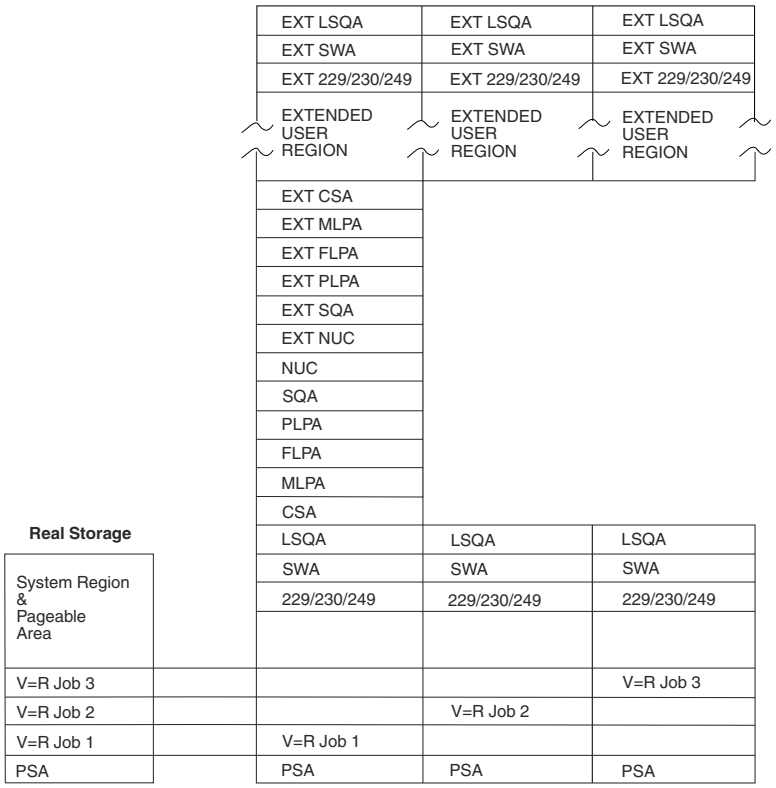

Figure 4. Mapping of V=R regions into central storage

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:

Key
Assigned to:

0
Supervisor and other system functions that require access to all areas of storage

1
Job scheduler, job entry subsystem (JES), APPC, and TSO/E

2
Reserved

3
Availability manager (AVM)

4
Reserved

5
Data management, including Open/Close/EOV

6
VTAM

7
IMS and DB2®

8-9
All V=V problem programs

10-15
V=R problem programs (each protected by a unique protection key)

Fetch protection bit: Bit 4 indicates whether protection applies to fetch-type references. A zero indicates that only store-type references are monitored, and that fetching with any protection key is permitted; a one indicates that protection applies to both fetching and storing. No distinction is made between the fetching of instructions and the fetching of operands.

Reference bit: Bit 5 is associated with dynamic address translation (DAT). It is normally set to one whenever a location in the related 4-kilobyte storage block is referred to for either storing or fetching of information.

Change bit: Bit 6 is also associated with DAT. It is set to one each time that information is stored into the corresponding 4-kilobyte block of storage.

Storage subpools

A subpool is a group of logically related storage blocks identified by a subpool number. In a request for virtual storage, a subpool number indicates the type of storage that is requested. The following table lists the subpools and their attributes. Be sure to read the notes at the end of the table where applicable.

See *z/OS MVS Programming: Authorized Assembler Services Guide* for more information about subpools.

Table 10. Storage subpools and their attributes

Subpool decimal (hex)	Location	Fetch protection	Type	Owner	Storage key	See notes
0-127 (0-7F)	Private low	Yes	Pageable	Task. TCB identified in note 11.	Same as TCB key at the time of the first storage request.	1, 2, 6, 8, 10, 14, 22
129 (81)	Private low	Yes	Pageable	Job step. TCB whose address is in TCBJSTCB of TCB identified in note 11.	Selectable.	1, 2, 11, 14, 22
130 (82)	Private low	No	Pageable	Job step. TCB whose address is in TCBJSTCB of TCB identified in note 11.	Selectable.	1, 2, 11, 14, 22
131 (83)	Private low	Yes	Pageable	Job step. TCB whose address is in TCBJSTCB of TCB identified in note 11.	Selectable.	1, 2, 6, 7, 11, 14, 22
132 (84)	Private low	No	Pageable	Job step. TCB whose address is in TCBJSTCB of TCB identified in note 11.	Selectable.	1, 2, 6, 7, 11, 14, 22
133 (85)	Private (See note 24 for more information)	Yes	Pageable	See note 24.	Selectable.	1, 5, 6, 22, 23, 24
134 (86)	Private (See note 24 for more information)	No	Pageable	See note 24.	Selectable.	1, 5, 6, 22, 23, 24
203 (CB)	Private ELSQA	No	DREF	Task. TCB shown in the table, "How the system determines the input TCB for task owned storage," in Selecting storage persistence in *z/OS MVS Programming: Authorized Assembler Services Guide*.	0	2, 4, 13, 15

Table 10. Storage subpools and their attributes (continued)

Subpool decimal (hex)	Location	Fetch protection	Type	Owner	Storage key	See notes
204 (CC)	Private ELSQA	No	DREF	Job step. TCB whose address is in TCBJSTCB of TCB shown in the table, "How the system determines the input TCB for task owned storage," in Selecting storage persistence in *z/OS MVS Programming: Authorized Assembler Services Guide*.	0	2, 4, 13, 15
205 (CD)	Private ELSQA	No	DREF	Address space	0	2, 4, 13, 15
213 (D5)	Private ELSQA	Yes	DREF	Task. TCB shown in the table, "How the system determines the input TCB for task owned storage," in Selecting storage persistence in *z/OS MVS Programming: Authorized Assembler Services Guide*.	0	2, 4, 13, 16
214 (D6)	Private ELSQA	Yes	DREF	Job step. TCB whose address is in TCBJSTCB of TCB shown in the table, "How the system determines the input TCB for task owned storage," in Selecting storage persistence in *z/OS MVS Programming: Authorized Assembler Services Guide*.	0	2, 4, 13, 16
215 (D7)	Private ELSQA	Yes	DREF	Address space	0	2, 4, 13, 16
223 (DF)	Private ELSQA	Yes	Fixed	Task. TCB shown in the table, "How the system determines the input TCB for task owned storage," in Selecting storage persistence in *z/OS MVS Programming: Authorized Assembler Services Guide*.	0	2, 4, 17
224 (E0)	Private ELSQA	Yes	Fixed	Job step. TCB whose address is in TCBJSTCB of TCB shown in the table, "How the system determines the input TCB for task owned storage," in Selecting storage persistence in *z/OS MVS Programming: Authorized Assembler Services Guide*.	0	2, 4, 17
225 (E1)	Private ELSQA	Yes	Fixed	Address space	0	2, 4, 17
226 (E2)	Common SQA/ESQA	No	Fixed	System	0	3, 5
227 (E3)	Common CSA/ECSA	Yes	Fixed	System	Selectable.	1, 2, 25
228 (E4)	Common CSA/ECSA	No	Fixed	System	Selectable.	1, 2, 25
229 (E5)	Private high	Yes	Pageable	Task. TCB shown in the table, "How the system determines the input TCB for task owned storage," in Selecting storage persistence in *z/OS MVS Programming: Authorized Assembler Services Guide*.	Selectable.	1, 2, 22
230 (E6)	Private high	No	Pageable	Task. TCB shown in the table, "How the system determines the input TCB for task owned storage," in Selecting storage persistence in *z/OS MVS Programming: Authorized Assembler Services Guide*.	Selectable.	1, 2, 22
231 (E7)	Common CSA/ECSA	Yes	Pageable	System	Selectable.	1, 2, 25

Table 10. Storage subpools and their attributes (continued)

Subpool decimal (hex)	Location	Fetch protection	Type	Owner	Storage key	See notes
233 (E9)	Private LSQA/ELSQA	No	Fixed	Task. TCB shown in the table, "How the system determines the input TCB for task owned storage," in Selecting storage persistence in *z/OS MVS Programming: Authorized Assembler Services Guide*.	0	2, 19
234 (EA)	Private LSQA/ELSQA	No	Fixed	Job step. TCB whose address is in TCBJSTCB of TCB shown in the table, "How the system determines the input TCB for task owned storage," in Selecting storage persistence in *z/OS MVS Programming: Authorized Assembler Services Guide*.	0	2, 20
235 (EB)	Private LSQA/ELSQA	No	Fixed	Address space	0	2, 21
236 (EC)	Private high	No	Pageable	Task. TCB identified in note 12.	1	2, 12, 22
237 (ED)	Private high	No	Pageable	Task. TCB identified in note 12.	1	2, 12, 22
239 (EF)	Common SQA/ESQA	Yes	Fixed	System	0	2
240 (F0)	Private low	Yes	Pageable	Task. TCB identified in note 11.	Same as TCB key at the time of the first storage request.	1, 2, 9, 10, 11, 14, 22
241 (F1)	Common CSA/ECSA	No	Pageable	System	Selectable.	1, 2, 25
244 (F4)	Private Low	No	Pageable	Job step. TCB whose address is in TCBJSTCB of TCB identified in note 11.	Selectable.	1, 2, 14, 22
245 (F5)	Common SQA/ESQA	No	Fixed	System	0	2
247 (F7)	Common ESQA	Yes	DREF	System	0	2, 4, 13
248 (F8)	Common ESQA	No	DREF	System	0	2, 4, 13
249 (F9)	Private high	No	Pageable	Job step. TCB whose address is in TCBJSTCB of TCB shown in the table, "How the system determines the input TCB for task owned storage," in Selecting storage persistence in *z/OS MVS Programming: Authorized Assembler Services Guide*.	Selectable.	1, 2, 22
250 (FA)	Private low	Yes	Pageable	Task. TCB identified in note 11.	Same as TCB key at the time of the first storage request.	1, 2, 9, 10, 11, 14, 22
251 (FB)	Private low	Yes	Pageable	Job step. TCB whose address is in TCBJSTCB of TCB shown in the table, "How the system determines the input TCB for task owned storage," in Selecting storage persistence in *z/OS MVS Programming: Authorized Assembler Services Guide*.	Same as TCB key at the time of the first storage request.	1, 2, 10, 14, 22
252 (FC)	Private low	No	Pageable	Job step. TCB whose address is in TCBJSTCB of TCB shown in the table, "How the system determines the input TCB for task owned storage," in Selecting storage persistence in *z/OS MVS Programming: Authorized Assembler Services Guide*.	0	1, 2, 14, 22

Table 10. Storage subpools and their attributes (continued)

Subpool decimal (hex)	Location	Fetch protection	Type	Owner	Storage key	See notes
253 (FD)	Private LSQA/ELSQA	No	Fixed	Task. TCB shown in the table, "How the system determines the input TCB for task owned storage," in Selecting storage persistence in *z/OS MVS Programming: Authorized Assembler Services Guide*.	0	2, 18
254 (FE)	Private LSQA/ELSQA	No	Fixed	Job step. TCB whose address is in TCBJSTCB of TCB shown in the table, "How the system determines the input TCB for task owned storage," in Selecting storage persistence in *z/OS MVS Programming: Authorized Assembler Services Guide*.	0	2, 18
255 (FF)	Private LSQA/ELSQA	No	Fixed	Address space	0	2, 18

Notes:

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=BELOW 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, and 131 - 134 are the only valid subpools for unauthorized programs. A request by an unauthorized program for a subpool other than 0-127, or 131 - 134 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 attaching task, 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.
22. The storage obtained from the subpool can be requested as non-executable. This request is for subpools 0 - 127, 129 - 134, 229 - 230, 236 - 237, 240, 244, and 249 - 252.
23. For subpools 133 and 134, the subpool number is translated to a different subpool number before use based on the callers key. If the callers key is 0 - 7, subpool 133 is translated to 229 and subpool 134 is translated to 230. If the callers key is 8 - 15, subpool 133 is translated to 131 and subpool 134 is translated to 132.
24. The location and key attributes for subpool 133 and 134 will match the location and key attributes of the subpool to which it was translated. For example, if translated to subpool 131 then the location and key attributes will be the same as those for subpool 131. See note 23 for more information regarding subpool translation.
25. Notes® related to user-key (8 - 15) CSA/ECSA. When a restricted use common service area (RUCSA) is defined:
    - Successful user-key allocations obtain storage from the appropriate RUCSA, not from CSA/ECSA.
    - User-key allocations for, changes to, and references to any common service area are abended under either of the following conditions:

  - RUCSA is not defined and the VSM ALLOWUSERKEYCSA(NO) parameter is in effect in an active DIAGxx member of parmlib.
  - RUCSA is defined, the VSM ALLOWUSERKEYCSA(NO) parameter is in effect in an active DIAGxx member of parmlib, and the requester lacks SAF READ authority to the IARRSM.RUCSA resource in the FACILITY class.
- Note any other programming differences described in Restricted use common service area (RUCSA/ extended RUCSA) in *z/OS MVS Initialization and Tuning Guide*.

Storage keys for selectable key subpools

The following table provides detailed information about the subpools with selectable storage keys (as listed in "Storage subpools" on page 233).

Table 11. Storage keys for selectable key subpools

Subpool	Macros and parameters	Storage key
129-132	• GETMAIN with LC, LU, VC, VU, EC, EU, or R; BRANCH not specified • FREEMAIN with LC, LU, L, VC, VU, V, EC, EU, E, or R; BRANCH not specified • STORAGE with OBTAIN or RELEASE; CALLRKY=YES is specified	The storage key equals the caller's PSW key. (The KEY parameter is not allowed.)
	• GETMAIN with LC, LU, VC, VU, EC, EU, or R; BRANCH=YES specified • FREEMAIN with LC, LU, L, VC, VU, V, EC, EU, E, or R; BRANCH=YES specified	The storage key is 0. (The KEY parameter is not allowed.)
	• GETMAIN with RC, RU, VRC, VRU; BRANCH not specified • FREEMAIN with RC, RU; BRANCH not specified • CPOOL with BUILD	The storage key is the key the caller specifies on the KEY parameter. If KEY is not specified, the default equals the caller's PSW key.
	• GETMAIN with RC, RU, VRC, VRU; BRANCH=YES specified • FREEMAIN with RC, RU; BRANCH=YES specified • STORAGE with OBTAIN or RELEASE; CALLRKY=YES is omitted, or CALLRKY=NO is specified	The storage key is the key the caller specifies on the KEY parameter. If KEY is not specified, the default is 0.
227-231, 241, 244, 249	• All GETMAIN requests with BRANCH not specified • All FREEMAIN requests with BRANCH not specified • STORAGE with OBTAIN or RELEASE; CALLRKY=YES specified	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.)
	• GETMAIN with LC, LU, VC, VU, EC, EU, or R; BRANCH=YES specified • FREEMAIN with LC, LU, L, VC, VU, V, EC, EU, E, or R; BRANCH=YES specified	The storage key is 0 (The KEY parameter is not allowed.)
	• GETMAIN with RC, RU, VRC, VRU; BRANCH specified **Note:** BRANCH=(YES,GLOBAL) is not valid for subpools 229, 230, 244, and 249. • FREEMAIN with RC, RU; BRANCH specified **Note:** BRANCH=(YES,GLOBAL) is not valid for subpools 229, 230, 244, and 249. • STORAGE with OBTAIN or RELEASE; CALLRKY=YES omitted, or CALLRKY=NO specified	The storage key is the key the caller specifies on the KEY parameter. If KEY is not specified, the default is 0.
	• CPOOL with BUILD	The storage key is the key the caller specifies on the KEY parameter. If KEY is not specified, the default equals the caller's PSW key.

Task owned and job step owned storage

The following table shows how the system determines the input TCB for task or job step 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 12 on page 239.

Table 12. How the system determines the input TCB for task owned storage

Macro	Conditions	Input TCB	Event causing storage to be freed
GETMAIN and FREEMAIN	If the caller specifies SVC entry	TCB of the currently active task, whose address is in PSATOLD	Currently active task terminates
	If the caller specifies local branch entry and specifies GPR 4 with a value of 0	TCB owning the cross-memory resources in the target address space, whose address is in ASCBXTCB	Task, whose TCB address is in ASCBXTCB, terminates
	If the caller specifies local branch entry and specifies GPR 4 with a nonzero value	TCB address specified by the caller in GPR 4	Task, whose TCB address is passed in GPR 4, terminates
STORAGE	If the caller is in task mode and the target address space is the home address space	TCB of the currently active task, whose address is in PSATOLD	Currently active task terminates
	If the caller is in SRB mode or the target address space is not the home address space	TCB owning the cross-memory resources in the target address space, whose address is in ASCBXTCB	Task, whose TCB address is in ASCBXTCB, terminates
	If the caller specifies the TCBADDR parameter	TCB specified by the caller with the TCBADDR parameter	Task whose TCB address is specified with the TCBADRR parameter terminates
CPOOL	If the caller omits the TCB parameter	TCB of the currently active task, whose address is in PSATOLD	Currently active task terminates
	If the caller specifies the TCB parameter with a value of 0	TCB owning the cross-memory resources in the target address space, whose address is in ASCBXTCB	Task, whose TCB address is in ASCBXTCB, terminates
	If the caller specifies the TCB parameter with a nonzero value	TCB specified by the caller with the TCB parameter	Task, whose TCB address is specified with the TCB parameter, terminates

Chapter 9. Error recording on the logrec data set

Table 13 on page 241 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 13 on page 241 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 Recording logrec error records in *z/OS MVS Diagnosis: Tools and Service Aids* for information about initializing the logrec data set.

Table 13. Incident/Record table

Incidents	Record types												
	ANR	CRW	DDR	EOD	IPL	IOS	MCH	MDR	MIH	OBR, Long	OBR, Short	Soft-ware	SLH
Abend												1	
Address Limit Check													1(A)
Buffer Overflow								1					
Channel Control Check										2(B)			1(A)
Channel Data Check										2(B)			1(A)
Channel End (Missing)									1(F)				
Channel Report Word		1											
CLOSE Request (Demount)								1*(E)		1*(D)			
Central Processor Failure							1					2	
DASD Service Required	1(K)												
DDR Swap (Demount)			2					1*(E)		1*(D)			
Deallocate Condition (Demount)								1*(E)		1*(D)			
Device End (Missing)									1(F)				
DFDSS Demount								1(C)					
Dynamic Pathing Validation						1							
EOD Command (Demount or System Ending)				4				3(E)		2(D)	1(H)		
EOV Request (Demount)								1*(E)		1*(D)			
ETR External Interrupt	1(L)												
ETR Failure	1(L)						2						

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Table 13. Incident/Record table (continued)

Incidents	Record types												
	ANR	CRW	DDR	EOD	IPL	IOS	MCH	MDR	MIH	OBR, Long	OBR, Short	Soft-ware	SLH
ETR-Related Machine Checks	1(L)						2						
Hot I/O Conditions				1									
Interface Control Check										2(B)			1(A)
Intermittent Failure - I/O Devices								1*(G)		1*(G)			
Incorrect SVC Issued												1	
IPL (System Initialization)					1								
Lost Records												1(J)	
Measurement Check													1
Non-ABEND Software Failure												1	
Paging I/O Error										1		2(I)	
Path Failures										1			
Permanent Failure - I/O and TP Devices								1*		1*			
Program Check												1	
Restart Key Pressed												1	
Serial Link Degraded	1(M)												
Serial Link Failure	1(M)												
Statistic Counter Overflow											1		
Statistic Counter Overflow - TP Devices and Variable Length Table Entries										1			
Storage Failure							1					2(I)	
Storage Key Failure							1					2(I)	
System Restartable Wait				1									
Temporary Device Failure								1*(G)		1*(G)			
Vary Offline								1*(G)					

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.

Record type indicators

Table 14 on page 243 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 14. Summary of record type indicators

Record	Contents
1x	Machine check (MCH record) **10** MCH. **13** MCH in the system.

Table 14. Summary of record type indicators (continued)

Record	Contents
2x	Channel subsystem records **23** SLH. **25** CRW.
3x	Unit check (OBR record) **30** OBR; unit check. **34** No longer generated (previously TCAM OBR). **36** VTAM OBR. **3A** DPA OBR.
4x	Software error (software record) **40** Software-detected software error. **42** Hardware-detected software error. **44** Operator-detected error. **48** Hardware-detected hardware error. **4C** Symptom record. **4E** Excessive spin CPU list **4F** Lost record summary.
5x	System initialization (IPL record) **50** IPL.
6x	Reconfiguration (DDR record) **60** DDR.
7x	Missing interruption (MIH record) **71** MIH.
8x	System ending (EOD record) **80** EOD. **81** System-initiated end; restart not possible. **84** EOD from IOS; restart possible.

Table 14. Summary of record type indicators (continued)	
Record	**Contents**
9x	Non-Standard (MDR record) **90** SVC 91. **91** MDR.
Ax	Asynchronous notification record (ANR) **A1** ETR **A2** LMI **A3** SIM
Cx	IOS recovery records **C2** Dynamic pathing services validation (DPSV).

Record format

The format of the records represented in this topic is:

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			

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.

.... ..11
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 15. Format of the logrec data set header record

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
0	(0)	2	CLASRC	Header record identifier. Each bit in this field is set to 1 unless critical data has been destroyed.
2	(2)	4	LOWLIMIT	Address of low extent. Track address (in CCHH format) of first extent of the logrec data set.
6	(6)	4	UPLIMIT	Address of high extent. Track address (in CCHH format) of last extent of the logrec data set.
10	(A)	1	MSGCNT	Count of the number of times that the LOGREC-full message (IFB040I) has been issued. The maximum number is 15.
11	(B)	7	RESTART	Address of record entry area and the time stamp record. Starting track address (in BBCCHHR format) for recording area on the logrec data set.
18	(12)	2	BYTSREM	Remaining bytes on track. Number of bytes remaining on track upon which last record entry was written.
20	(14)	2	TRKCAP	Total bytes on track. Number of bytes which can be written on a track of volume containing the logrec data set.
22	(16)	7	LASTTR	Address of last record written. Track address (BBCCHHR format) of last record written on the logrec data set.
29	(1D)	2	TRKSPER	Highest addressable track for each cylinder on volume containing the logrec data set.
31	(1F)	2	EWMCNT	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.

Table 15. Format of the logrec data set header record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
33	(21)	1	DEVCODE	Device code. Code indicating device type of volume on which the logrec data set resides: **Code** **Device** **04** 2302 **07** 2305 Model II **09** 3330 and 3333 Model I or 3350 operating in 3330-1 compatibility mode. **0A** 3340 and 3344 **0B** 3350 native mode **0C** 3375 **0D** 3330 and 3333 Model II or 3350 operating in 3330-II compatibility mode. **0E** 3380 **0F** 3390 device.
34	(22)	4	EWMTRK	Early warning message track. Track address (in CCHH format) on which 90% full point for data set exists.
38	(26)	1	EWMSW	Switch byte:
		1...		90% full point message has been issued. This switch is turned on by recording routine detecting 90% full point and is turned off by EREP when clearing the logrec data set to hexadecimal zeros.
		.xxx xxxx		Reserved.
39	(27)	1	SFTYBYTS	Check byte. Each bit in this field is set to 1 and is used to check validity of header record identifier.

Logrec data set time stamp record

Table 16. Format of the time stamp record

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
0	(0)	1	CLASRC	Class/Source:
		1... ..11		Time stamp record.
1	(1)	1	OPSYS	System/Release level:
		100.		Operating System (OS)/Virtual Storage (VS)2.
		bits 3-7		
		0-1F		Release level 0-31.
2	(2)	4	SW1	Record switches:
		Byte 0		
		1...		More records follow.
		0...		Last record.

Table 16. Format of the time stamp record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
		.1..		Time-of-day clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12.
		..1.		Record truncated. (Not used for time stamp record.)
		...1		Record created by MVS/SP Version 2, 3, or 4.
		.... 1...		TIME macro used.
		xxx		Reserved.
		Bytes 1 and 2		Not used for time stamp record.
		Byte 3		Incremental release number (alphanumeric) of operating system.
6	(6)	2		Not used for time stamp record.
8	(8)	4	DATE	System date for IPL records (updated by input/output supervisor (IOS) outage recorder at 3 minute time intervals).
12	(C)	4	TIME	System time for IPL records (updated by IOS outage recorder at 3 minute time intervals).
16	(10)	1	VERNO	Machine version code.
17	(11)	3	CPUSER	Central processor serial number.
20	(14)	2	CPUMODEL	Central processor machine model number (for example, 3090).
22	(16)	2	MCELLNG	Reserved.
24	(18)	16		Reserved.

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 17. Format of the ETR record

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
0	(0)	1	A1KEY1	Class/Source:
		1010 0011		External Timer Reference Record; type = X'A1'.
1	(1)	1	A1KEY2	System/Release level:
		100.		OS/VS2.
		...x xxxx		Release level 0-1F.
2	(2)	1	A1SMS	Record-independent switches:
		1... ...		More records follow.
		0...		Last record.
		.1..		Time-of-day (TOD) clock instruction issued.
		..1.		Record truncated.
		...1		Record created by MVS/SP Version 2, 3, or 4.
		.... 1...		TIME macro issued.
		xxx		Reserved.
3	(3)	3		Record-dependent switches:
		Byte 0	A1SW1	Reserved.
		Byte 1	A1SW2	Reserved.
		Byte 2	A1SW3	Reserved.
6	(6)	1	A1RCDCT	Record count:
		xxxx		Record sequence number.
		 xxxx		Total number of physical records in this logical record.
7	(7)	1		Reserved.
8	(8)	4	A1DT	System date of incident.
12	(C)	4	A1TIME	System time of incident.
16	(10)	1	A1VER	Machine version code.
17	(11)	3	A1SER	Central processor serial number.
20	(14)	2	A1MOD	Central processor machine model number.
22	(16)	2	A1CEL	Reserved.
				END OF STANDARD HEADER
		Word 1		The ETR-attachment-status word
24	(18)	bits 0-15	ETRCTLRG	The current values in the ETR-attachment control register.
		Byte 0		
		1...	CREO	Port 0 selection control.
		.1..	CRE1	Port 1 selection control.
		..xx		Reserved.
		.... 1...	CRETR	ETR installed.
		.... .xx.		Reserved.
		1	CRAPC	Alternate port control.
		Byte 1		

Table 17. Format of the ETR record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
25	(19)	1...	CRP0M	Port availability change mask for port 0.
		.1..	CRP1M	Port availability change mask for port 1.
		..xx x...		Reserved.
		.... .1..	CREAM	ETR alert interrupt mask.
		.... ..1.	CRESM	ETR synchronization check interrupt mask.
		1	CRSLM	Switch to local interrupt mask.
		Byte 2		
26	(1A)	1...	CSYN	When 1, indicates that the configuration is currently in local stepping mode; otherwise, the configuration is in the ETR-stepping mode.
		.xxx		Reserved.
		.... 1...	CCSID	The CPC side ID of the side whose ports are currently supplying ETR signals used by the configuration.
		.... .x..		Reserved.
		.... ..1.	CCSPN	When bit 16 is 0, the port number of the stepping port; otherwise, unpredictable.
		1	CCDPN	When bit 16 is 0, the port number of the data port; otherwise, unpredictable.
		Byte 3		
27	(1B)	xxxx	CPS0	The current port 0 state.
		 xxxx	CPS1	The current port 1 state.
		Word 2		The ETR-data status word
28	(1C)	Bytes 0-1		Zeros.
		Byte 2		
30	(1E)	xxxx		Reserved.
		.... 1...	OCSID	The ID of the CPC side with the active ETR port at the most recent ETR OTE.
		.... .xx.		Reserved.
		1	OCPN	The port number of the data port at the most recent ETR-data OTE.
		Byte 3		
31	(1F)	1...	VWORD4	When 1, word 4 of the ETR attachment information is valid.
		.1..	VWORD5	When 1, word 5 of the ETR attachment information is valid.
		..1.	VWORD6	When 1, word 6 of the ETR attachment information is valid.
		...1	VWORD7	When 1, word 7 of the ETR attachment information is valid.
		 xxxx		Reserved.
		Words 3 and 4		The TOD-clock value at last OTE.
		Word 5		The ETR-data word 1
		Byte 0		
40	(28)	bits 0-7		The ETR-alert field.
		1...	UNTN	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.

Table 17. Format of the ETR record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
		.x..		Reserved.
		..1.	SRV	The service request bit. When this bit changes values a value change in the reason code field occurs.
		...x xxx.		Reserved.
		1	TADJ	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.
		Byte 1		
41	(29)	xxx.		Reserved.
		...1 1111	SCID	The ETR-network ID. Identifies the time source for all CPCs directly connected to the ETR.
		Byte 2		
42	(2A)	xxx.		Reserved.
		...1 1111	ID	The ETR ID of the ETR to which the CPC port that received the ETR data in bytes 16-31 of the ETR-attachment information block is connected.
		Byte 3		
43	(2B)	xxx.		Reserved.
		...1 1111	PN	The port number of the ETR (output) port to which the CPC port that received the ETR data in bytes 16-31 of the ETR-attachment information block is immediately connected.
		Word 5		The ETR-data word 2
44	(2C)	bits 0-31	TIMEH	High order word of ETR time at last OTE.
		Word 6		The ETR-data word 3
		Byte 0		
48	(30)	xxxx xxxx	RCODE	Reason code. Specifies the probable area of errors or contains information about exception conditions.
		Byte 1		
49	(31)	xxx.		Reserved.
		...1	CHAR	When 1, indicates that the ETR is coupled; otherwise, the ETR is not coupled.
		 xxxx	BLTO	A type code that specifies the type of the master ETR.
		Byte 2		
50	(32)	xxxx xxxx	BUO	The local-time-offset value, biased by . . .
		Byte 3		
51	(33)	xxxx xxxx		The accumulated number of leap seconds biased by excess-128 notation.
		Word 7		The ETR-Data Word 4
		Byte 0		
52	(34)	bits 0-6	EM	The sign and the magnitude of the error between the ETR time and an external time standard at the time of the last capture.
		x...		The error sign. When 0, the error is positive; that is, the ETR time is ahead of the absolute time. When 1, the error is negative.
		.xxx xxx.		Reserved.
		....x xxxx	BUC	The biased-UT1 correction value.
		 xxxx	DC	The drift code specifying the maximum long term drift rate of the ETR.

Table 17. Format of the ETR record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
		Bytes 2 and 3		
54	(36)	2	TALC	The ETR time at the last time the master ETR correctly received the signal from an external time standard.
56	(38)	Words 8-11		Reserved.
72	(48)	Word 12		Information for the Alternate Port
		Byte 0		
		bits 0-7		Reserved.
		Byte 1 <		
73	(49)	xxx.		Reserved.
		...1 1111	SCID	The ETR-network ID. Identifies the time source for all CPCs directly connected to the ETR.
		Byte 2		
74	(50)	xxx.		Reserved.
		...1 1111	ID	The ETR ID of the ETR to which the alternate CPC port is connected.
		Byte 3		
75	(51)	xxx.		Reserved.
		...1 1111	PN	The port number of the ETR (output) port to which the alternate CPC port is immediately connected.
76	(52)	84 bytes		Reserved.
		96 bytes		Character data containing the text of a message issued to the console or to the system log (SYSLOG).

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 18. Format of the LMI record

Offset		Size (bytes) Alignment (bits)	Field Name	Description
Dec	Hex			
0	(0)	1	A2KEY1	Class/Source:
		1010 0010		Link maintenance information (LMI) record; type = X'A2'.
1	(1)	1	A2KEY2	System/release level:
		100.		OS/VS2 and later MVS systems.
		 xxxx		Release level (0-1F).
2	(2)	1	A2SMS	Record-independent switches:
		1...		More records follow.
		0...		Last record.
		.x..		Time-of-Day (TOD) clock instruction issued.
		.0..		IBM System/360
		.1..		IBM System/370
		..1.		Record truncated.

Table 18. Format of the LMI record (continued)

Offset		Size (bytes) Alignment (bits)	Field Name	Description
Dec	Hex			
		...1		370 XA mode record.
		.... 1...		TIME macro used.
		xxx		Reserved.
3	(3)	3		Record-dependent switches:
			A2SW1	Reserved.
			A2SW2	Reserved.
			A2SW3	Reserved.
6	(6)	1	A2RCDCT	Record count:
		xxxx		Sequence number of this physical record.
		 xxxx		Total number of physical records in this logical record.
7	(7)	1		Reserved.
8	(8)	8	A2DT	System date and time of incident:
8	(8)	4	A2DATE	System date of failure.
12	(C)	4	A2TIME	System time of failure.
16	(10)	8	A2CPUID	CPU identification.
16	(10)	1	A2VER	Machine version code:
		xxxx xxx.		Reserved.
		0		Version I CPUs.
		1		Version II CPUs.
17	(11)	3	A2SER	CPU serial number.
20	(14)	2	A2MOD	CPU machine model number
22	(16)	2	A2CEL	Reserved.
				END OF STANDARD HEADER
24	(18)	1	A2INQUAL	Incident qualifiers.
		1...		Null.
		.1..		Resend. Report or record has already been sent to a channel.
		..1.		Dynamic connectivity control element. Incident node is a dynamic switch port.
		...1		Dedicated connection; static connection state.
		.... xx..		Reporting class.
		.... 00..		Information report.
		.... 01..		Link degraded but operational.
		.... 10..		Link not operational.
		.... 11..		Reserved.
		xx		Reserved.
25	(19)	1	A2INCODE	Incident code.
		x...		Primary/Secondary report.
		0...		Primary report.
		1...		Secondary report.

Table 18. Format of the LMI record (continued)

Offset		Size (bytes) Alignment (bits)	Field Name	Description
Dec	Hex			
		.xxx xxxx		Incident code type (IC). X'07' - X'7F' reserved.
		x000 0001		Implicit incident.
		x000 0010		Bit error rate threshold exceeded.
		x000 0011		Link failure, loss of signal or synchronization.
		x000 0100		Link failure, nonoperational sequence recognized.
		x000 0101		Link failure, sequence timeout.
		x000 0110		Link failure, illegal sequence for link-level facility state.
26	(1A)	2	A2DEDCIF	Statically Connected Switch Interface (SCSI).
28	(1C)	32	A2INODES	INCIDENT Node Descriptor.
		Byte 0		Incident flags.
		xxx.		Incident node-ID validity. X'3' - X'7' reserved.
		000.		Valid node ID.
		001.		Valid node ID which may not be current.
		010.		Invalid node ID; bytes 1-31 are not valid.
		...x		Incident Node Type:
		...0		Device node
		...1		CPC node
		 xxxx		Reserved.
		Bytes 1-3	A2NODPAR	DEVICE Node Parameters if byte 0 bit 3 = 0.
		Byte 1		Reserved, X'00'.
		Byte 2		Class:
		0000 0000		Unspecified Class
		0000 0001		Direct Access Storage (DASD)
		0000 0010		Magnetic Tape
		0000 0011		Unit Record (input)
		0000 0100		Unit Record (output)
		0000 0101		Printer
		0000 0110		Communications Controller
		0000 0111		Terminal (full screen)
		0000 1000		Terminal (line mode)
		0000 1001		Stand-alone Channel-to-Channel (CTC)
		0000 1010		Switch
		xxxx xxxx		Reserved (11 - 255)
		Byte 3		Reserved, X'00'.
		Bytes 1-3	A2NODPAR	CPCNode Parameters if byte 0 bit 3 = 1.
		Byte 1		Reserved, X'00'.
		Byte 2		Interface Class:
		0000 0000		Unspecified Class

Table 18. Format of the LMI record (continued)

Offset		Size (bytes) Alignment (bits)	Field Name	Description
Dec	Hex			
		0000 0001		ESA/370 channel
		0000 0010		Integrated channel-to-channel adapter (CTCA)
		xxxx xxxx		Reserved (3 - 255)
		Byte 3		Identification:
		xxxx xxxx		CHPID.
		Bytes 4-9	A2ITYPE	Incident type number EBCDIC decimal value right justified.
		Bytes 10-12	A2IMOD	Incident model number EBCDIC alphameric right justified.
		Bytes 13-15	A2IMEG	Incident manufacturer EBCDIC alphameric right justified.
		Bytes 16-17	A2IPMFG	Incident plant of manufacture EBCDIC alphameric right. justified.
		Bytes 18-29	A2ISEQ	Incident sequence number EBCDIC alphameric right. justified.
		Bytes 30-31	A2IID	Incident hexadecimal interface ID.
60	(3C)	32	A2ANODES	ATTACHED Node Descriptor.
		Byte 0		Incident flags.
		xxx.		Attached node-ID validity. X'3' - X'7' reserved.
		000.		Valid node ID.
		001.		Valid node ID which may not be current.
		010.		Invalid node ID; bytes 1-31 are not valid.
		...x		Attached Node Type:
		...0		Device node
		...1		CPCnode
		 xxxx		Reserved.
		Bytes 1-3	A2NOPARM	DEVICE Node Parameters if byte 0 bit 3 = 0.
		Byte 1		Reserved, X'00'.
		Byte 2		Class:
		0000 0000		Unspecified Class
		0000 0001		Direct Access Storage (DASD)
		0000 0010		Magnetic Tape
		0000 0011		Unit Record (input)
		0000 0100		Unit Record (output)
		0000 0101		Printer
		0000 0110		Communications Controller
		0000 0111		Terminal (full screen)
		0000 1000		Terminal (line mode)
		0000 1001		Stand-alone Channel-to-Channel (CTC)
		0000 1010		Switch
		xxxx xxxx		Reserved (11 - 255)
		Byte 3		Reserved, X'00'.
		Bytes 1-3	A2NOPARM	CPCNode Parameters if byte 0 bit 3 = 1.

Table 18. Format of the LMI record (continued)				
Offset		Size (bytes) Alignment (bits)	Field Name	Description
Dec	Hex			
		Byte 1		Reserved, X'00'.
		Byte 2		Interface Class:
		0000 0000		Unspecified Class
		0000 0001		ESA/370 channel
		0000 0010		Integrated channel-to-channel adapter (CTCA)
		xxxx xxxx		Reserved (3 - 255)
		Byte 3		Identification:
		xxxx xxxx		CHPID.
		Bytes 4-9	A2ATYPE	Attached type number EBCDIC decimal value right justified.
		Bytes 10-12	A2AMOD	Attached model number EBCDIC alphameric right justified.
		Bytes 13-15	A2AMFG	Attached manufacturer EBCDIC alphameric right justified.
		Bytes 16-17	A2APMFG	Attached plant of manufacture EBCDIC alphameric right justified.
		Bytes 18-29	A2ASEQ	Attached sequence number EBCDIC alphameric right justified.
		Bytes 30-31	A2AIID	Attached hexadecimal interface ID.
92	(5C)	36	A2INDEP	Incident node-dependent information.

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 19. Format of the SIM record				
Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
0	(0)	1	A3KEY1	Class/Source:
		1010 0011		Service Information Message Record; type = X'A3'.
1	(1)	1	A3KEY2	System/release level:
		100.		OS/VS2 and later MVS systems.
		...x		Reserved.
		 xxxx		Release level (0-1F).
2	(2)	1	A3SMS	Record-independent switches:
		1...		More records follow.
		0...		Last record.
		.1..		Time-of-day (TOD) clock instruction issued.
		..1.		Record truncated.
		...1		370 XA mode record.
		.... 1...		TIME macro used.

Table 19. Format of the SIM record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
		xxx		Reserved.
3	(3)	3		Record-dependent switches:
		Byte 0	A3SW1	
		0001		SIM record.
		 xxxx		Severity Code.
		 0000		Severity not defined.
		 0001		Information provided as part of PD or repair activity.
		 0010		Degradation or intermittent failures for nonfunctional unit.
		 0100		Permanent failure in nonfunctional unit.
		 1000		No immediate performance impact. Expected loss or degradation of function if no action taken.
		 1001		Degradation or intermittent failures for functional unit.
		 1100		Permanent failure causing loss of function.
		 1111		Permanent failure in functional unit which has redundant hardware.
		Byte 1	A3SW2	
		1...		CHPID is incorrect.
		.xxx xxxx		Reserved.
		Byte 2	A3SW3	Reserved.
6	(6)	1	A3RCDCT	Record count:
		xxxx		Sequence number of this physical record.
		 xxxx		Total number of physical records in this logical record.
7	(7)	1		Reserved.
8	(8)	8	A3DT	System date and time of incident:
8	(8)	4	A3DATE	System date of failure.
12	(C)	4	A3TIME	System time of failure.
16	(10)	8	A3CPUID	Central processor identification.
16	(10)	1	A3VER	Machine version code:
		xxxx xxx.		Reserved.
		0		Version I central processors.
		1		Version II central processors.
17	(11)	3	A3SER	Central processor serial number.
20	(14)	2	A3MOD	Central processor machine model number (3033, 4341, etc.).
22	(16)	2	A3CEL	Reserved.
				END OF STANDARD HEADER
24	(18)	7		Reporting unit type or 0s. Type and model of device reporting the error.
31	(1F)	7		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).
38	(26)	1		Manufacturer identity or 0s. Identity of device manufacturer.
		0000 0001		IBM.

Table 19. Format of the SIM record (continued)				
Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
39	(27)	9		Unique identifier or 0s. The manufacturing plant and serial number of the reporting device.
48	(30)	1		Length of SSI data field beginning at end of SI field. >
49	(31)	3	A3SECUA	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.)
52	(34)	1		Device type for the device associated with the error.
		Byte 0		
		1...		Byte 1 contains a control unit ID.
		.xxx xxxx		Reserved.
		Byte 1		Control unit ID if (Byte 0(Bit 0))=1. Otherwise system dependent data unused by EREP.
		Byte 2		Device class code.
		Byte 3		Device type code.
56	(38)	1		Length of SI data field.
57	(39)	3	A3PCUA	This field contains the device number.
60	(3C)	Variable		SI data. Device dependent information from control program. Bytes 0-5 include the VOLID if it is contained in the record.
Var.	Var.			SSI data. Device dependent information from reporting subsystem.

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 20. Format of the CRW Record				
Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
0	(0)	1	CRWKEY1	Class/Source:
		..1. .1.1		CRW record; type=X'25'.
1	(1)	1	CRWKEY2	System/Release level:
		100.		OS/VS2.
		...x xxxx		Release level 0-31.
2	(2)	1	CRWSMS	Record-independent switches:
		1... ...		More records follow.
		0...		Last record.
		.1..		Time-of-day (TOD) clock instruction issued.
		..1.		Record truncated.
		...1		Record created by MVS/SP Version 2, 3, or 4.
		.... 1...		TIME macro issued.
		xxx		Reserved.
3	(3)	3		Record-dependent switches:

Table 20. Format of the CRW Record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
		Byte 0	CRWBYTE1	Reserved.
		Byte 1	CRWBYTE2	Reserved.
		Byte 2	CRWBYTE3	Reserved.
6	(6)	1	CRWRCDCT	Record count:
		xxxx	CRWRCSEQ	Record sequence number.
		 xxxx	CRWFZREC	Total number of physical records in this logical record.
7	(7)	1		Reserved.
8	(8)	4	CRWDATE	System date of incident.
12	(C)	4	CRWTIME	System time of incident.
16	(10)	1	CRWVER	Machine version code.
17	(11)	3	CRWSER	Central processor serial number.
20	(14)	2	CRWMOD	Central processor machine model number.
22	(16)	2	CRWCEL	Reserved.
				END OF STANDARD HEADER
24	(18)	8	CRWMODUL	CSECT name of module doing recording.
32	(20)	1	CRWRECCD	CRW recording code: Identifies the format of the variable portion of the record.
33	(21)	1	CRWFLAG1	Flag byte 1.
		1...	CRWHARD	Hardware-stored CRW.
		.1..	CRWSOFT	Software-created CRW.
		..xx xxx.		Reserved.
		1	CRWINVAL	Incorrect CRW recording.
34	(22)	1	CRWFLAG2	Flag byte 2.
35	(23)	1	CRWCODE	CRW origin code.
		0000 0000		CRW origin unknown.
		0000 0001		CRW pending machine check.
		0000 0010		System damage machine check.
		0000 0011		Alternate central processor recovery (ACR).
		0000 0100		Reserved.
		0000 0101		Reserved.
		0000 0110		Hot I/O recover channel path.
		0000 0111		Hot I/O remove channel path.
		0000 1000		Vary channel path - forced.
		0000 1001		Reset Event Occurred - recover channel path
		0000 1010		Link Level Error Occurred
		X‘0B’-X‘FF’		Reserved.
36	(24)	2	CRWCP	Processor address CRW retrieved on.
38	(26)	2		Reserved.
40	(28)	4	CRWCRW	Channel report word (CRW).

Table 20. Format of the CRW Record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
44	(2C)	2	CRWDEV	Binary device number.
46	(2E)	2		Reserved.
48	(30)	4	CRWSEQNO	CRW sequence number.
52	(34)	4	CRWASEQN	Associated CRW sequence number.
56	(38)	2	CRWDEVST	UCB device status flags, or zero if UCB not available.
58	(3A)	2	CRWPMCW	Path management control word, or zero if UCB not available.
60	(3C)	1	CRWCHPCT	Channel path recovery count, or zero if UCB not available.
61	(3D)	2		Reserved.
63	(3F)	1	CRWLEVEL	UCB level value, or zero if UCB not available.
64	(40)	4	CRWLVMSK	UCB level bit mask, or zero if UCB not available.
68	(44)	4	CRWSCHRC	UCB subchannel recovery anchor, or zero if UCB not available.
72	(48)	1		Reserved.
73	(49)	1	CRWICHPT	ICHPT flags associated with the CRW channel path ID.
74	(4A)	8	CRWISDT	Copy of the IOS interrupt subclass definition 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 21. Format of the DDR record

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
0	(0)	1	LRBHTYPE	Record key:
		.11.		DDR record; type=X'60'.
1	(1)	1	LRBHSYS	System/Release level:
		100.		OS/VS2.
		bits 3-7		
		0-1F		Release level 0-31.
2	(2)	1	LRBHSWO	Record-independent switches:
		1...		More records follow.
		0...		Last record.
		.1..		Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12.
		..1.		Record truncated. (Not used for DDR record.)
		...1		Record created by MVS/SP Version 2, 3, or 4.
		.... 1...		TIME macro used.
		xxx		Reserved.
3	(3)	3	LRBHSW1	Record-dependent switches:

Table 21. Format of the DDR record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
		Byte 0		
		1...		Primary storage reconfiguration.
		.1..		Secondary storage reconfiguration.
		..1.		Operator requested reconfiguration.
		...1		Permanent error caused reconfiguration.
		 xxxx		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.
  - 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 22. Format of the EOD record

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
0	(0)	1	CLASRC	Class/Source:
		1...		EOD record; type=X'80'.
		1... ...1		System end (non-restartable); type=X'81'.
		1... .1..		EOD from IOS (restartable wait state); type=X'84'.
1	(1)	1	OPSYS	System/Release level:
		100.		OS/VS2.
		bits 3-7		
		0-1F		Release level 0-31.
2	(2)	4	SW1	Record switches:
		Byte 0		
		1...		More records follow.
		0...		Last record.
		.1..		Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12.
		..1.		Record truncated. (Not used for EOD record.)
		...1		Record created by MVS/SP Version 2, 3, or 4.
		.... 1...		TIME macro used.
		xxx		Reserved.
		Bytes 1 and 2		Not used for EOD record.
		Byte 3		Incremental release number (alphanumeric) of operating system.
6	(6)	2		Not used for EOD record.
8	(8)	4	DATE	System date of condition.
12	(C)	4	TIME	System time of condition.
16	(10)	1	VERNO	Machine version code.
17	(11)	3	CPUSER	Central processor serial number.
20	(14)	2	CPUMODEL	Central processor machine model number.
22	(16)	2	MCELLNG	Reserved.
				END OF STANDARD HEADER
24	(18)	40		EOD extension (see note).
24	(18)	4		Length of user data plus 8.
28	(1C)	4		Wait state code.
32	(20)	32		User data.
				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 the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary) 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 23. Format of the DPSV record

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
0	(0)	1	LRBHTYPE	Type of Record:
		11.. ..1.		DPSV Record; type=X'C2'.
1	(1)	1	LRBHREL	System/Release level:
		100.		OS/VS2.
		bits 3-7		
		0-1F		Release level 0-31.
2	(2)	1	LRBHSW0	Record independent switches:
		1...		More records follow.
		0...		Last record.
		.1..		Time-of-day (TOD) clock instruction issued.
		..1.		Record truncated.
		...1		Record created by MVS/SP Version 2, 3, or 4.
		.... 1...		TIME macro issued.
		xxx		Reserved.
3	(3)	1	LRBHSW1	Reserved.
4	(4)	1	LRBHSW2	Reserved.
5	(5)	1	LRBHSW3	Reserved.
6	(6)	1	LRBHSW4	Reserved.
7	(7)	1	LRBHCNT	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	LXCHDESC	Name of the module requesting the dynamic pathing validation.
32	(20)	1	LXCHVERS	Cx record's common header version field.
33	(21)	1	LXCHFLAG	Cx record's common header flag field.
34	(22)	2	LXCHDVNM	Device number in hexadecimal.

Table 23. Format of the DPSV record (continued)				
Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
36	(24)	4	LXCHDTYP	Device type information field.
40	(28)	8	LXCHRSVD	Reserved.
48	(30)	1	LXC2CODE	DPSV recording code.
49	(31)	1	LXC2FLAG	DPSV flag field.
50	(32)	2	LXC2RSVL	Reserved.
52	(34)	228	LXC2SNID	Sense path group identifier (SNID) table data. See *z/OS MVS Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary) for a detailed description of the SNID.
280	(118)	4	LXC2RSV2	Reserved.

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 24. Format of the IPL record				
Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
0	(0)	1	CLASRC	Class/Source:
		.1.1		IPL record; type=X'50'.
1	(1)	1	OPSYS	System/Release level:
		100.		OS/VS2.
		bits 3-7		
		0-1F		Release level 0-31.
2	(2)	4	SW1	Record switches:
		Byte 0		
		1...		More records follow.
		0...		Last record.
		.1..		Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12.
		..1.		Record truncated. (Not used for IPL record.)
		...1		Record created by MVS/SP Version 2, 3, or 4.
		.... 1...		TIME macro used.
		xxx		Reserved.
		Bytes 1 and 2		Not used for IPL record.
		Byte 3		Incremental release number (alphanumeric) of operating system.

Table 24. Format of the IPL record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
6	(6)	2		Not used for IPL record.
8	(8)	4	DATE	System date when system was initialized.
12	(C)	4	TIME	System time when system was initialized.
16	(10)	1	CPUSER	Machine version code.
17	(11)	3	CPUSER1	Central processor serial number.
20	(14)	2	CPUMODEL	Central processor machine model number.
22	(16)	2	MCELLNG	Reserved.
				END OF STANDARD HEADER
24	(18)	1	SUBSYSID	Device type or program that caused restart. See Table 26 on page 266.
25	(19)	3		Not used for IPL record.
28	(1C)	2	REASON	Alphanumeric reason for IPL. See Table 25 on page 265.
30	(1E)	2		Reserved.
32	(20)	8	CHANASSN	Reserved.
40	(28)	4	HIGHADDR	Address of last valid byte of storage found at IPL time.
44	(2C)	4		Reserved.
48	(30)	8	LASTACT	Last activity time and date from the time stamp record. When logrec is recording to log streams, the value in this field is zero.

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 25 on page 265), and the subsystem ID, (see Table 26 on page 266), 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 25. IPL reason codes

Code	Reason	Description
NM	Normal.	Normal system initialization.
IE	IBM hardware/programming problem, CE/PSR not required.	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.
IM	IBM hardware/programming problem, CE/PSR required.	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.

Table 25. IPL reason codes (continued)		
Code	**Reason**	**Description**
ME	Media.	An IBM hardware unit failed because of faulty or damaged media, such as a damaged tape or disk.
UN	Unknown.	An undetermined hardware or software failure.
OP	Operational.	An operator error or procedural problem.
UP	User program.	A program other than an IBM supplied control program or programming product failed in such in a way as to cause a system restart.
EN	Environmental.	A failure other than hardware/software or operational (such as power failure, air conditioning, etc.) caused system to be restarted.
CE	CE/PSR has system.	System restarted at CE/PSR request to correct problem.
DF	Default.	Operator replied 'U' or entered a null line in response to system message IFB010D.

Table 26. Subsystem ID codes		
ID	**Subsystem Name**	**Components**
00	Null.	Subsystem is unknown or subsystem code is not required by reason code.
10	Processor.	Central processor, channels, storage units, operator consoles.
20	Direct access storage device (DASD).	Direct access storage devices and their control units.
30	Other.	All devices other than those specified under other subsystem IDs.
40	Tape.	Magnetic tape devices and their control units.
50	Card/Print.	Card (unit record) and printing devices.
60	MICR/OCR.	Magnetic ink (MICR) and optical (OCR) character recognition devices.
70	Teleprocessing.	Teleprocessing devices and their control units.
80	Graphics/Display/Audio.	Graphic, display, and audio devices.
90	IBM system control program.	IBM programming system.
92	IBM programming product.	IBM programming products such as FORTRAN, COBOL, or RPG.

Machine check handler (MCH) record

MCH records (Table 27 on page 267) 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 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 77 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 27. Format of the MCH record

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
0	(0)	1	LRBHTYPE	Class/Source:
		...1 ..11	LRBHMCH	MCH record recorded in the system environment; type=X'13'.
1	(1)	1	LRBHSYS	System/Release level:
		100.		OS/VS2.
		bits 3-7		
		0-1F		Release level 0-31.

Table 27. Format of the MCH record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
2	(2)	1	LRBHSW0	Record-independent switches:
		1...		More records follow.
		0...		Last record.
		.1..		Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12.
		..1.		Record truncated. (Not used for MCH record.)
		...1	LRBHEAB	Extended addressing hardware.
		.... 1...		TIME macro used.
		xxx		Reserved.
3	(3)	3	LRBHSW1	Record-dependent switches:
		Byte 0		
		1...	LRBMNOIO	IOS (IOSRMCH) informing IGFPTSIG not to perform any I/O.
		.1..	LRBMNVF	LRB may not be valid.
		..1.	LRBMSYST	System ended by MCH.
		...1	LRBTRACE	Set to 1 by IGFPMCIH before ALTRTRCsuspend and set to 0 after.
		.... 1...	LRBDAT	Set to 1 by IGFPMICH before loading aDATON PSW to go to IGFPMAIN. Set to 0 when IGFPMAIN receives control.
		.... .1..	LRBMRECV	Set to 1 when an error is totally recovered.
		.... ..x.		Reserved.
		1	LRBMFA	Set to 1 after a malfunction alert.
		Byte 1	LRBMACT	Buffer contains a record to be recorded on the logrec data set or moved to another buffer.
		Byte 2	LRBMCLB	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.
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)	4	LRBMLNH	Length of record for the logrec data set.
28	(1C)	4	LRBMWSC	Wait state code.
		1...	LRBMAMOD	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.
32	(20)	4	LRBMCEIA	Machine check error indication area.

Table 27. Format of the MCH record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
		Byte 0	LRBMTERM	Terminal error flags:
		1... ...	LRBMTIOS	IOSRMCH has requested that this processor be ended.
		.x..		Reserved.
		..1.	LRMMTTHR	Hard error threshold flag.
		...1	LRBMTSEC	Secondary error.
		.... 1...	LRBMTCKS	Check stop.
		.... .1..	LRBMTWRN	Power® warning.
		.... ..1.	LRBMTDMG	System damage.
		1	LRBMTINV	Incorrect logout flag; set when LRBMCIC=0 or when a store-status-at-address has failed after a malfunction alert.
		Byte 1	LRBMHARD	Hard machine error switches:
		1...	LRBMHHRD	Hard error assumed.
		.1..	LRBMHIO	IOSRMCH has examined the MCIC and determined that a hard I/O Error has occurred.
		..1.	LRBMHVS	Vector facility source.
		...1	LRBMHSD	System damage.
		.... 1...	LRBMHINV	Register or PSW incorrect.
		.... .1..	LRBMHSTO	Hard storage error.
		.... ..1.	LRBMHSPF	Hard storage protection key error.
		1	LRBMHIPD	Instruction processing damage.
		Byte 2	LRBMINTM	Intermediate error switches:
		1...	LRBMIPSD	Primary clock sync facility damage.
		.1..	LRBMIAFD	ETR attachment facility damage.
		..1.	LRBMISWL	Switch to local sync.
		...1	LRBMISYC	ETR sync check condition.
		.... 1...	LRBMITOD	Time-of-day (TOD) clock error.
		.... .1..	LRBMICKC	Clock comparator error.
		.... ..1.	LRBMICTM	Central processor timer error.
		1	LRBMIVTE	Vector facility threshold exceeded.
		Byte 3	LRBMSOFT	Soft machine error switches:
		1...	LRBMSSFT	Soft error assumed.
		.1..	LRBMSSPD	Service processor damage.
		..1.	LRBMSVF	Vector facility failure.
		...1	LRBMDBSE	Double bit storage error correction flag.
		.... 1...	LRBMSTSL	ETR sync check threshold exceeded.
		.... .1..	LRBMSECC	ECC corrected storage error.
		.... ..1.	LRBMSHIR	HIR corrected processor (Central processor) error.
		1	LRBMSDG	Degradation machine check.
36	(24)	1	LRBMPDAR	PDAR (program damage assessment and repair) data supplied by RTM:

Table 27. Format of the MCH record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
		xxx.		Reserved.
		...1	LRBMINVP	Storage reconfigured; page invalidated.
		.... 1...	LRBMRSRC	Storage reconfiguration status available at displacement 37.
		.... .1..	LRBMRSRF	Storage reconfiguration not attempted.
		xx		Reserved.
37	(25)	2	LRBMRSRS	Status returned to IGFPMRTH by IARXMCKS, the status and key error storage routine. The details of the bits are described by IEERSRRB.
39	(27)	1	LRBMPWL	Length of checking block used by machine model.
40	(28)	8	LRBMMOSW	Machine check old PSW from storage locations 48-55.
48	(30)	8	LRBMCIC	Machine check interruption code (from storage locations 232-239) as stored by hardware routines at time of machine check:
		Byte 0		
		1...	LRBMFSD	System damage (SD).
		.1..	LRBMFPD	Instruction-processing damage (PD).
		..1.	LRBMFSR	System recovery (SR).
		...x		Reserved.
		.... 1...	LRBMFCD	Timer-facility damage (CD).
		.... .1..	LRBMFED	External damage (ED).
		.... ..1.	LRBMFVF	Vector facility failure (VF).
		1	LRBMFDG	Degradation (DG).
		Byte 1		
		1...	LRBMFWM	Power warning (W).
		.1..	LRBMFLP	Available CRW is pending (CP).
		..1.	LRBMFSPD	Service processor damage (SP).
		...1	LRBMFCK	Channel subsystem damage (CK).
		.... x...		Reserved.
		.... .1..	LRBMFVS	Vector facility source (VS).
		.... ..1.	LRBMIBU	Backed up indicator (B).
		x	LRBMIDY	Reserved.
		Byte 2		
		1...	LRBMFSE	Storage error uncorrected (SE).
		.1..	LRBMFSC	Storage error corrected (SC).
		..1.	LRBMFKE	Storage key error uncorrected (KE).
		...1	LRBMDFDS	Storage degradation (DS).
		.... 1...	LRBMVWP	PSW-MWP is valid (WP).
		.... .1..	LRBMVMS	PSW masks and key are valid (MS).
		.... ..1.	LRBMVPM	PSW program masks and condition code are valid (PM).
		1	LRBMVIA	PSW Instruction address is valid (IA®).
		Byte 3		

Table 27. Format of the MCH record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
		1...	LRBMVFA	Failing storage address is valid (FA).
		.x..		Reserved.
		..1.	LRBMVED	External damage code is valid (EC).
		...1	LRBMVFP	Floating point register is valid (FP).
		.... 1...	LRBMVGR	General purpose register is valid (GR).
		.... .1..	LRBMVCR	Control register is valid (CR).
		.... ..x.		Reserved.
		1	LRBMVST	Storage logical is valid (ST).
		Byte 4		
		x...		Indirect storage error (IE).
		.1..	LRBMARV	Access register is valid.
		..1.	LRBMDAE	Delayed access exception.
		...x xxx.		Reserved.
		1	LRBMSYC	ETR sync check.
		Byte 5		
		xxxx .x..		Reserved.
		.... 1...	LRBMVAP	Ancillary Report
		.... ..1.	LRBMVPT	Processor timer is valid (CT).
		1	LRBMVCC	Clock comparator is valid (CC).
		Bytes 6, 7		Reserved.
56	(38)	4		240-243 storage data.
60	(3C)	4	LRBMEDCD	244-247 storage data: External damage code.
		Byte 0	LRBMEDC	Data from 244.
		Byte 1	LRBMEDC1	Data from 245.
		1...	LRBMEDXN	Extended (expanded) storage not operational.
		.1..	LRBMEDXF	Extended (expanded) storage control failure.
		Byte 2	LRBMEDC2	Data from 246.
		1...	LRBMEDPS	Primary Sync damage.
		.1..	LRBMEDAD	ETR attachment damage.
		..1.	LRBMEDSL	Switch to local.
		...1	LRBMEDSC	ETR sync check.
		.... 1...	LRBMEDEC	Side Control Element/Side Id Change.
		Byte 3	LRBEDC3	Data from 247.
		1...	LRBMEDSS	STP sync check.
		.1..	LRBMEDSI	STP island condition.
		..1.	LRBMEDCC	STP configuration change.
		...1	LRBMEDCS	STP clock source error.
64	(40)	4	LRBMFSA	248-251 storage data: Failing storage address

Table 27. Format of the MCH record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
68	(44)	4		252-255 storage data.
72	(48)	8	LRBSSPSW	256-263 storage data: Store status PSW.
80	(50)	7		264-270 storage data.
87	(57)	1	LRBADRSI	271storage data: CPU address & site code.
88	(58)	16		272-287 storage data.
104	(68)	64	LRBAREGS	288-351 storage data: Access Registers.
168	(A8)	32		352-383 storage data.
200	(C8)	64	LRBGREGS	384-447 storage data: General Purpose Registers.
264	(108)	64	LRBCREGS	448-511 storage data: Control Registers.
328	(148)	1	LRBMEVIA	Event Indicator Area.
329	(149)	63		Reserved.
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 28 on page 272).

Table 28. Format of the MDR record

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
0	(0)	1	MCLASRC	Class/Source:
		1..1		MDR record formatted by SVC 91; type=X'90'.
		1..1 ...1		MDR record; type=X'91'.
1	(1)	1	MSYSREL	System/Release level:
		100.		OS/VS2.
		bits 3-7		

Table 28. Format of the MDR record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
		0-1F		Release level 0 through 31.
2	(2)	4	MSWITCHS	Record switches:
		Byte 0		
		1...		More records follow.
		0...		Last record.
		.1..		Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12.
		..1.		Record truncated. (Not used for MDR record.)
		...1		Record created by MVS/SP Version 2, 3, or 4.
		.... 1...		TIME macro used.
		xxx		Reserved.
		Byte 1		
		x...		Not used by MDR record.
		.1..		Record incomplete.
		..xx xxxx		Not used by MDR record.
		Byte 2		
		Byte 3		
		1...		Variable length sub-ID field used by record.
		.xxx		Reserved.
		bits 4-7		Number of characters in sub-ID field of device identified at
				displacement 26.
6	(6)	1	MRCDCNT	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	MCHPID	Channel path identifier.
8	(8)	4	MDATE	System date of incident.
12	(C)	4	MTIME	System time of incident.
16	(10)	1	MVERNO	Machine version code.
17	(11)	3	MCPUSER	Central processor serial number.
20	(14)	2	MCPUMOD	Central processor machine model number.
22	(16)	2	MCELLNG	Reserved.
				END OF STANDARD HEADER
24	(18)	2	BUFRECID	Device number of data identified in this record.
26	(1A)	variable	BUFSUBID	Identification field (2-15 bytes) to identify device at displacement 24. Length of this field (2-15 bytes) is defined at displacement 5. **Note:** Depending on device, field can denote serial number or CUA of unit.
		variable	BUFINFO	Device-dependent information supplied by ERP that detected error.
		2	MRCTWD	Flag bytes from the RCT used to create this record if the new OBR/MDR interface was used.

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:

- 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 29. Format of the MIH record

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
0	(0)	1	LRBHTYPE	Type of Record:
		.111 ...1		MIH record; type=X'71'.
1	(1)	1	LRBHREL	System/Release level:
		100.		OS/VS2.
		bits 3-7		
		0-1F		Release level 0-31.
2	(2)	1	LRBHSW0	Record independent switches:
		1...		More records follow.
		0...		Last record.
		.1..		Time-of-day (TOD) clock instruction issued.
		..1.		Record truncated.
		...1		Record created by MVS/SP Version 2, 3, or 4.
		.... 1...		TIME macro issued.
		xxx		Reserved.
3	(3)	1	LRBHSW1	Reserved.

Table 29. Format of the MIH record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
4	(4)	1	LRBHSW2	Reserved.
5	(5)	1	LRBHSW3	Reserved.
6	(6)	1	LRBHSW4	Reserved.
7	(7)	1	LRBHCNT	Record count:
		bits 0-3	LRBSEQ	Record sequence number.
		bits 4-7	LRBNUM	Total number of physical records in this logical record.
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	MIRJOBNM	Job name from the ASID.
32	(20)	52	MIRSCHIB	Subchannel information block.
32	(20)	4	MIRPMCW0	Interruption parameter.
36	(24)	4	MIRPMCW1	Path manage control word 1.
40	(28)	1	MIRLPM	Logical path mask.
41	(29)	1	MIRPNOM	Path not operational mask.
42	(2A)	1	MIRLPUM	Last path used mask.
43	(2B)	1	MIRPIM	Path installed mask.
44	(2C)	2	MIRMBI	Measurement block index.
46	(2E)	1	MIRPOM	Path operational mask.
47	(2F)	1	MIRPAM	Path available mask.
48	(30)	8	MIRCHPID	CHPIDs 0-7.
56	(38)	4	MIRPMCW6	Path manage control word 6.
60	(3C)	12	MIRSCSW	Subchannel status words.
72	(48)	12	MIRMDEP	Model dependent area.
84	(54)	8	MIRINTVL	Interval used for detection.
92	(5C)	1	MIRTYPE	Type of missing interrupt:
		1...		Missing CSCH interrupt.
		.1..		Missing HSCH interrupt.
		..1.		Idle device with work queued.
		...1		Start pending in subchannel.
		.... 1...		I/O timing limit exceeded.
		.... .1..		Mount pending.
		.... ..1.		Missing primary status.
		1		Missing secondary status.

Table 29. Format of the MIH record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
93	(5D)	1	MIRACTND	Default actions to attempt.
94	(5E)	1	MIRACTNA	Actions to be attempted.
95	(5F)	1	MIRACTNS	Actions actually tried:
		1...		Halt or clear subchannel.
		.1..		Simulated interrupt.
		..1.		Redrive device.
		...1		Requeue I/O request.
		.... 1...		Issue message.
		.... .1..		Log the condition (always on).
		xx		Reserved.
96	(60)	4	MIRPSID	Subchannel ID number.
100	(64)	2	MIRPPMCW	Path management control word from UCBPMCW1.
102	(66)	1	MIRPLPM	Logical path mask from UCBLPM.
103	(67)	1	MIRPLPUM	Last path used mask from UCBLPUM.
104	(68)	1	MIRPPIM	UCBPIM.
105	(69)	8	MIRPCHPS	CHPIDs from UCBCHPID.
113	(71)	1	MIRPLEVL	UCB level byte.
114	(72)	1	MIRPIOSF	IOS flags.
115	(73)	4	MIRPLVMS	Level mask from UCBLVMSK.
119	(77)	1	MIRPMIHT	MIH flag proc. (UCBMIHTI).
120	(78)	1	MIRFLAG1	Flag byte.
		1...		UCBALTCU.
		.xxx xxxx		Reserved.
121	(79)	1	MIRUFLC	Flag byte from UCBFLC.
122	(7A)	2	MIRUCHAN	Device number from UCBCHAN.
124	(7C)	2	MIRUSFLS	Flag bytes from UCBSFLS.
126	(7E)	4	MIRUTYPE	UCB device class/type.
130	(82)	6	MIRDVOL1	Volume serial.
136	(88)	1	MIRFLAG4	Flag byte.
		1...	MIRDMOUN	UCBMOUNT.
		.xxx xxxx		Reserved.
137	(89)	1	MIRDFL5	Flag byte from UCBFL4 (DASD only).
138	(8A)	1	MIRFLG1	MIH record flags.
		1...	MIRADDL1	MIH record additional data flag bit 1.
		.xxx xxxx	MIRRSVF1	Reserved.
139	(8B)	1	MIRFLG2	Reserved

Table 29. Format of the MIH record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
140	(8C)	1	MIRRSNC	Reason code associated with MIRTYPE. **Code** **Explanation** **9** The I/O timing limit was exceeded for a started I/O request. **10** The I/O timing limit was exceeded for a queued request.
141	(8D)	3	MIRRSV1	Reserved
144	(90)	1	MIRHLTRC	Halt request return code from IOSVHSCH.
145	(91)	1	MIRCLRRC	Clear request return code from IOSVHSCH.
146	(92)	1	MIRSTRC1	Store subchannel request return code from IOSVSTSQ.
147	(93)	1	MIRSTRC2	Store subchannel request return code from IOSVSTSQ.
148	(94)	4	MIRCIRB1	CSCH IRB word 1.
152	(98)	4	MIRSIRB1	STSCH SCHIB IRB word 0.
156	(9C)	8	MIRRSV2	Reserved.

Outboard (OBR) Record

OBR records (Table 30 on page 278 and Table 31 on page 280) 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.

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 31 on page 280).

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 30. Format of the long OBR record

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
0	(0)	1	CLASRC	Class/Source:
		..11		OBR (unit check) record; type=X'30'.
		..11 .1..		No longer generated.
		..11 .11.		TP access method (VTAM) OBR record; type=X'36'.
		..11 1.1.		Dynamic pathing availability (DPA) OBR record; type=X'3A'.
1	(1)	1	SYSREL	System/Release level:
		100.		OS/VS2.
		bits 3-7		
		0-1F		Release level 0-31.
2	(2)	4	SWITCHES	Record switches:
		Byte 0		
		1...		More records follow.
		0...		Last record.
		.1..		Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12.
		..1.		Record truncated.
		...1		Record created by MVS/SP Version 2 or 3.

Table 30. Format of the long OBR record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
		.... 1...		TIME macro used.
		xxx		Reserved.
		Byte 1		
		1...		SDR counters dumped at EOD.
		.1..		Temporary error.
		..1.		Short record (0 for long record).
		...1		MP system.
		.... 0...		Central processor A issued last SSCH.
		.... 1...		Central processor B issued last SSCH.
		.... .1..		Volume demount.
		.... ..x.		Reserved.
		1		SECUA contains polling characters (instead of CUA). Only set for TP (teleprocessing) devices.
		Byte 2		Not used for OBR record.
		Byte 3		Reserved.
6	(6)	1	RCDCNT	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	DATE	System date of incident.
12	(C)	4	TIME	System time of incident.
16	(10)	1	VERNO	Machine version code.
17	(11)	3	CPUSER	Central processor serial number.
20	(14)	2	CPUMOD	Central processor machine model number.
22	(16)	2	MCELLNG	Reserved.
				END OF STANDARD HEADER
24	(18)	8	JOBID	Alphameric 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)	8	FAILCCW	CCW being processed at time of failure.
40	(28)	8		Reserved.
48	(30)	1	DEVDEPC	Count of double words for device-dependent data.
49	(31)	1	CHPID	Channel path identifier of path that encountered the error.
50	(32)	1		Low order two digits of device number.
51	(33)	1	DEVUA	Reserved
52	(34)	4	DEVTYPE	Device type associated with failing device.
56	(38)	1	SDRCNT	Number of bytes of statistical data recorded in the statistical data recorder (SDR) work area.

Table 30. Format of the long OBR record (continued)				
Offset		**Size (bytes) alignment (bits)**	**Field name**	**Description**
Dec	**Hex**			
57	(39)	3	DEVNUM	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.
60	(3C)	2	IORETRY	Number of I/O retries attempted for this error incident.
62	(3E)	2	SENSCNT	Number of bytes of data in SENSE field.
64	(40)	variable	DEVDEP	Device dependent information.
		variable	SDRINF	SDR counter area that contains statistical counter/indicator data from device statistics table.
		variable	SENSE	Device-dependent sense information that was received on first sense command to failing device.
		16	IRB	Interrupt request block stored at time of error.
		2	RCTWD	Flag bytes from the RCT used to create this record if the new OBR/MDR interface was used.

Short OBR record

Table 31. Format of the short OBR record				
Offset		**Size (bytes) alignment (bits)**	**Field name**	**Description**
Dec	**Hex**			
0	(0)	1	CLASRC	Class/Source:
		..11		OBR (unit check) record; type=X'30'.
		..11 .1..		No longer generated.
		..11 .11.		TP access method (VTAM) OBR record; type=X'36'.
1	(1)	1	SYSREL	System/Release level:
		100.		OS/VS2.
		bits 3-7		
		0-1F		Release level 0-31.
2	(2)	4	SWITCHES	Record switches:
		Byte 0		
		1...		More records follow.
		0...		Last record.
		.1..		Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacements 8 and 12.
		..1.		Record truncated.
		...1		Record created by MVS/SP Version 2 or 3.
		.... 1...		TIME macro used.
		xxx		Reserved.
		Byte 1		
		1...		SDR counters dumped at EOD.
		.1..		Temporary error.
		..1.		Short record (0 for long record).
		...1		MP system.

Table 31. Format of the short OBR record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
		.... 0...		Central processor A issued last SSCH.
		.... 1...		Central processor B issued last SSCH.
		.... .1..		Volume demount.
		.... ..x.		Reserved.
		x		Reserved.
		Byte 2		Not used for OBR record.
		Byte 3		Reserved.
6	(6)	1	RCDCNT	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	DATE	System date of incident.
12	(C)	4	TIME	System time of incident.
16	(10)	1	VERNO	Machine version code.
17	(11)	3	CPUSER	Central processor serial number.
20	(14)	2	CPUMOD	Central processor machine model number.
22	(16)	2	MCELLNG	Reserved.
				END OF STANDARD HEADER
24	(18)	4	SDEVTYP	Device type associated with failing device.
28	(1C)	1	SSDRCNT	Number of bytes of statistical data to be recorded from SDR work area at displacement 32.
29	(1D)	3	SCUA	Device number being used when failure occurred.
32	(20)	variable	SSDR	SDR counter area containing statistical counter/indicator data from device statistics 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 32. Format of the SLH record

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
0	(0)	1	LRBHTYPE	Class/Source:
		..1. ..11		SLH Record; type=X'23'.

Table 32. Format of the SLH record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
1	(1)	1	LRBHREL	System/Release level:
		100.		OS/VS2.
		bits 3-7		
		0-1F		Release level 0-31.
2	(2)	1	LRBHSW0	Record-independent switches:
		1...		More records follow.
		0...		Last record.
		.1..		Time-of-day (TOD) clock instruction issued.
		..1.		Record truncated.
		...1		Record created by MVS/SP Version 2 or 3.
		.... 1...		TIME macro issued.
		xxx		Reserved.
3	(3)	3		Record-dependent switches:
		Byte 0	LRBHSW1	Reserved.
		Byte 1	LRBHSW2	Reserved.
		Byte 2	LRBHSW3	
		bits 0-5		Reserved.
		bits 6-7		'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.
				'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.
				'03' - Soft error - failure was successfully recovered by the system. A time-dependent application may be impacted.
6	(6)	1	LRBHCNT	Record count:
		bits 0-3	LRBSEQ	Record sequence number.
		bits 4-7	LRBNUM	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	SLHJOBNM	Job name or user ID.
32	(20)	8	SLHCCW	Last processed CCW.
40	(28)	4	SLHDEVT	Device type.
44	(2C)	8	SLHERPIB	ERP information block.

Table 32. Format of the SLH record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
44	(2C)	1	SLHESW01	First byte of ESW.
45	(2D)	3	SLHRSVD1	Reserved.
48	(30)	1	SLHFLG1	Flag byte.
		0...	SLHSSCH	No status stored after SSCH.
		.1..	SLHINT	Status stored after I/O interruption.
		..0.	SLHTSCH	No status stored after TSCH.
		...0	SLHHSCH	No status stored after HSCH.
		.... x...		Reserved.
		.... .1..	SLHSENSE	Sense data was stored.
		.... ..1.	SLHCSWCT	CSW count is valid.
		1	SLHRETRY	If on, operation cannot be retried.
49	(31)	1	SLHLPUM	Last path used mask.
50	(32)	1	SLHVALID	Validity indicators.
		x...		Reserved.
		.1..	SLHVLPUM	LPUM consistent with log indicators.
		..1.	SLHVTERM	Abnormal end code validity.
		...1	SLHVSEQC	Sequence code validity.
		.... 1...	SLHVDVST	Device status validity.
		.... .1..	SLHVCCW	CCW address validity.
		.... ..1.	SLHVDVNO	Device number validity.
		1	SLHVDVNU	Device number validity.
51	(33)	1	SLHTRMSQ	Ending and sequence codes:
		xx..	SLHTRMCD	Ending code:
		00..		Interface disconnect.
		01..		Stop, stack or normal end.
		10..		Selective reset.
		..xx		Reserved.
		.... 1...	SLHIOALT	I/O error alert.
		xxx	SLHSEQCD	Sequence code
		.... .000		Reserved.
		.... .001		Command sent but status not analyzed.
		.... .010		Command accepted by device but no data transferred.
		.... .011		At least one byte of data has been transferred.
		.... .100		Command not sent or sent but not yet accepted.
		.... .101		Command accepted but data transfer unpredictable.
		.... .110		Reserved.
		.... .111		Reserved.

Table 32. Format of the SLH record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
52	(34)	64	SLHIRB	IRB, which includes the SCSW (subchannel status word) and the ESW (extended status word). See *z/OS MVS Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary) for the detailed format of the IRB.
116	(74)	4	SLHUCBAD	UCB or RDEV address.
120	(78)	2	SLHDEVNO	Device number.
122	(7A)	6	SLHVOLSR	Volume serial number.
128	(80)	5	SLHUCBLV	UCB level byte and mask.
133	(85)	2		Reserved.
135	(87)	1	SLHCHPID	Channel path id.
136	(88)	4	SLHSID	Subchannel ID number.
140	(8C)	4	SLHRSMAD	Absolute address of storage or key error if available.
144	(90)	2	SLHRSMRC	RSM return code for storage or key error.
146	(92)	2	SLHRSMER	Error type.
		Byte 0		Reserved.
		Byte 1		
		xxxx xx..		Reserved.
		00		Other.
		01		Storage error.
		10		Key error.
148	(94)	4	SLHRSMST	RSM status information.

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 33 on page 285):

- 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 the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary) 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 33. Format of the SDWA record

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
0	(0)	1	HDRTYP	Class/Source:
		.1..		Software-detected software error; type=X'40'.
		.1.. ..1.		Hardware-detected software error; type=X'42'.
		.1.. .1..		Operator-detected error; type=X'44'.
		.1.. 1...		Hardware-detected hardware error; type=X'48'.
1	(1)	1	HDROPRN	System/Release level:
		100.		OS/VS2.
		bits 3-7		
		0-1F		Release level 0-31.
2	(2)	1	HDRIS	Record-independent switches:
		x...		Reserved.
		.1..		Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacement 8.
		..1.		Record truncated. (When EREP detects this bit being on, it does not
				edit record but prints it out in hexadecimal.)
		...1		Record created by MVS/SP Version 2 or 3.
		.... 1...		TIME macro used.
		xxx		Reserved.
3	(3)	3	HDRDS	Record-dependent switches:
		Byte 0		
		x...		Reserved.
		.1..		Record incomplete. (Record truncated because of lack of buffer

Table 33. Format of the SDWA record (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
				space.)
		..1.		Record contains an ERRORID.
		...x xxxx		Reserved.
		Byte 1		Reserved.
		Byte 2		Reserved.
6	(6)	1	HDRCNT	Not used for SDWA record.
7	(7)	1		Reserved.
8	(8)	8	HDRTM	Time-of-day clock.
16	(10)	1	HDRCPID	Machine version code.
17	(11)	3		Central processor serial number.
20	(14)	2		Central processor machine model number.
22	(16)	2		Reserved.
				END OF STANDARD HEADER
24	(18)	8	JOBID	Alphameric 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 the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary) for the detailed SDWA data area.
432	(1B0)	264	SDWARA	Variable recording area.
435	(1B3)	1	SDWAURAL	Length of the variable recording area (SDWAVRA) containing recovery exit data.
436	(1B4)	variable	SDWAVRA	Contains FRR-dependent data such as damage assessment, recovery action information, and specific diagnostic information to assist in isolating or identifying problem. See the appropriate program listing for a description of specific data supplied by a recovery exit routine.
var.		456	SDWARC1	First recordable extension of the SDWA. Contains additional serviceability data. See *z/OS MVS Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary) for the SDWA.
var.		16	SDWARC2	Second recordable extension of the SDWA. Contains additional data concerning I/O machine checks. See *z/OS MVS Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary) for the SDWA.
var.		32	SDWARC3	Third recordable extension of the SDWA. Contains additional data concerning locks to be freed by RTM. See *z/OS MVS Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary) for the SDWA.
var.		360	SDWARC4	Fourth recordable extension of the SDWA. Contains z/Architecture® information. See *z/OS MVS Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary) for the SDWA.
var.		144	SDWARC5	Fifth recordable extension of the SDWA. See *z/OS MVS Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary) for the SDWA.

Table 33. Format of the SDWA record (continued)				
Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
var.		10	ERRORID	Error identifier - not part of the SDWA, but located directly after the SDWA in the logrec data set record. ERRORID consists of: • 2-byte sequence number • 2-byte CPU identifier • 2-byte ASID • 4-byte time stamp

Excessive spin CPU record

Instead of being recorded in the SDWA, the logrec for excessive spin (ABEND 071) is recorded in the excessive spin CPU list. The record represents the excessive spin condition. It contains an error ID that matches the error ID in the related SDWA record.

The format of the record for the excessive spin CPU list:

A header the same as bytes 0 - 22 (decimal) of an SDWA.
An 8-byte job name.

The remainder of the record for the excessive spin CPU list is mapped by IHALESCL and shown in Table 34 on page 287.

Table 34. Format of the logrec excessive spin CPU record				
Offset Hex	Offset Dec	Size	Field name	Description
0	0	1	LESCL_Version	Version number, currently 1
1	1	1		Reserved
2	2	2	LESCL_NumEntries	Number of CPUs in the CPU list below.
4	4	2	LESCL_LogicalToPhysicalMask	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.
6	6	2	LESCL_Offset	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.

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 35 on page 288).

The lost record summary record is 25 bytes long (Table 35 on page 288). 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 35. Format of the lost record summary record

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
0	(0)	1	HDRTYP	Class/Source:
		.1.. 1111		Lost record summary; type=X'4F'.
1	(1)	1	HDROPRN	System/Release level:
		100.		OS/VS2.
		bits 3-7		
		0-1F		Release level 0-31.
2	(2)	1	HDRIS	Record-independent switches:
		x...		Reserved.
		.1..		Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacement 8.
		..1.		Record truncated. (When EREP detects this bit being on, it does not
				edit record but prints it out in hexadecimal.)
		...1		Record created by MVS/SP Version 2 or 3.
		.... 1...		TIME macro used.
		xxx		Reserved.
3	(3)	3	HDRDS	Record-dependent switches:
		Byte 0		
		1...		Short record. (Set for '4F' type records to indicate that record is not
				as long as other software records.)
		.xxx xxxx		Reserved.
		Byte 1		Reserved.
		Byte 2		Reserved.
6	(6)	1	HDRCNT	Not used for lost record summary.
7	(7)	1		Reserved.
8	(8)	8	HDRTM	Time-of-day clock.
16	(10)	1	HDRCPID	Machine version code.
17	(11)	3		Central processor serial number.
20	(14)	2		Central processor machine model number.
22	(16)	2		Reserved.
				END OF STANDARD HEADER
24	(18)	1	RCBLCNT	Last field in the lost record summary. Contains the number of records that could not be written to the logrec data set.

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*.

Table 36. Format of the symptom record (section 1)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
0	(0)	1	HDRTYP	Class/Source:
		.1.. 11..		Symptom record; type=X'4C'.
1	(1)	1	HDROPRN	System/Release level:
		100.		OS/VS2.
		bits 3-7		
		0-1F		Release level 0-31.
2	(2)	1	HDRIS	Record-independent switches:
		x...		Reserved.
		.1..		Time-of-day (TOD) clock instruction issued. Used in conjunction with date and time values at displacement 8.
		..1.		Record truncated. (When EREP detects this bit being on, it does not
				edit record but prints it out in hexadecimal.)
		...1		Record created by MVS/SP Version 2 or 3.
		.... 1...		TIME macro used.
		xxx		Reserved.
3	(3)	3	HDRDS	Record-dependent switches:
		Byte 0		
		x...		Reserved.
		.1..		Record incomplete. (Record truncated because of lack of buffer
				space.)
		...x xxxx		Reserved.
		Byte 1		Reserved.
		Byte 2		Reserved.
6	(6)	1	HDRCNT	Not used for symptom record.
7	(7)	1		Reserved.
8	(8)	8	HDRTM	Time-of-day clock.
16	(10)	1	HDRCPID	Machine version code.
17	(11)	3		Central processor serial number.
20	(14)	2		Central processor machine model number.
22	(16)	2		Reserved.
				END OF STANDARD HEADER

Table 36. Format of the symptom record (section 1) (continued)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
24	(18)	2	ADSRID	'SR' symptom record id.
26	(1A)	4	ADSRCPM	Central processor model number.
30	(1E)	6	ADSRCPS	Central processor serial number.
36	(24)	4	ADSRGMT	Local time zone conversion factor.
40	(28)	4	ADSRTIME	Time stamp.
44	(2C)	8	ADSRTOD	Time stamp (HHMMSSTH).
52	(34)	6	ADSRDATE	Date (YYMMDD).
58	(3A)	8	ADSRSID	Customer assigned system/node name.
66	(42)	4	ADSRSYS	Product ID of BCP
70	(46)	8	ADSRCML	Feature and level of SYMREC macro.
78	(4E)	1	ADSRFL1	Record status flags.
		1...		Reserved.
		.1..	ADSRTRNC	Symptom record was truncated.
		..1.	ADSRPMOD	The section 3 symptom string has been modified.
		...1	ADSRSGEN	No record from component.
		.... 1...	ADSRSMOD	The section 4 symptom string has been modified.
		.... .111		Reserved.
79	(4F)	1	ADSRFL2	Record status flags.
		1...	ADSRNOTD	ADSRTOD and ADSRDATE have not been computed.
		.1..	ADSRASYN	Record was created asynchronously from the error.
		..11 1111		Reserved.
80	(50)	8	ADSRDTP	Type of dump taken for this event.

Table 37. Format of the symptom record (section 2)

Offset		Size (bytes) alignment (bits)	field Name	Description
Dec	Hex			
88	(58)	2	ADSRARID	Architectural level of the symptom record.
90	(5A)	2	ADSRL	Length of section 2.
92	(5C)	2	ADSRCSL	Length of section 2.1 (ADSRCMPS).
94	(5E)	2	ADSRCSO	Offset of section 2.1 (ADSRCMPS).
96	(60)	2	ADSRDBL	Length of section 3 (ADSRDBST).
98	(62)	2	ADSRDBO	Offset of section 3 (ADSRDBST).
100	(64)	2	ADSRROSL	Length of section 4 (ADSRROSD).
102	(66)	2	ADSRROSA	Offset of section 4 (ADSRROSD).
104	(68)	2	ADSRRONL	Length of section 5 (ADSR5ST).
106	(6A)	2	ADSRRONA	Offset of section 5 (ADSR5ST).
108	(6C)	2	ADSRRISL	Reserved.
110	(6E)	2	ADSRRISA	Reserved.
112	(70)	8	ADSRSRES	System data.

Table 37. Format of the symptom record (section 2) (continued)

Offset		Size (bytes) alignment (bits)	field Name	Description
Dec	Hex			
120	(78)	16		Reserved.

Table 38. Format of the symptom record (at offset ADSRCSO in ADSR) (section 2.1)

Offset		Size (bytes) alignment (bits)	Field name	Description
Dec	Hex			
0	(0)	100	ADSRCMPS	
0	(0)	4	ADSRC	Identifier for section 2.1.
4	(4)	2	ADSRCRL	Architectural level of the symptom record.
6	(6)	9	ADSRCID	Component identifier.
15	(F)	1	ADSRFLC	Component status flags.
		1...	ADSRNIBM	Non-IBM program.
		.111 1111		Reserved.
16	(10)	4	ADSRLVL	Component level.
20	(14)	8	ADSRPTF	PTF level.
28	(1C)	8	ADSRPID	PID level.
36	(24)	8	ADSRPIDL	PID release level.
44	(2C)	32	ADSRCDSC	Text description.
76	(4C)	4	ADSRRET	Return code.
80	(50)	4	ADSRREA	Reason code.
84	(54)	8	ADSRPRID	Problem identifier.
92	(5C)	8	ADSRSSID	Subsystem identifier.

Table 39. Format of the Symptom Record (at offset ADSRDBO in ADSR) (section 3)

Offset	Size (bytes) alignment (bits)	Field name	Description
Dec Hex			
ADSRDBO	variable	ADSRDBST	Primary symptom string.

Table 40. Format of the symptom record (at offset ADSRROSA in ADSR) (section 4)

Offset	Size (bytes) alignment (bits)	Field name	Description
Dec Hex			
ADSRROSA	variable	ADSRROSD	Secondary symptom string.

Table 41. Format of the symptom Record (at offset ADSRRONA in ADSR) (section 5)

Offset	Size (bytes) alignment (bits)	Field name	Description
Dec Hex			
ADSRRONA	variable	ADSR5ST	Free format data.

Chapter 10. SVC dump directory

This section is a directory for SVC dumps.

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.

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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

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.

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
z/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)

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 xxxxxxxx ABENDED, COMPON=MASTER, COMPID=SC1B8, ISSUER=IEECV6CX, ABEND=yyy, RSN=UNKNOWN

Component
Console Services (5752-SC1CK)

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:

xxxxxxxx
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=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=mmmmmmmm+xxxx ABEND=aaaaa, REASON=rrrrrrrr

Component
Job Scheduler Services (5752-BB131)

Issuing module
IEFSCHR1

Explanation
The dump title indicates an ABEND occurred during Scheduler processing. The fields in the dump title are:

aaaaa
ABEND code

rrrrrrrr
ABEND reason code

COMPON=MMS, COMPID=5752xxxxx, ABEND=aaa, MODULE=cccccccc, RPLP=rrrrrrrr,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

cccccccc
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.

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.

COMPON=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.

COMPON=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.

COMPON=IOS IDENTIFY SYSTEM WITH RESERVE, COMPID=SCIC3, ISSUER=IOSVISWR

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSVISWR

Explanation
An error occurred while IOS was attempting to identify the system holding a device reserve in order to issue message IOS431I. 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:

- 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.

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 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=SC1CK,ISSUER=IEAVBNLK ERROR DURING B/E NOLOCK WTO(R) PROCESSING

Component
Communications task (5752-SC1CK)

Issuing module
IEAVBNLK

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 (SDWAVRA) 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 ANASYSIS 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 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=ASCRE 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.

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=mmmmmmmm+oooooooo, 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:

mmmmmmmm
8 character module name which encountered the error.

oooooooo
offset within the module where the error occurred. ???? is displayed if the offset could not be determined.

xxx
system abend code

yyyyyyyy
reason code

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.

oooooooo
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)

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:

xxxxxxxx
Address of the SUMLIST parameter list

COMPON=COMMTASK, COMPID=SC1CK,ISSUER=IEAVG710 ERROR DURING CPF PROCESSING, PLIST=xxxxxxxx

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:

xxxxxxxx
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:

xxxxxxxx
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=IEECB920 ERROR DURING CMDAUTH PROCESSING, PLIST=xxxxxxxx

Component
Communications task (5752-SC1CK)

Issuing module
IEECB920

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
IEAVMFRD

Explanation
An error occurred in Communications task while IEAVMFRD 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:

xxx
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=ISGCESTA

Component
Global resource serialization (5752-SCSDS)

Issuing module
ISGCESTA

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

Explanation
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

Explanation
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=ISGRNLUF

Component
Global resource serialization (5752-SCSDS)

Issuing module
ISGRNLUF

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.

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)

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, ISGSALC, or ISGSDAL was processing
- An abend while ISGSALC 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=mmmmmmmm, EP=eeeeeeee, ABEND=S0xxx, REASON=YYYYYYYY

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:

mmmmmmmm
8 character module name which encountered the error

eeeeeeee
entry point name with the module

xxx
system abend code

yyyyyyyy
reason code, if applicable

Associated problem data
The SDWA variable recording area (SDWAVRA) 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 (SDWAVRA) 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
- 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)

Issuing module
IOSRMIHP

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=IOSRMIHR, MIHRFRR

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSRMIHR

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=IOSRMIHI-MISSING INTERRUPT HANDLER ROUTINE

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSRMIHI

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:

- IOSRMIHT 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=IOSRMIHT-MISSING INTERRUPT HANDLER ROUTINE

Component
Input/output supervisor (IOS) (5752-SC1C3)

Issuing module
IOSRMIHT

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

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, IRBHFRR

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, VPRVTFRR

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)

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 DPTHESTA 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)

Issuing module
IOSVDPDR

Explanation
An error occurred during IOSVDPDR (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.

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=IOSRSUBC(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)

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
z/OS JES3 Diagnosis

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(SXMFRR)

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

Explanation
A CMDS DUMP command was issued and IEECB890 took a dump of Master's and Console's address space.

Associated problem data
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
IIEE5203D

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=xxxxxxxx|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:

SDWAMODN
IEANUC01 (load module)

SDWACSECT
IEAVTEDS (CSECT)

SDWAREXN
IEAVTEDS (recovery CSECT)

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

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.

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=IEEVPTHR FAILED, ABEND(xxx)

Component
Reconfiguration (5752-SC1CZ)

Issuing module
IEEVPTHR

Explanation
An abend occurred during VARY PATH reconfiguration processing. The areas dumped are the main work area for module IEEVPTHR, the first request block in the chain passed to IEEVPTHR, the current request block (if any) that represents the path being processed, and, if there is a current request block, the device number and the channel path identifier for the path.

COMPON=RMF, COMPID=27401, ISSUER=GRBMFDEA, RMF MON.I CONTROL

Component
Resource measurement facility (RMF) (5665-27401)

Issuing module
GRBMFDEA - ESTAE

Explanation
An error occurred during RMF processing. The data control ESTAE routine GRBMFDEA 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 SDWAVRA contains module trace information and the problem control table (MFPCT). The failing CSECT name and the error condition can be determined from RTM2WA and SDWA.

COMPON=RMF, COMPID=27401, ISSUER=GRBMFEAR, RMF LISTEN EXITS

Component
Resource measurement facility (RMF) (5665-27401)

Issuing module
GRBMFEAR

Explanation
An abend occurred while the RMF Monitor I event arrival routine (GRBMFEAR) was processing. GRBMFEAR 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 GRBLXERV 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=27401, ISSUER=GRBMFEVT, RMF MON.I SAMPLER

Component
Resource measurement facility (RMF) (5665-27401)

Issuing module
GRBMFEVT

Explanation
An abend occurred while the RMF Monitor I MFROUTER service module (GRBMFEVT) was processing. GRBMFEVT 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=27401, ISSUER=GRBMFFUR, RMF MON.I CONTROL

Component
Resource measurement facility (RMF) (5665-27401)

Issuing module
GRBMFFUR

Explanation
An error occurred during RMF processing. The FRR lock release failure recovery routine GRBMFFUR 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=27401, ISSUER=GRBMFIDX, RMF MSCH COMPLETION

Component
Resource measurement facility (RMF) (5665-27401)

Issuing module
GRBMFIDX

Explanation
An abend occurred while the asynchronous MSCH (modify subchannel) completion module (GRBMFIDX) was processing. GRBMFIDX is scheduled as an SRB routine upon completion of an asynchronous MSCH request. The internal FRR recovery routine GRBMFIDX 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=27401, ISSUER=ERBMFMFC, RMF SESSION CONTROL

Component
Resource measurement facility (RMF) (5665-27401)

Issuing module
ERBMFMFC

Explanation
An abend occurred while the measurement facility control module (ERBMFMFC) was processing. The internal ESTAE recovery routine ABNDEXIT 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=27401, ISSUER=GRBMFMLN, ERROR RMF MON I INIT

Component
Resource measurement facility (RMF) (5665-27401)

Issuing module
GRBMFMLN

Explanation
An error occurred during RMF processing. GRBMFMLN, the ESTAE for GRBMFIZZ, receives control after any error that occurs after issuing the MFSTART SVC. GRBMFMLN 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=27401, ISSUER=GRBMFPVS, RMF VSTOR PVT SAMPLER

Component
Resource measurement facility (RMF) (5665-27401)

Issuing module
GRBMFPVS

Explanation
An abend occurred while the virtual storage private area sampling module (GRBMFPVS) was processing. GRBMFPVS receives control from GRBMFEVS 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=27401, ISSUER=GRBMFRES, MEMTERM RESOURCE MANAGER

Component
Resource measurement facility (RMF) (5665-27401)

Issuing module
GRBMFRES

Explanation
An abend occurred while the RMF memory termination resource manager (GRBMFRES) 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=27401, ISSUER=GRBMFSDE, RMF MON.I CONTROL

Component
Resource measurement facility (RMF) (5665-27401)

Issuing module
GRBMFSDE - ESTAE

Explanation
An error occurred during RMF processing. The MFSTART ESTAE routine GRBMFSDE 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=27401, ISSUER=GRBMFTMA, RMF MON.I TERMINATION

Component
Resource measurement facility (RMF) (5665-27401)

Issuing module
GRBMFTMA

Explanation
An abend occurred while the RMF termination mainline module (GRBMFTMA) was processing. GRBMFTMA receives control from either GRBMFSDE (abnormal end) or IGX00007 (normal end). The internal ESTAE recovery routine GRBMFTXR 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=27401, ISSUER=GRBMFTRM, RMF MON.I TERMINATION

Component
Resource measurement facility (RMF) (5665-27401)

Issuing module
GRBMFTRM

Explanation
An abend occurred while the RMF general resource release module (GRBMFTRM) was processing. GRBMFTRM receives control from GRBMFTMA. The internal ESTAE recovery routine GRBMFTGR 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=27401, ISSUER=GRB3GESA, MONIII GATHERER CANCEL FAILING CSECT NAME cccccccc

Component
Resource measurement facility (RMF) (5665-27401)

Issuing module
GRB3GESA - ESTAE

Explanation
An error occurred during RMF Monitor III data gathering. cccccccc is an 8-character CSECT name. The MONITOR III gatherer ESTAE routine GRB3GESA 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=27401, ISSUER=GRB3GESA, MONIII GATH RECURSION FAILING CSECT NAME cccccccc

Component
Resource measurement facility (RMF) (5665-27401)

Issuing module
GRB3GESA - ESTAE

Explanation
An error occurred during RMF Monitor III data gathering. cccccccc is an 8-character CSECT name. The MONITOR III gatherer ESTAE routine GRB3GESA 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=27401, ISSUER=GRB3GESA, FAILURE MONIII GATHERER FAILING CSECT NAME cccccccc

Component
Resource measurement facility (RMF) (5665-27401)

Issuing module
GRB3GESA - ESTAE

Explanation
An error occurred during RMF Monitor III data gathering. cccccccc is an 8-character CSECT name. The MONITOR III gatherer ESTAE routine GRB3GESA 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=27401, ISSUER=GRB3GXMV, TSO RMFWDM

COMPON=RMF, COMPID=27401, ISSUER=GRB3GXMV, sid SESSION

Component
Resource measurement facility (RMF) (5665-27401)

Issuing module
GRB3GXMV - ESTAE

Explanation
An abend occurred while the RMF Monitor III gatherer cross memory move module (GRB3GXMV) was processing. A TSO/E session or local session (where sid is the session-id) was active. GRB3GXFR 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=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 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 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 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 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)

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:

- IEASTFRR
- 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)

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)

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)

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
- 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 management (WLM)

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
Entry point AHLDMPMD in AHLWTO provides a dumping service for the GTF FGBRs (filter, gather, and build routines). xxxxxxxx indicates the FGBR affected: AHLTSLIP, AHLTSYSM, AHLTUSR, AHLTSIO, AHLTSVC, AHLTPID, 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

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.

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)*.

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*.

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

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 vvvvvvvv 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

vvvvvvvv
The JES2 version identification

mmmmmmmm
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

dddd
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 SYSMSG 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 RACLIST operand of the SETROPTS command

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

The task ended. The areas dumped are CSA, LPA, PSA, RGN, SQA, and TRT.

Associated problem data
RACF may issue message ICH409I. See *z/OS Security Server RACF Messages and Codes* for the explanation.

Problem determination
Do the following steps:

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 RACLIST.
   - 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 RACLIST 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.
   - 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 RACLIST) 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

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

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, EOV, 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, EOV, 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
Message IEC999I is issued. For additional information, see IEC999I in *z/OS MVS System Messages, Vol 7 (IEB-IEE)*.

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
Message IEC999I is issued. For additional information, see IEC999I in *z/OS MVS System Messages, Vol 7 (IEB-IEE)*.

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 IEEVLDWT (load-wait) processing. The FRR routine in IEEVLDWT 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:

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 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

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.

Associated problem data
Message IEC903I is issued. See IEC903I in *z/OS MVS System Messages, Vol 7 (IEB-IEE)*.

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.

Associated problem data
Message IEC905I is issued. See IEC905I in *z/OS MVS System Messages, Vol 7 (IEB-IEE)*.

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.

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

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

IEFAB4I0
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* 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 (IEF-IGD)* for an explanation of message IEF100I.

ISSUER=IEFAB4GA, ERRCSECT=csect, COMPID=5752-SC1B4, COMPON=DEVICE ALLOCATION-sss...sss

Component
Allocation (5752-SC1B4)

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 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 MVS Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary).

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 MVS Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary).

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 MVS Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary).

ISTATM00 - ACF/VTAM TERMINATION TASK INIT|TERM|ESTAE

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 MVS Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary).

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 MVS Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary).

JES2 FSI ERROR. CODE=cde RC=rc (text)

Component
JES2 (5752-SC1BH)

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.ddd 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:

Offset	Length	Meaning
0(0)	8	Contains the characters IGG0CLA9
8(8)	3	Entry point address of IGG0CLA9
11(B)	8	Name of the last routine called
19(13)	3	Entry point address of the last routine called
22(16)	8	Name of the calling routine
30(1E)	3	Entry point address of the calling routine
33(21)	4	Contains the characters CPL=
37(25)	28	CPL for the user

LOGREC FAILURE, COMPON=LOGREC, COMPID=SCOBR, ISSUER=xxxxxxxx, ABEND=ccc, REAS=rrrrrrrr

Component
System Environmental Recording (Logrec) (5752-SCOBR)

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 IEANTRT.
- 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, RECVMOD=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=xxxxxxxx, RECVMOD=IEEMB830

Component
System management facilities (SMF) (5752-SC100)

Issuing module
IEEMB830

Explanation
An abend occurred during SMF record processing. If xxxxxxxx is IEFU83 or IEFU84, the error occurred during processing by the installation exit. Otherwise, xxxxxxxx is IEEMB830. The areas dumped are PSA, NUC, RGN, SQA, and SUMDUMP.

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 initialization or scheduling. The ESTAE routine IKJEFLS requests an SVC dump. The areas dumped are RGN, NUC, SQA, and LPA.

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=xxxxxx

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 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

This topic provides diagnostic information for SVC dumps without titles.

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.

no title

Component
JES3 (5752-SC1BA)

Issuing module
IATIIII (IATYIIW work area)

Explanation
An abend occurred during interpreter/initiator (IATIIII) processing. The ESTAE routine established by IATIIII 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

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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).

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 42 on page 408 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 42 on page 408 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 42 on page 408 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 that component. See Component trace in *z/OS MVS Diagnosis: Tools and Service Aids* for information about requesting and formatting the component trace.

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Table 42. Summary of dump and trace information available for components

Component	IPCS Dump Command	Component Trace Name
Allocation/ Unallocation	• **ANALYZE RESOURCE subcommand** Lists jobs holding or waiting for device groups. See "ANALYZE RESOURCE subcommand output" on page 410. • **VERBEXIT ALCWAIT subcommand** Lists jobs waiting for devices. See "VERBEXIT ALCWAIT subcommand output" on page 411. • **LISTEDT HEADER subcommand** Information from the eligible devices table (EDT) control block. See "LISTEDT subcommand output" on page 411.	None
APPC	• **APPCDATA subcommand** APPC/MVS component data. See "APPCDATA subcommand" on page 413. • **ASCHDATA subcommand** APPC/MVS transaction scheduler data. See "ASCHDATA subcommand" on page 414.	SYSAPPC
ASM	• **ASMCHECK subcommand** Displays status of ASM at the time of the dump. See "ASMCHECK subcommand output" on page 443. • **VERBEXIT ASMDATA subcommand** Displays ASM control blocks. See "VERBEXIT ASMDATA subcommand output" on page 444.	None
COMMTASK	**COMCHECK MCSINFO subcommand**. See "Formatting COMMTASK dump data" on page 448.	None
Contents Supervision LLA subcomponent	None	SYSLLA
DIV	**DIVDATA SUMMARY CURRENT ERROR subcommand**. See "Formatting data-in-virtual dump data" on page 481.	None
DLF	**DLFDATA SUMMARY CURRENT subcommand**. See "Formatting DLF dump data" on page 818.	SYSVLF
GRS	**VERBEXIT GRSTRACE subcommand** displays information about the GRS component. See "VERBEXIT GRSTRACE subcommand output" on page 487.	SYSGRS
IOS	**IOSCHECK ACTVUCBS subcommand**. See "Formatting IOS dump data" on page 501.	None
MMS	**VERBEXIT MMSDATA subcommand**. See "Formatting MMS dump data" on page 507.	None
z/OS UNIX	**CBSTAT Subcommand**. See "z/OS UNIX CBSTAT subcommand" on page 515. **OMVSDATA Subcommand**. See "OMVSDATA subcommand" on page 516.	
RSM	**RSMDATA SUMMARY subcommand**. See "Formatting RSM dump data" on page 555.	SYSRSM
RTM	**SUMMARY FORMAT subcommand**. See "Formatting RTM Dump Data" on page 603.	None
SRM	**VERBEXIT SRMDATA subcommand.**. See "Formatting SRM dump data" on page 609.	None
SSI	**SSIDATA subcommand**. See "Formatting SSI Dump Data" on page 657.	None
VLF	**VLFDATA SUMMARY subcommand**. See "Formatting VLF dump data" on page 805.	SYSVLF
VSM	**VERBEXIT VSMDATA GLOBAL CURRENT ERROR subcommand**. See "Formatting VSM dump data" on page 827.	None
WLM	**WLMDATA Subcommand**. See "Formatting WLM dump data" on page 661.	SYSWLM
XCF	**COUPLE subcommand**. See "Formatting dump data using the IPCS subcommand - COUPLE" on page 753.	SYSXCF
XES	**XESDATA subcommand**. See "Formatting dump data using the IPCS subcommand - XESDATA" on page 779. **STRDATA subcommand** See "Formatting dump data using the IPCS subcommand - XESDATA" on page 779.	SYSXES

Chapter 12. Allocation/Unallocation

This topic contains diagnosis information for the allocation/unallocation component.

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 bult:

- 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.

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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.

z/OS MVS IPCS Commands gives the syntax for both subcommands and *z/OS MVS IPCS User's Guide* explains how to use the ALCWAIT and LISTEDT component analysis options of the IPCS dialog.

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 410, Job S1400 is holding resource #0001 (device group 001B), while jobs S1401 and S1402 are waiting for it:

```
      CONTENTION REPORT BY RESOURCE NAME

RESOURCE .#0001:
   NAME=Device Group 001B

RESOURCE #0001 IS HELD BY:

  JOBNAME=S1400     ASID=0013  TCB=009FA490
   DATA=(ALC) ASSOCIATED WITH 3800,SYSPR

RESOURCE #0002 IS HELD BY:

  JOBNAME=S1401     ASID=0014  TCB=009FA490
   DATA=(ALC) ASSOCIATED WITH 3800,SYSPR

  JOBNAME=S1402     ASID=0015  TCB=009FA490
   DATA=(ALC) ASSOCIATED WITH 3800,SYSPR

RESOURCE #0002:
   NAME=Device Group 001C

RESOURCE #0002 IS HELD BY:

  JOBNAME=S1400     ASID=0013  TCB=009FA490
   DATA=(ALC) ASSOCIATED WITH 3800,SYSPR,SONORA

RESOURCE #0002 IS REQUIRED BY:

  JOBNAME=S1401     ASID=0014  TCB=009FA490
   DATA=(ALC) ASSOCIATED WITH 3800,SYSPR,SONORA

  JOBNAME=S1402     ASID=0015  TCB=009FA490
   DATA=(ALC) ASSOCIATED WITH 3800,SYSPR,SONORA

RESOURCE #0003:
   NAME=Device Group 0014
.
.
.
```

Figure 5. Example: ANALYZE RESOURCE subcommand output

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 411 shows the format of this report.

```
* * * * *  SUMMARY OF JOB(S) WAITING FOR DEVICES * * * * *

JOB jjjjjjjj  ASID nnnn  WAITING FOR DEVICE(S) ASSOCIATED WITH
uuuuuuuu, uuuuuuuu, ...

JOB jjjjjjjj  ASID nnnn  WAITING FOR DEVICE(S) ASSOCIATED WITH
uuuuuuuu, uuuuuuuu, ...

JOB jjjjjjjj  ASID nnnn  WAITING FOR DEVICE(S) ASSOCIATED WITH
uuuuuuuu, uuuuuuuu, ...
```

Figure 6. Example: VERBEXIT ALCWAIT subcommand report

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 on page 411 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 TEST     ASID 012D WAITING FOR DEVICE(S) ASSOCIATED WITH
3480,T3480,3400-9,SYS3480R
```

Figure 7. Example: VERBEXIT ALCWAIT output

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 409 describes the primary EDT. Figure 8 on page 412 shows the format of this report.

```
         * * *  IEFEDT00 FORMAT    DATE: 06/02/1997   TIME: 12:51 * * *

 IEF10007I No report keyword specified.The default of HEADER is assumed.

                         ******************************
                         *         EDT HEADER         *
                         ******************************


Version = z/OS 01.08.00
ID      = IEFEDT00
Date    = 03/23/2011
Time    = 11:13
State   = Final

                                     Offset      Number of   First Entry/
                                     --------    Entries     Entry Length
                                                 ---------   ------------

Look-Up-Value Section                0D297B40    00000051    0001
Generic Section                      0D298BC8    00000072
Group Pointer Table                  0D2A0248    0000237D
Group Section                        0DB53010    00000A91
Device Number Section                0DB5D930    000014CC
Group Mask Table                     0D2992F8    00000054    00000153
Group Mask Conversion Tabl           0D1B7C78    00000A91    00000152
Preference Table                     0DB7F8E8    00000026    0001
Tape Max Eligible Table              0DB67FA0    00000007
Library Section                      0D2B1E40    00000003    00000001
Device Pool Section                  0D2B1EC0    0000000A    00000001
Compatible Generic Section           0D2B1F78    00000007
                    * * *  END OF IEFEDT00 FORMAT * * *
```

Figure 8. Example: LISTEDT subcommand 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 409 describes the secondary EDT. The report will have the same format as the report shown in Figure 8 on page 412.

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 43. APPCDATA report types . Find the right APPC report using this table as a guide.

Report name:	Report displays:	See the topic about:
STATUS	The overall status of the APPC component.	"APPCDATA STATUS subcommand output" on page 414
CONFIGURATION	The configuration of local logical units (LUs) in terms of their connections to partner LUs.	"APPCDATA CONFIGURATION subcommand output" on page 415
CONVERSATIONS	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.	"APPCDATA CONVERSATIONS subcommand output" on page 419
SERVERDATA	Information about APPC/MVS servers and allocate queues.	"APPCDATA SERVERDATA subcommand output" on page 425
FMH5MANAGER	The number of TP FMH-5 attach requests that are waiting to be processed and information about the ones currently being processed.	"APPCDATA FMH5MANAGER subcommand output" on page 435
CTRACE	The status of component trace for APPC, trace options, and other trace-related information.	"APPCDATA CTRACE subcommand output" on page 436

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:

Report level:	Displays:
SUMMARY	Summary information for the report type. If you do not request a level of detail, you will see the summary level of the report.
DETAIL	Detailed information about from a specific report type.

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Report level:	Displays:
EXCEPTION	Inconsistencies detected in a specific report type. When there are no inconsistencies, the message "No exceptions detected" is displayed. Exception reports contain: • A message containing a reason code • A hexadecimal dump of damaged areas from the dump

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.

Report level:	Displays:	See topic:
DETAIL	Detailed information about a specific scheduler class or about all scheduler classes.	"ASCHDATA DETAIL subcommand output" on page 440
SUMMARY	Summary information about a scheduler class or classes.	"ASCHDATA SUMMARY subcommand output" on page 438
EXCEPTION	Inconsistencies detected for the ASCHDATA report. When there are no inconsistencies, the message "No exceptions detected" is displayed. Exception reports contain: • A message containing a reason code • A hexadecimal dump of damaged areas from the dump.	

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 on page 414 is an example of the APPCDATA STATUS DETAIL.

```
Detail Report for STATUS
------------------------

The APPC/MVS component was ACTIVE
```

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 416 is an example of the APPCDATA CONFIGURATION SUMMARY report.

```
Summary Report for CONFIGURATION
--------------------------------

Local LU name: Z0A6AP01 Status: Active
Local LU Resource Manager Name : *NONE*
Local LU Resource Manager Token: *NONE*
Generic Resource Name:  MVSLU
Number of partners:        0
Number of partner/mode pairs:        0
Number of URs:             0
Total Expressions of Interest:        0

Local LU name: Z0A6AP02 Status: Active
Local LU Resource Manager Name : *NONE*
Local LU Resource Manager Token: *NONE*
Generic Resource Name:  *NONE*
Number of partners:        0
Number of partner/mode pairs:        0
Number of URs:             0
Total Expressions of Interest:        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
Number of partners:        0
Number of partner/mode pairs:        0
Number of URs:             0
Total Expressions of Interest:        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:  *NONE*
Number of partners:        2
Number of partner/mode pairs:        2
Number of URs:             3
Total Expressions of Interest:        4
```

Figure 10. Example: 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:  *NONE*
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:  *NONE*
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: AD49C2737EEFC0000000000401020000
 Expressions of Interest:        2

 URID: AD49C3B27EEFC2800000000501020000
 Expressions of Interest:        1

 URID: AD49C3BA7EEFC5000000000601020000
 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 APPCDATA 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 420 is an example of the APPCDATA 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: 06186D300000001A
 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 APPC/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
- Allocated to partner LU
- LOGON mode
- Current state
- Time of day

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: 0618F3F800000018 Correlator: 0618F3F800000018
  Partner TP name: TBDRIVER
  Attach user ID: DBUTLER
  Conversation type: BASIC     Sync level: SYNCPT
```

```
   URID : AD49C2737EEFC0000000000401020000
   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 : AD49C2737EEFC0000000000401020000
   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: 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

  Conversation ID: 0618F3F800000018 Correlator: 0618F3F800000018
  Partner TP name: TBDRIVER
  Attach user ID: DBUTLER
  Conversation type: BASIC     Sync level: SYNCPT
  URID : AD49C2737EEFC0000000000401020000
  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 : AD49C2737EEFC0000000000401020000
  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: 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

 Address space ID (ASID): '0025'X
 Scheduler name:  N/A

  TP name: *UNKNOWN*
  TP_ID: 06186BD000000019
  LU name: Z0A6AP04
  Work Unit ID:  N/A

   Conversation ID: 061901300000001B 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
   Allocated to Partner LU: USIBMZ0.Z0A6AP04  Logon mode: TRANPAR
   Current state: SEND

 Address space ID (ASID): '0026'X
 Scheduler name:  N/A

  TP name: *UNKNOWN*
  TP_ID: 06186E900000001B
  LU name: Z0A6AP04
  Work Unit ID:  N/A

   Conversation ID: 06190A000000001D Correlator: 06190A000000001D
   Partner TP name: MARINER
   Attach user ID: DBUTLER
   Conversation type: BASIC     Sync level: SYNCPT
   URID : AD49C3B27EEFC2800000000501020000
   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 on page 427), 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:02D5C97000000002
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: 02D5CA7000000003
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: 02D5C87000000001
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.

```
Detail Report for SERVERDATA

ALLOCATE QUEUES

  TP name: TOM001
  Local LU name:  M05AP003
  User ID: *           Profile: *           Partner LU name: *
  Queue token: 02D2787000000001
  Current servers:        2     Current allocates:                1
  Total allocates:        1     Pending receive allocates:        0
  Keep time:         0
  Time created:            04/12/1996 15:06:41.106149
  Time of last receive:    *NONE*
  Time of last unregister: *NONE*

SERVERS

  Address space ID (ASID): 0017
  Register time:                 04/12/1996 15:06:59.369960
  Time of last receive issued:   *NONE*
  Time of last receive returned: *NONE*
  Total allocates received:        0

  Address space ID (ASID): 0012
  Register time:                 04/12/1996 15:06:41.106149
  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: 03E2489800000002
  Access Method Conversation ID: 65086256
  Conversation type: BASIC       Conversation correlator: 00000000
  Mode name: TRANPAR          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

  TP name: TOM001
  Local LU name:  M05AP004
  User ID: *           Profile: *           Partner LU name: *
  Queue token: 02D2797000000002
  Current servers:        3     Current allocates:                1
  Total allocates:        1     Pending receive allocates:        0
  Keep time:         0
  Time created:            04/12/1996 15:06:41.106149
  Time of last receive:    *NONE*
  Time of last unregister: *NONE*
```

```
SERVERS

  Address space ID (ASID): 0025
  Register time:                 04/12/1996 15:15:01.602451
  Time of last receive issued:   *NONE*
```

```
  Time of last receive returned:  *NONE*
  Total allocates received:         0

  Address space ID (ASID): 0024
  Register time:                   04/12/1996 15:13:16.619798
  Time of last receive issued:    *NONE*
  Time of last receive returned:  *NONE*
  Total allocates received:         0

  Address space ID (ASID): 0023
  Register time:                   04/12/1996 15:10:40.197114
  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: 65086364
  Conversation type: BASIC       Conversation correlator: 00000000
  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: 02D27A7000000003
      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: 02D27970000000002
      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): 0023          Outstanding GET_EVENT: NO

   EVENTS

    No events found for this server.

   QUEUE TOKEN ELEMENTS

      Allocate queue token: 02D27970000000002
      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): 0017          Outstanding GET_EVENT: NO

   EVENTS

    No events found for this server.

   QUEUE TOKEN ELEMENTS

      Allocate queue token: 02D27870000000001
      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): 0012          Outstanding GET_EVENT: NO

   EVENTS

    No events found for this server.

   QUEUE TOKEN ELEMENTS

     Allocate queue token: 02D27870000000001
     Minimum one-time event threshold:        *NONE*
     Maximum one-time event threshold:        *NONE*
     Minimum continuous event threshold:      *NONE*
     Maximum continuous event threshold:      *NONE*
```

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 zeros.

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 zeros).

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 on page 436 shows an example of the APPCDATA FMH5MANAGER DETAIL report.

```
Detail Report for FMH-5 MANAGER
-------------------------------

FMH-5 requests outstanding

  Local LU name: M04AP001    Total requests for this local LU:     5
   Partner LU name: M04AP001    Number of requests:     5

FMH-5 requests being processed

  Local LU name: M04AP001    Total requests for this local LU:     6
   Partner LU name: M04AP001    Number of requests:     6
    FMH-5 Request data
     120502FF  0003D000  0007D4E3  D9C1D5E2  | ......}...MTRANS |
     E700                                    | X.               |
    FMH-5 Request data
     120502FF  0003D000  0007D4E3  D9C1D5E2  | ......}...MTRANS |
     E700                                    | X.               |
    FMH-5 Request data
     120502FF  0003D000  0007D4E3  D9C1D5E2  | ......}...MTRANS |
     E700                                    | X.               |
    FMH-5 Request data
     120502FF  0003D000  0007D4E3  D9C1D5E2  | ......}...MTRANS |
     E700                                    | X.               |
    FMH-5 Request data
     120502FF  0003D000  0007D4E3  D9C1D5E2  | ......}...MTRANS |
     E700                                    | X.               |
    FMH-5 Request data
     120502FF  0003D000  0007D4E3  D9C1D5E2  | ......}...MTRANS |
     E700                                    | X.               |
```

Figure 13. Example: 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 on page 438 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:

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 on page 441 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): '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

 Total number of active waiting MULTI_TRANS initiators:        2

   Address space ID (ASID): '0017'X
   TP name: TPMAINM

   Address space ID (ASID): '0019'X
   TP name: TPMAINM

 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
- 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 ASMVT AT 00FE0A00
ASM10001I  52382 I/O REQUESTS RECEIVED,  52382 COMPLETED
ASM10006I  33935 NON-SWAP WRITE I/O REQUESTS RECEIVED,  33935 COMPLETED
ASM10000I ASMVX AT 0263A0B8
ASM10007I  17923 4K SCM I/O REQUESTS RECEIVED,  17923 COMPLETED
ASM10008I  16211 4K SCM WRITE REQUESTS RECEIVED,  16211 COMPLETED
ASM10009I  8 1M SCM I/O REQUESTS RECEIVED,  8 COMPLETED
ASM10010I  6 1M SCM WRITE REQUESTS RECEIVED,  6 COMPLETED
ASM10000I PART AT 024C1A10
ASM10002I PARTE AT 024C1A60: PAGE DATA SET 0 IS ON UNIT 02E6
ASM10002I PARTE AT 024C1AC0: PAGE DATA SET 1 IS ON UNIT 02E7
ASM10011I PARTE AT 0247ACCC: STORAGE-CLASS MEMORY
```

The following information appears in the report if storage-class memory (SCM) is used for paging:

ASMVT AT *aaaaaaaa*
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 *aaaaaaaa*
The address of the ASM extension table (ASMVX).

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***nnnnn nnnn*K|M SCM I/O|WRITE REQUESTS RECEIVED *nnnnn* COMPLETED**
The number, size, and type of SCM requests received and completed.

PART AT *aaaaaaaa*
The address of the paging activity reference table (PART).

PARTE AT *aaaaaaaa*
The address of the paging activity reference table entry (PARTE).

The following report is an example of ASMCHECK subcommand output if storage-class memory (SCM) is not used for paging:

```
ASMVT AT 00FCFC10
4190 I/O REQUESTS RECEIVED, 4189 I/O REQUESTS COMPLETED BY ASM
PART AT 01C54470
PAGE DATA SET 0 IS ON UNIT E31
PAGE DATA SET 1 IS ON UNIT E31
I/O REQUEST ACTIVE FOR ABOVE DATA SET
IOSB FOR ABOVE HAD ABNORMAL IOSCOD VALUE X'51'
PAGE DATA SET 3 IS ON UNIT 450
PAGE DATA SET 4 IS ON UNIT 230
```

The following information appears in the report if storage-class memory (SCM) is not used for paging:

ASMVT AT *aaaaaaaa*
The address of the ASM vector table (ASMVT).

***nnnn* I/O REQUESTS RECEIVED**
The number of 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).

PART AT *aaaaaaaa*
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.

Acronym
Common Name

ASMHD
Header

ASMVT
Vector table

DEIB
Data extent information block

IORB
I/O request block

IOSB
I/O supervisor block

LGVT
Logical group vector table

PART
Paging activity reference table

PAT
Paging allocation table

PCCW
Paging channel command work area

PCT
Performance characteristics table

SRB
Service request block

SUMMARY Report
Produces a summary report of the paging-related control blocks.

Acronym
Common Name

ASMVT
Vector table

DEIB
Data extent information block

IORB
I/O request block

IOSB
I/O supervisor block

PART
Paging activity reference table

PAT
Paging allocation table (PATMAP is excluded)

PCCW
Paging channel command work area (only PCCWs that are in use are formatted)

PCT
Performance characteristics table

SRB
Service request block

VIO Report
VIO produces a summary report of the virtual I/O related control blocks:

Acronym
Common Name

ASMHD
Header

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 (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary).

Chapter 15. Communications task (COMMTASK)

Communications task (COMMTASK) provides diagnostic data in dumps. This topic contains diagnosis information for COMMTASK.

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 X'A2B' 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:

```
       ***NIP MESSAGES ON THE DELAYED ISSUE QUEUE***

WQE ADDRESS   DATE     TIME      MESSAGE TEXT

   01FE4560   89187   08:40:10   THIS IS THE 1ST NIP TIME SVC 35
   01FE5060   89187   08:42:10   THIS IS THE 2ND NIP TIME SVC 35
   01FE6060   89187   08:43:10   THIS IS THE 3RD NIP TIME SVC 35
   01FE7060   89187   09:44:10   THIS IS CONTROL LINE OF
                                 MULTI-LINE NIP TIME SVC 35
                                 THIS IS 1ST DATA LINE
                                 THIS IS 2ND DATA LINE
                                 THIS IS THE DATA END LINE
   01FEA060   89187   10:48:10   THIS IS A NIP TIME ACTION MESSAGE

    ***BRANCH ENTRY MESSAGES ON THE DELAYED ISSUE QUEUE***

WQE ADDRESS   DATE     TIME     MESSAGE TEXT

   01FE8560   89187   09:50:10  THIS IS THE 1ST BE WTO
   01FE9060   89187   09:52:10  THIS IS THE 2ND BE WTO
   01FEA060   89187   09:53:10  THIS IS THE 3RD BE WTO
   01FEB060   89187   09:54:10  THIS IS CONTROL LINE OF
                                MULTI-LINE BE WTO
                                THIS IS 1ST DATA LINE
                                THIS IS 2ND DATA LINE
                                THIS IS THE DATA END LINE
   01FEA060   89187   09:58:10  THIS IS A BE WTO ACTION MESSAGE
```

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.

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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 44. COMMTASK report types

Keyword	Report displays	Explanation topic
DATABLKS	Information that IBM might request for problem determination.	"COMCHECK DATABLKS subcommand output" on page 449
LISTNAMES	Lists the console names defined to the specified keyname.	"COMCHECK LISTNAMES subcommand output" on page 449
MCSINFO	Information about message queueing and console management.	"COMCHECK MCSINFO subcommand output" on page 449
NAME or ID	Formats a multiple console support (MCS), SMCS or extended MCS console for the specified console name or identifier.	"COMCHECK NAME or ID subcommand output" on page 450
NAMELIST	Lists all console names defined within a sysplex at the time of the dump.	"COMCHECK NAMELIST subcommand output" on page 454

Table 44. COMMTASK report types (continued)

Keyword	Report displays	Explanation topic
RDCM	Status of device independent display operator console support (DIDOCS) resident display control modules (RDCM).	"COMCHECK RDCM subcommand output" on page 454
SBC	Information about the delayed issue queue.	"COMCHECK SBC subcommand output" on page 456
SYSCONS	Status of the system console.	"COMCHECK SYSCONS subcommand output" on page 458
SYSPLEX	Information that IBM might request for problem determination.	"COMCHECK SYSPLEX subcommand output" on page 464, "COMCHECK SYSPLEX(SYSMEM) subcommand output" on page 467
TDCM	Status of DIDOCS pageable display control modules (TDCM).	"COMCHECK TDCM subcommand output" on page 468
UCM	Summary of the unit control module (UCM) base, prefix, and extension.	"COMCHECK UCM subcommand output" on page 470
UCME	Status of MCS or SMCS consoles.	"COMCHECK UCME subcommand output" on page 474
UPDATES	Information that IBM might request for problem determination.	"COMCHECK UPDATES subcommand output" on page 480

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.

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:

```
                    COMMUNICATION 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 (UCMWQNR) 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
```

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 the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary).

Message IEA31004I
The number of WQEs for this console.

Message IEA31005I
Indicates that an operator reply (ORE) was outstanding.

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(*nnnnnnnn*) or COMCHECK ID(*iiiiiiii*) report:

```
                COMMUNICATION TASK ANALYSIS
                EXTENDED CONSOLE INFORMATION

   OPERATOR DATA
      NAME:                        CONSID1
      CONSOLE ID:                  02000001
      TERMINAL:                    LOCAL320
      KEY:                         NONE
      SYSTEM NAME:                 SYSA
      NUMBER OF MESSAGES QUEUED:   N/A
   OPERATOR ATTRIBUTES
      STATUS:                      ACTIVE
      AUTHORITY:                   INFO
      MESSAGE FORMAT:              MESSAGE
      MESSAGE TYPE:                NONE
      MESSAGE LEVEL:               WTOR
                                     IMMEDIATE ACTION
                                     CRITICAL EVENTUAL ACTION
                                     EVENTUAL ACTION
                                     INFORMATIONAL
                                     BROADCAST
      QUEUING FLAG:                NONE
      DOM FLAG:                    NORMAL
      CMDSYS:                      SYSCONS1
      RECEIVES AUTO MESSAGES:      NO
      RECEIVES HARDCOPY MESSAGES:  NO
      RECEIVES INTIDS MESSAGES:    YES
      RECEIVES UNKNIDS MESSAGES:   YES
      ALERT PERCENTAGE:            100
      RESUME PERCENTAGE:           70
      CONSOLE STATUS AREA ALET:    0102001B
      CONSOLE STATUS AREA ADDRESS: 000014A0
      ROUTING CODES:               NONE
      MSCOPE LIST:                 *ALL
```

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 CONSOL*xx* 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 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 vlaues:

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.

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:

```
          CONSOLE TASK ANALYSIS

NAME     ID       TYPE      ACTIVE ON SYSTEM
-------- -------- --------- -----------------
CONS01   00000001 MCS       SY1
CONS02   00000004 MCS       SY2
CONS03   00000005 MCS
CONS04   00000006 MCS
EMCS101  03000001 EMCS      SY1
EMCS102  02000003 SYSCONS   SY2
MCSY1    00000002 MCS       SY1
MCSY2    00000003 MCS       SY2
SMCS22   00000014 SMCS      SY1
SS1      00000012 SUBSYSTEM SY1
```

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 CONSOL*xx* 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:

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:

```
                    COMMUNICATION TASK ANALYSIS

                         RDCM INFORMATION

CONSOLE ID:                       0000000E
RDCM ADDRESS:                     00580C18
CONSOLE NAME:                     CON0A0
CONSOLE TYPE:                     MCS
PFK KEYS ARE OPERATIONAL:         YES
PFK BUFFER ADDRESS:               005823E8
LENGTH OF PFK BUFFER:                3096
PREVIOUS CONSOLE USE WAS:         FULL I/O CAPABILITY
STATUS DISPLAY CONSOLE:           YES
NUMBER OF LINES IN MESSAGE AREA:       28
```

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 CONSOL*xx* 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 PFKTAB*xx* 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:

```
                  COMMUNICATION TASK ANALYSIS
          BRANCH-ENTRY AND NIP WTO/WTOR/DOM INFORMATION

DELAYED ISSUE QUEUE BROKEN:                                NO
DELAYED ISSUE QUEUE FULL:                                  NO
DELAYED ISSUE TASK IS PROCESSING DELAYED ISSUE QUEUE:      NO
DELAYED ISSUE SRB CAN BE SCHEDULED:                        YES
NIP WTO/WTOR/DOM  PROCESSING ACTIVE:                       NO
NUMBER OF ACTION/WTOR MESSAGES NOT LOGGED:                 0
TOTAL NUMBER OF MESSAGES NOT LOGGED:                       0
TOTAL NUMBER OF SYNCHRONOUS MESSAGES NOT DISPLAYED:        0
NUMBER OF NIP MESSAGES ON THE DELAYED ISSUE QUEUE:         0
TOTAL NUMBER OF MESSAGES ON THE DELAYED ISSUE QUEUE:       0
NUMBER OF NIP DOM REQUESTS ON THE DELAYED ISSUE QUEUE:     0
TOTAL NUMBER OF DOM REQUESTS ON THE DELAYED ISSUE QUEUE:   0
INFORMATIONAL MESSAGES SUPPRESSED DURING NIP:              YES
NUMBER OF INFORMATIONAL MESSAGES SUPPRESSED DURING NIP:    801
TOTAL NUMBER OF BWJE REQUESTS ON THE DELAYED ISSUE QUEUE:    0
```

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:

YES
The system initialization service that processes WTO, WTOR and DOM requests is active.

NO
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.

NUMBER OF ACTION/WTOR MESSAGES NOT LOGGED
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

TOTAL NUMBER OF MESSAGES NOT LOGGED
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.

TOTAL NUMBER OF SYNCHRONOUS MESSAGES NOT DISPLAYED
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.

NUMBER OF NIP MESSAGES ON THE DELAYED ISSUE QUEUE
The number of messages on the delayed issue queue that were issued during system initialization.

TOTAL NUMBER OF MESSAGES ON THE DELAYED ISSUE QUEUE
The total number of messages on the delayed issue queue.

NUMBER OF NIP DOM REQUESTS ON THE DELAYED ISSUE QUEUE
The number of DOM requests on the delayed issue queue that were made during system initialization.

TOTAL NUMBER OF DOM REQUESTS ON THE DELAYED ISSUE QUEUE
The total number of DOM requests on the delayed issue queue.

INFORMATIONAL MESSAGES SUPPRESSED DURING NIP
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.

NUMBER OF INFORMATIONAL MESSAGES SUPPRESSED DURING NIP
The total number of informational messages suppressed during system initialization. If informational messages are not suppressed during NIP processing, this field contains zero.

TOTAL NUMBER OF BWJE REQUESTS ON THE DELAYED ISSUE QUEUE
The number of job-end requests on the delayed issue queue.

COMCHECK SYSCONS subcommand output

The COMCHECK SYSCONS subcommand gives information on the status of the system console.

The following is an example of a report generated when the COMCHECK SYSCONS subcommand is entered:

```
                  COMMUNICATION TASK ANALYSIS
       SYSTEM CONSOLE INFORMATION

OPERATOR DATA
NAME:                          SYSCONS1
CONSOLE ID:                    01000001
TERMINAL:                      SY1
KEY:                           SYSCONS
SYSTEM NAME:                   SY1
NUMBER OF MESSAGES QUEUED:     0
OPERATOR ATTRIBUTES
STATUS:                        ACTIVE
AUTHORITY:                     MASTER
MESSAGE FORMAT:                MESSAGE
MESSAGE TYPE:                  NONE
MESSAGE LEVEL:                 WTOR
IMMEDIATE ACTION
CRITICAL EVENTUAL ACTION
EVENTUAL ACTION
INFORMATIONAL
QUEUING FLAG:                  FIFO
DOM FLAG:                      NORMAL
CMDSYS:                        SY1
PROBLEM DETERMINATION MODE:    YES
RECEIVES AUTO MESSAGES:        NO
RECEIVES HARDCOPY MESSAGES:    NO
RECEIVES INTIDS MESSAGES:      NO
RECEIVES UNKNIDS MESSAGES:     NO
ALERT PERCENTAGE:              80
RESUME PERCENTAGE:             30
CONSOLE STATUS AREA ALET:      01FF0009
CONSOLE STATUS AREA ADDRESS:   00002000
ROUTING CODES:                 NONE
MSCOPE LIST:                   *ALL

CONSOLE NAME:                                          SYSCONS1
CONSOLE ID:                                            01000001
SYSTEM CONSOLE ACTIVE:                                 YES
PROBLEM DETERMINATION MODE:                            YES
PROBLEM DETERMINATION MODE CHANGE IN PROGRESS:         NO
SYSTEM CONSOLE RECEIVING ONLY SYNCHRONOUS MESSAGES:    YES
ABEND OCCURRED IN SYSTEM CONSOLE DOM LIST:             NO
SYSTEM CONSOLE DOM LIST VALID:                         YES
NUMBER OF MESSAGES HELD ON SYSTEM CONSOLE DOM LIST:    0
     OPERATOR INPUT LISTENER EXIT TOKEN:                 02FF0888
     PRIORITY OPERATOR INPUT LISTENER EXIT TOKEN:        02FF0850
MACHINE CHECK LISTENER EXIT TOKEN:                     02FF06D8
STATE CHANGE OUTPUT LISTENER EXIT TOKEN:               02FF06A0
OUTPUT TASK ECB:                                       809FF910
OPERATOR INPUT TASK ECB:                               809FF910
     PRIORITY OPERATOR INPUT TASK ECB:                   809FF910
ALERT ECB:                                             809FA510
MESSAGE ECB:                                           809FA510
20 MINUTE ECB:                                         809FA510
2 MINUTE ECB:                                          809FA510
STATE CHANGE ECB:                                      809FA510
```

The following fields appear in the report:

NAME
The System console name defined in the CONSOLxx parmlib member at system initialization.

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.

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
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 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 CONSOL*xx* 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 SYSCN*xxx*, 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.

NO
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 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 450 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:                     7F418B34
       UPDATE SUBTASK QUEUE TAIL:                     7F417F34
       SEND TASK QUEUE HEAD:                          7F511E4D
       SEND TASK QUEUE TAIL:                          7F511E4D
       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
           Number of Msgs | Local Date and Time
           ------------------------------------------------
                        2    10/27/2003 15:47:19.005037
                        1    10/27/2003 15:49:56.643271
                        1    10/27/2003 15:49:59.890812
                        1    10/27/2003 15:50:16.901681
                        2    10/27/2003 16:00:29.948938
                        1    10/27/2003 16:03:47.594757
                        1    10/27/2003 16:03:47.819875
                        1    10/27/2003 16:03:47.823706
                        1    10/27/2003 16:03:48.888812
```

```
                 1    10/27/2003 16:03:49.032849
                 1    10/27/2003 16:03:49.040494
                 1    10/27/2003 16:03:49.742174
                 1    10/27/2003 16:03:49.872096
                 1    10/27/2003 16:03:49.873716
                 1    10/27/2003 16:17:11.985856
                 1    10/27/2003 16:46:08.182479


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 15:47:14.504806
                 1    10/27/2003 15:47:14.527562
                 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
                 9    10/27/2003 15:49:56.664143
                 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 16:03:49.728921


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
   ------------------------------------------------
     -                 -
             2,076    10/27/2003 15:59:25.030875
             8,293    10/27/2003 16:01:06.038581


MAJOR-LINE MSGCHAIN TRIMS: 7,493
MAJOR-LINE MSGCHAIN SCANS:     2

         MAJOR-LINE MSGCHAIN SCAN TRACE
    Number of Msgs | Local Date and Time
   ------------------------------------------------
     -                 -
               126    10/27/2003 15:59:25.030875
                 1    10/27/2003 15:59:46.405843


MINOR-LINE MSGCHAIN TRIMS: 59,944
MINOR-LINE MSGCHAIN SCANS:      2
```

```
          MINOR-LINE MSGCHAIN SCAN TRACE
     Number of Msgs | Local Date and Time
    ------------------------------------------------
       -             -
           1,008     10/27/2003 15:59:25.030875
               8     10/27/2003 15:59:46.405843


SINGLE-LINE MSGBLDQ TRIMS: 0
SINGLE-LINE MSGBLDQ SCANS: 0

          SINGLE-LINE MSGBLDQ SCAN TRACE
     Number of Msgs | Local Date and Time
    ------------------------------------------------
       -             -
       -             -


MAJOR-LINE MSGBLDQ TRIMS: 0
MAJOR-LINE MSGBLDQ SCANS: 0

          MAJOR-LINE MSGBLDQ SCAN TRACE
     Number of Msgs | Local Date and Time
    ------------------------------------------------
       -             -
       -             -

MINOR-LINE MSGBLDQ TRIMS: 0
MINOR-LINE MSGBLDQ SCANS: 0

          MINOR-LINE MSGBLDQ SCAN TRACE
     Number of Msgs | Local Date and Time
    ------------------------------------------------
       -             -
       -             -

LATE MINOR-LINE TRIMS: 14,984
LATE MINOR-LINE SCANS:      1

          LATE MINOR-LINE SCAN TRACE
     Number of Msgs | Local Date and Time
    ------------------------------------------------
       -             -
                 252 10/27/2003 15:59:26.293055


LOST MINOR-LINE TRIMS: 14,984
LOST MINOR-LINE SCANS:      1

          LOST MINOR-LINE SCAN TRACE
     Number of Msgs | Local Date and Time
    ------------------------------------------------
       -             -
                 252 10/27/2003 15:59:26.293055
```

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:

```
                  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(SYSMEM) 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:

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:

```
                    COMMUNICATION TASK ANALYSIS

                         TDCM INFORMATION

CONSOLE ID:                              0000000E
CONSOLE TYPE:                            MCS
TDCM ADDRESS:                            00580C90
CONSOLE NAME:                            CON0A0
CONVERSATIONAL MODE:                     NO
MESSAGE DELETION MODE:                   ROLL DELETABLE
MESSAGE ROLL TIME(SECONDS):                     1
MESSAGE ROLL NUMBER(LINES):                    28
MESSAGE SEGMENTATION(LINES):                   28
NUMBER OF LINES IN MESSAGE AREA:               28
ADDRESS OF SCREEN IMAGE BUFFER:          00581180
ADDRESS OF OUT OF LINE SIB:              0066916C
ADDRESS OF CHANNEL PROGRAM AREA:         005810D8
```

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 CONSOL*xx* 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 CONSOL*xx* parmlib member) roll off the screen at a specified time interval (the value of RTME in CONSOL*xx*).

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 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:

```
                    COMMUNICATION TASK ANALYSIS

                           UCM INFORMATION
ADDRESS OF FIRST ORE:                 03EC7340
ADDRESS OF LAST ORE:                  03EC7670
CURRENT NUMBER OF ORE:                       7
ORE LIMIT:                                  99
WTOR SHORTAGE:                        NO
ADDRESS OF FIRST WQE:                 004E6878
ADDRESS OF LAST WQE:                  005C83DC
CURRENT NUMBER OF WQE:                       8
WQE LIMIT:                                9999
WQE SHORTAGE:                         NO
WQE STORAGE EXHAUSTED:                NO
MESSAGES DISCARDED WHILE WQES EXHAUSTED: 0
DOM IDS HAVE WRAPPED:                 NO
IEAVMXIT:                             ACTIVE
AMRF ACTIVE:                          YES
AMRF FAILED:                          NO
ADDRESS OF FIRST UCME:                00FD63D0
ADDRESS OF LAST UCME:                 00FD7E10
HOLDMODE SPECIFIED:                   NO
DEFAULT LOGON SPECIFICATION:          AUTOLOG
SYSTEM IS MEMBER OF SYSPLEX:          YES
CURRENT SYSTEM NAME:                  P01
CURRENT SYSTEM ID:                           27
ACTIVE PFK SUFFIX:                    00
INITIAL CONSOLXX SUFFIX:              9J
COMM TASK ASID:                              10
COMM TASK TCB ADDRESS:                005F9578
IEEVWAIT RESTARTED:                   NO
HCFORMAT OF CENTURY WAS SPECIFIED:    NO
SMCS STATUS:                          ACTIVE
SMCS APPLICATION ID:                  SMCS01
SMCS APPLICATION ID IN USE BY SYS:    SMCS01
SMCS GENERIC ID IN USE BY SYSTEM:     *NONE*
SMCS SYSPLEX WIDE GENERIC ID:         *NONE*
SMCS ACB ADDRESS:                     7F4BFE98
IEECVSMA TCB ADDRESS:                 006F5A60
SMCS SETLOGON RPL ADDRESS:            7F4BFF04
SMCS NIB ADDRESS:                     7F4BFFBC
SMCS END OF TASK ECB ADDRESS:         806FDDC0
HARDCOPY/SYSLOG ROUTING CODES:
  ROUTING CODES:                 1-128
```

The following fields appear in the report:

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'FFFFFF' 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'FFFFFF'.

IEAVMXIT
One of the following:

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 CONSOL*xx*.

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 PFKTAB*xx* 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.

INITIAL CONSOLXX SUFFIX
The 2-character suffix for the CONSOL*xx* parmlib member at the time the dump was written. It contains console statements or other parameters that, in conjunction with the members MPFLST*xx* and PFKTAB*xx*, control the following:

- 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 CONSOL*xx* 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 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*):

```
                    COMMUNICATION TASK ANALYSIS

                         CONSOLE INFORMATION

CONSOLE DATA
  NAME:                          MCSY13E0
  CONSOLE ID:                    00000001
  CONSOLE TYPE:                  MCS
  USERID IF LOGGED ON:           N/A
  CONSOLE LOGON SETTING:         OPTIONAL
  DEVICE NUMBER:                 03E0
  UCB ADDRESS:                   00F07968
  UCME ADDRESS:                  00FDB084
  CDU ADDRESS:                   00000000
  SYSTEM NAME:                   SY1
  NUMBER OF MESSAGES QUEUED:     0
CONSOLE ATTRIBUTES
  STATUS:                        ACTIVE
  AUTHORITY:                     MASTER
  MESSAGE FORMAT:                SYSNAME
  MESSAGE TYPE:                  NONE
  MESSAGE LEVEL:                 WTOR
                                 IMMEDIATE ACTION
                                 CRITICAL EVENTUAL ACTION
                                 EVENTUAL ACTION
                                 INFORMATIONAL
                                 BROADCAST
  CONSOLE USE:                   DISPLAY CONSOLE
                                 FULL I/O CAPABILITY
  CONVERSATIONAL MODE:           NO
  ATTRIBUTES ASSIGNED BY SYS:    NO
  MESSAGE DELETION MODE:         ROLL DELETABLE
  MESSAGE ROLL TIME(SECONDS):    1/4
  MESSAGE ROLL NUMBER(LINES):    25
  MESSAGE SEGMENTATION(LINES):   43
  NUMBER OF ROWS ON SCREEN:      90
  NUMBER OF COLUMNS ON SCREEN:   90
  PFK SUFFIX IN PARMLIB:         N/A
  PFK TABLE NAME:                01
  CMDSYS:                        SY1
  SYSTEM FOR ACTIVATION:         SY1
  INACTIVITY TIMEOUT (MINUTES):5
  ROUTING CODES:                 1-128
  CONSOLE AREA:                  Z,A
  MSCOPE LIST:                  *ALL
```

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 CONSOL*xx* 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.

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 CONSOL*xx* 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.

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 CONSOL*xx* 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 CONSOL*xx*) roll off the screen at a specified time interval (the value of RTME in CONSOL*xx*).

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.

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.

MSCOPE 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.

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 45 on page 481 summarizes the report subcommand keywords for IPCS DIVDATA.

Table 45. Summary: report subcommand keywords for IPCS DIVDATA

IPCS subcommand and parameter	When to use:
DIVDATA DETAIL	The system issues message ITV10008I or other messages, or the keys in the SDWAVRA are 228 through 230
DIVDATA EXCEPTION	Incorrect output occurs
DIVDATA FULLTRACE	Output from DIVDATA EXCEPTION or SUMMARY indicates trace records were created by data-in-virtual
DIVDATA SUMMARY	A performance problem, abend, or incorrect output occurs
DIVDATA TRACE	Output from DIVDATA EXCEPTION or SUMMARY indicates trace records were created by data-in-virtual for the requested address space(s)

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

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- 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 483.

DIVDATA SUMMARY subcommand output

The DIVDATA SUMMARY report (Figure 16 on page 482) 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    *** ***

                     **********************************
                     *                                *
                     *    DIVDATA SUMMARY REPORT      *
                     *                                *
                     **********************************
 DIB: 01022E28

  +0000  ID....... DIB       DIBX..... 011F5780  INDR..... 81022708
  +000C  OUTDR.... 81022858  DIEDA.... 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  DDNM.....           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)

```
TRACE SELECTION PARAMETERS:


  THE FOLLOWING CLASSES OF TRACE EVENTS WERE REQUESTED:

    User entry to and return from Data-In-Virtual
    Error


                    TRACE TABLE ENTRY STATISTICS
                    ----------------------------

                                                    Met
                                                 Selection
                                                 Criteria         Total
                                                 ---------      ---------
 User entry to and return from Data-In-Virtual          26             26
 I/O Driver                                              0              0
 VDAC                                                    0              0
 Error                                                   0              0
                                                 ---------      ---------
 TOTAL in trace table                                   26             26

*********************************************************************************
  DATA-IN-VIRTUAL DATA FOLLOWS FOR ASID(X'000B'), JOBNAME IS LPKTST3
*********************************************************************************
ITV10003I The ASID X'000B' (with ASCB at address 00F38380) meets the following
             selection criteria:
                    ALL ASIDs were requested
=================================================================================
  DOA QUEUE FOLLOWS FOR TCB AT ADDRESS 00AF3838, STCB AT ADDRESS 7FFFE0C0
=================================================================================
 DOA      TYPE     OBJECT STOKEN     SERVICE  I/O DOAFLAGS ACMOD
  -------- -------- ----------------- -------- --- -------- --------
  7FFFE008 HS       80000400 00000004 SAVE     YES 80000000 UPDATE
    WCB       WCBFLAGS WCBFBNO  WCBLBNO  WCBSWIND WCBEWIND WCBSTOKN
     --------  -------- -------- -------- -------- -------- -----------------
     7FFD1800  00000000 00000001 00000300 02100000 023FF000 00000000 00000000
ITV10007I The number of correctly queued WCBs that could be accessed from the
             dump is 1. The number of WCBs indicated by DOANOWCB is 1.
 DOA      TYPE     DDNAME            SERVICE  I/O DOAFLAGS ACMOD
  -------- -------- ---------------- -------- --- -------- --------
  7FFD1E08 DA       DD1               INACTIVE NO  D0000000 UPDATE
    WCB       WCBFLAGS WCBFBNO  WCBLBNO  WCBSWIND WCBEWIND WCBSTOKN
     --------  -------- -------- -------- -------- -------- -----------------
     7FFFE3C0  00000000 00000001 00000300 00001000 00300000 80000400 00000004
ITV10007I The number of correctly queued WCBs that could be accessed from the
             dump is 1. The number of WCBs indicated by DOANOWCB is 1.
ITV10006I The number of correctly queued DOAs of TYPE=DA that could be
             accessed from the dump is 1
ITV10006I The number of correctly queued DOAs of TYPE=HS that could be
             accessed from the dump is 1
              *** ***    END OF DATA-IN-VIRTUAL DATA    *** ***
```

Figure 17. Example: DIVDATA SUMMARY subcommand output (Part 2)

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 46 on page 484 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: Authorized Assembler Services Reference ALE-DYN* for information about using the DIV macro.

Table 46. Summary: Checks for programming problems for data-in-virtual

For a Problem With:	Check the Following:
Application program that needs mapped virtual storage to retain values after issuing DIV macro UNMAP request	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.
DDNAME and disposition used for the data object specified on a DIV macro IDENTIFY request	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.
The linear data set for a DIV macro IDENTIFY request (TYPE=DA)	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 *z/OS DFSMS Access Method Services Commands*.
MAP, IDENTIFY, and ACCESS requests made by the same task	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.
Mapping the data object in a data space	Consider the following: • 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. • 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. • Ensure that the data space is not a DREF data space. • Ensure that the range of the data object to be mapped does not exceed the size of the data space.
Mapping the data object in an address space	If several tasks use the same data object, ensure that each task obtains a mapping of the data in one of the following ways: • With a DIV macro MAP request for virtual storage owned by the task. • 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. • As previously mapped virtual storage belonging to the task that issued the MAP request.
Page fix for mapped virtual storage not removed after DIV macro request	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. 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.
Save area for the DIV macro	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.
Serializing updates to the data object	Consider the following: • 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. • If the data object is updated, ensure that the linear data set is allocated with DISP=OLD on the JCL DD statement.

Table 46. Summary: Checks for programming problems for data-in-virtual (continued)

For a Problem With:	Check the Following:
SHAREOPTIONS values for the virtual storage access method (VSAM) data set	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.

Chapter 17. Global resource serialization

This topic contains diagnosis information for global resource serialization.

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 487 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 498.

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 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.

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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. For each queue, the following will also be displayed:

- QCBS: *xxxxxxxx*, which is the number of ENQ resources defined by MAJOR and MINOR name. Note that this is **not** the number of ENQ requests - there can be more than one per resource.
- Gather Time: *hh*:*mm*:*ss*.*fractionofsecond*, which is the amount of time that it took to gather the information from the specific queue.
- Sort Time: *hh*:*mm*:*ss*.*fractionofsecond*, which is the amount of time it took to sort the resources. Consider using the NOSORT option if sort times are contributing to excessive report run times.

```
 * * * * *  GLOBAL RESOURCE SERIALIZATION CONTROL BLOCK PRINT  * * * * *

Options list:

  Report................. GRSTRACE

  Level of detail........ SUMMARY

  Sort option............ BY RESOURCE

  Requested time format.. LOCAL

  Filter(s) in use:
    NONE
* * * * * * * * * * * * * * DIAGNOSTIC DATA * * * * * * * * * * * * * *
GVT                          00000000_00FE1000
GVTX                         00000000_006EB000
GQHT                         00000021_F8F00000
SGHT                         00000000_00000000
LQHT                         00000021_F8E00000
STHT                         00000000_7F5B8000
RPT                          00000000_7F5F7F40

* * * * * * * * * * * * * * 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 EQDQ monitor is                Off
ENQMAXA                         250000
ENQMAXU
16384
```

```
                              ************************************************
                              ************************************************
                              *****                                      *****
                              *****   STEP QUEUE (STHT) CONTROL BLOCK PRINT *****
                              *****                                      *****
                              ************************************************
                              ************************************************
 QCBS:        00000060
 Gather Time: 00:00:00.083614
 Sort Time:   00:00:00.000020

 MAJOR NAME: SPFUSER

     MINOR NAME: SPFUSER
       SCOPE: STEP      SYSNAME: S4        STATUS: *EXCLUSIVE* /OWN
         ASID: 0000002A   TCB: 006F8650    JOBNAME: SPFUSER
         Critical ENQ Time(s):
           Request:     07/09/2007 13:03:16.053994
           Grant:       07/09/2007 13:03:16.054019

 MAJOR NAME: SYSBLSDI

     MINOR NAME: 0005F610                                  *..6.
       SCOPE: STEP      SYSNAME: S4        STATUS: *SHARED*    /OWN
         ASID: 0000002A   TCB: 006F8328    JOBNAME: SPFUSER
         Critical ENQ Time(s):
           Request:     07/09/2007 13:08:48.776676
           Grant:       07/09/2007 13:08:48.776689
```

```
                              ************************************************
                              ************************************************
                              *****                                      *****
                              *****  LOCAL QUEUE (LQHT) CONTROL BLOCK PRINT *****
```

```
                              *****                                          *****
                              ************************************************
                              ************************************************
QCBS:        00048887
Gather Time: 00:08:18.708166
Sort Time:   00:16:26.317496

MAJOR NAME: SYSDSN

    MINOR NAME: SYS1.BRODCAST
      SCOPE: SYSTEM    SYSNAME: S4        STATUS: *SHARED*    /OWN
        ASID: 00000001   TCB: 006E97B0    JOBNAME: *MASTER*
        Critical ENQ Time(s):
          Request:     07/09/2007 12:27:54.361651
          Grant:       07/09/2007 12:27:54.361743

    MINOR NAME: SYS1.DAE
      SCOPE: SYSTEM    SYSNAME: S4        STATUS: *SHARED*    /OWN
        ASID: 00000005   TCB: 006FFB00    JOBNAME: DUMPSRV
        Critical ENQ Time(s):
          Request:     07/09/2007 12:29:05.519990
          Grant:       07/09/2007 12:29:05.520012

    MINOR NAME: SYS1.UADS
      SCOPE: SYSTEM    SYSNAME: S4        STATUS: *SHARED*    /OWN
        ASID: 0000002A   TCB: 006FFB00    JOBNAME: SPFUSER
        Critical ENQ Time(s):
          Request:     07/09/2007 13:02:37.259848
          Grant:       07/09/2007 13:02:37.345562

MAJOR NAME: SYSIEA01


*   MINOR NAME: SDUMPENQ
      SCOPE: SYSTEM    SYSNAME: S4        STATUS: *EXCLUSIVE* /OWN
        ASID: 00000005   TCB: 006FCC98    JOBNAME: DUMPSRV
        Critical ENQ Time(s):
          Request:     07/09/2007 13:35:33.770814
          Grant:       07/09/2007 13:35:33.770842
```

```
      SCOPE: SYSTEM    SYSNAME: S4        STATUS: *EXCLUSIVE* /WAIT
        ASID: 00000007   TCB: 006FFD90    JOBNAME: GRS
        Critical ENQ Time(s):
          Request:     07/09/2007 13:35:33.851154
          Contention:  07/09/2007 13:35:33.851219
                              ************************************************
                              ************************************************
                              *****                                          *****
                              ***** GLOBAL QUEUE (GQHT) CONTROL BLOCK PRINT *****
                              *****                                          *****
                              ************************************************
                              ************************************************

QCBS:        00019565
Gather Time: 00:02:23.087281
Sort Time:   00:01:36.209201

MAJOR NAME: SYSDSN

    MINOR NAME: AFOSTER.USER.LOAD
      SCOPE: SYSTEMS   SYSNAME: SYSTEM02  STATUS: *SHARED*    /OWN
        ASID: 00000006   TCB: 006FFB00    JOBNAME: XCFAS
        Critical ENQ Time(s):
          Request:     07/09/2007 12:29:01.924808
        Some ENQ information is unavailable for this remote request
      SCOPE: SYSTEMS   SYSNAME: S4        STATUS: *SHARED*    /OWN
        ASID: 00000006   TCB: 006FFB00    JOBNAME: XCFAS
        Critical ENQ Time(s):
          Request:     07/09/2007 12:29:40.935860
          Grant:       07/09/2007 12:29:41.044668
      SCOPE: SYSTEMS   SYSNAME: SYS3      STATUS: *SHARED*    /OWN
        ASID: 00000006   TCB: 006FFB00    JOBNAME: XCFAS
        Critical ENQ Time(s):
          Request:     07/09/2007 12:29:53.538074
        Some ENQ information is unavailable for this remote request
      SCOPE: SYSTEMS   SYSNAME: SYSTEM02  STATUS: *SHARED*    /OWN
        ASID: 00000019   TCB: 006FFB00    JOBNAME: LLA
        Critical ENQ Time(s):
          Request:     07/09/2007 12:29:57.821468
        Some ENQ information is unavailable for this remote request
      SCOPE: SYSTEMS   SYSNAME: S4        STATUS: *SHARED*    /OWN
        ASID: 00000019   TCB: 006FFB00    JOBNAME: LLA
        Critical ENQ Time(s):
          Request:     07/09/2007 12:30:47.855738
          Grant:       07/09/2007 12:30:47.906647
      SCOPE: SYSTEMS   SYSNAME: SYS3      STATUS: *SHARED*    /OWN
        ASID: 00000019   TCB: 006FFB00    JOBNAME: LLA
        Critical ENQ Time(s):
          Request:     07/09/2007 12:30:56.855009
        Some ENQ information is unavailable for this remote request
      SCOPE: SYSTEMS   SYSNAME: A         STATUS: *SHARED*    /OWN
        ASID: 00000006   TCB: 006FFB00    JOBNAME: XCFAS
```

```
          Critical ENQ Time(s):
            Request:     07/09/2007 12:55:58.354763
          Some ENQ information is unavailable for this remote request
        SCOPE: SYSTEMS   SYSNAME: A         STATUS: *SHARED*    /OWN
          ASID: 00000019   TCB: 006FFB00    JOBNAME: LLA
          Critical ENQ Time(s):
            Request:     07/09/2007 12:56:24.260937
          Some ENQ information is unavailable for this remote
 request
```

```
  MINOR NAME: ARTMVS.EXITS.LOADLIB
       SCOPE: SYSTEMS   SYSNAME: SYSTEM02  STATUS: *SHARED*    /OWN
         ASID: 00000006   TCB: 006FFB00    JOBNAME: XCFAS
         Critical ENQ Time(s):
           Request:     07/09/2007 12:29:01.454510
         Some ENQ information is unavailable for this remote request
       SCOPE: SYSTEMS   SYSNAME: S4        STATUS: *SHARED*    /OWN
         ASID: 00000006   TCB: 006FFB00    JOBNAME: XCFAS
         Critical ENQ Time(s):
           Request:     07/09/2007 12:29:40.609526
           Grant:       07/09/2007 12:29:40.718159
       SCOPE: SYSTEMS   SYSNAME: SYS3      STATUS: *SHARED*    /OWN
         ASID: 00000006   TCB: 006FFB00    JOBNAME: XCFAS
         Critical ENQ Time(s):
           Request:     07/09/2007 12:29:53.081204
         Some ENQ information is unavailable for this remote request
       SCOPE: SYSTEMS   SYSNAME: SYSTEM02  STATUS: *SHARED*    /OWN
         ASID: 00000019   TCB: 006FFB00    JOBNAME: LLA
         Critical ENQ Time(s):
           Request:     07/09/2007 12:29:57.426946
         Some ENQ information is unavailable for this remote request
       SCOPE: SYSTEMS   SYSNAME: S4        STATUS: *SHARED*    /OWN
         ASID: 00000019   TCB: 006FFB00    JOBNAME: LLA
         Critical ENQ Time(s):
           Request:     07/09/2007 12:30:47.597027
           Grant:       07/09/2007 12:30:47.649343
       SCOPE: SYSTEMS   SYSNAME: SYS3      STATUS: *SHARED*    /OWN
         ASID: 00000019   TCB: 006FFB00    JOBNAME: LLA
         Critical ENQ Time(s):
           Request:     07/09/2007 12:30:56.409462
         Some ENQ information is unavailable for this remote request
       SCOPE: SYSTEMS   SYSNAME: A         STATUS: *SHARED*    /OWN
         ASID: 00000006   TCB: 006FFB00    JOBNAME: XCFAS
         Critical ENQ Time(s):
           Request:     07/09/2007 12:55:58.032551
         Some ENQ information is unavailable for this remote request
       SCOPE: SYSTEMS   SYSNAME: A         STATUS: *SHARED*    /OWN
         ASID: 00000019   TCB: 006FFB00    JOBNAME: LLA
         Critical ENQ Time(s):
           Request:     07/09/2007 12:56:23.991724
         Some ENQ information is unavailable for this remote
 request
```

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.
- ISGCNFXITSYSTEM - The contention notification filter installation exit for system-scope resources was active.
- ISGCNFXITSYSPLEX - 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.

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 EQDQ 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 MOVEWAITER TIME
The last time when this resource was affected by an ISGADMIN MOVEWAITER 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.

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
```

- 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-IXG* 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.

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 495.

```
                  Latch Statistics


Latch Set Name: LS1.XMITDAT.LATCH.SET

Creator Jobname: MYJOB1
Creator ASID: 0024


Latch Number  | Fast Obtains | Slow Obtains| Ratio (slow/total)
--------------|--------------|-------------|-------------------
             0            320             1     00.31%
             1        209,989            33     00.02%
             2      5,530,998     3,294,036     37.33% *
             3        611,721        24,967     03.92%
             4        211,574        11,987     05.36% *
--------------- -------------- ------------- -------------------

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

Latch Number  | Fast Obtains | Slow Obtains | Ratio (slow/total)
--------------|--------------|--------------|-------------------
             2          4,357            376     07.94% *
             3         79,551              3     00.00%
             7        549,933             36     00.01%
--------------- -------------- ------------- -------------------
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:

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 497 is an example of a summary report for GRSTRACE, using the command `IP VERBX GRSTRACE 'SUMMARY QNAME(''TES?ENQ'')'`.

```
MAJOR NAME: TESTENQ


*   MINOR NAME: DUMMYENQ
      SCOPE: SYSTEMS   SYSNAME: 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   SYSNAME: 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   SYSNAME: 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   SYSNAME: 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
```

Figure 19. Example: GRSTRACE summary report

Detailed Report Example

Figure 20 on page 497 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
        Resource Creation Time: 06/04/2007 15:30:05.834244
      SCOPE: SYSTEMS   SYSNAME: 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
        Caller PSW: 078D0000_883025B8
        Request Type: LINKAGE=SVC
        RNL Processing Actions: INCL
        QEL: 00000001_000E75E0        QXB: 00000001_00117160
        QCB: 00000001_00009388       SVRB: 006FD608
      SCOPE: SYSTEMS   SYSNAME: 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
        Caller PSW: 078D0000_883025B8
        Request Type: LINKAGE=SVC
        RNL Processing Actions: INCL
        QEL: 00000001_000E84C0        QXB: 00000001_00117D30
        QCB: 00000001_00009388       SVRB: 006FD608
      SCOPE: SYSTEMS   SYSNAME: 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
        Request Type: LINKAGE=SVC
        RNL Processing Actions: INCL
        QEL: 00000001_000E8820        QXB: 00000001_00117AF0
        QCB: 00000001_00009388       SVRB: 006FD608
      SCOPE: SYSTEMS   SYSNAME: 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
        Caller PSW: 078D0000_883025C8
        Request Type: LINKAGE=SYSTEM
        RNL Processing Actions: INCL
        QEL: 00000001_000E85E0        QXB: 00000001_001173A0
        QCB: 00000001_00009388         RB: 006E6F98
```

Figure 20. Example: GRSTRACE detail report

Detailed Report for RESERVE Status

Figure 21 on page 498 is an example of a detailed report for GRSTRACE using the command `IP VERBX GRSTRACE 'DETAIL RNAME(''SPOOL1*'')' .`

```
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):
          Request: 07/21/2010 12:58:26.940649
          Started I/O: 07/21/2010 12:58:26.940671
          Contention: 0, BUT IS WAITING

  * MINOR NAME: SPOOL1SYS1.CASE#6
      SCOPE: SYSTEM SYSNAME: S1 STATUS: *EXCLUSIVE* /OWN
      ASID: 0000001E TCB: 004E6D90 JOBNAME: GRSTOOL
      Reserve Device: 027E Volser: TMPPAK - SYNCHRES COMPLETE
      Critical ENQ Time(s):
         Request: 07/21/2010 13:58:21.688497
         Started I/O: 07/21/2010 13:58:21.688733
         Grant: 07/21/2010 13:58:21.688734
      SCOPE: SYSTEM SYSNAME: S1 STATUS: *EXCLUSIVE* /WAIT
      ASID: 0000002B TCB: 004E6D90 JOBNAME: GRSTOOL
      Reserve Device: 027E Volser: TMPPAK
      Critical ENQ Time(s):
          Request: 07/21/2010 13:58:48.634746
          Contention: 07/21/2010 13:58:48.634874

MAJOR NAME: MYGLOBAL

  MINOR NAME: SPOOL1SYS1.CASE#5
      SCOPE: SYSTEMS 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. *z/OS MVS IPCS Commands* gives the syntax of the IOSCHECK subcommand and describes the contents of each report. *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.

```
                  * * * I O S C H E C K   D A T A * * *
IOCM: 00FDF028
+0000 VOICT.... 001E           VOILN.... 0018     PST..... 81051C30
+0008 OMWPT.... 00FD0520 SSCQ..... 81053C00 MAP..... 81054EE0
+0014 SMFRR.... 812E7DEA SCOMP.... 81055D7E STIO..... 00FDF190
+0020 VOID..... 00FCF610 IOSSM.... 81055188 DIRB..... 01077820
+002C PRGID.... 812BD850 CHRB..... 0188E348 ISDT..... 0188E328
+0038 SWAP..... 81056230 SHUP..... 810595B8 OMEX..... 00FDF180
+0044 ATTBL.... 00FCF900 SYNCA.... 0188E2D0 CNT...... 8105A3D8
+0050 HSCH..... 8105A6F8 GENA..... 00FCFA08 MSCQ..... 8106C070
+005C RSVA..... 00000000 STSQ..... 8105B2E0 TCCW..... 00FDF210
+0068 SVCF..... 81052726 VARY..... 8105BB30 CNXL..... 8105D818
+0074 QCNT..... 00FF4D60 ASCB..... 00FD2C00 NSTP..... 00000000
+0080 IOWA..... 018849F8 IOWEL.... 0434     SMGSZ.... 3CE0
+0088 CPRM..... 810553E6 SCP...... 8103F306 SIOQC.... 8105DE38
+0094 SDUMP.... 0188C220 HCRS..... 810388AE ZTAB..... 01077898
+00A0 SMHDR.... 0188EBE0 SMLG..... 810551B0 SMLF..... 81055288
+00AC SMPF..... 8105532E SMMG..... 812771AC SMMF..... 81277234
+00B8 SMEG..... 8127725A SMEF..... 8127730E DPTH..... 8105E148
+00C4 LEVL..... 00FDFE30 RSUM..... 01060D60 EXHDR.... 0188EF08
+00D0 IOVTP.... 01884B10 DPSV..... 81032068 BIND..... 810616F8
+00DC SCMT..... 810656A8 CMB...... 810664F8 HSWAP.... 81066718
+00E8 DDRLV.... 09       RSV...... 000000   CSTK..... 81067078
+00F0 RSV4..... 00000000 00000000 00000000 00000000 00000000
+0104 00000000 00000000  LVTBL.... 00FE0790
+0110 FLAGS.... F0       QSCLV.... 02 I     OQVR.... 01
+0113 CSSID.... 00       IOQSQ.... 0188C268 FDEV..... 81067A38
+011C ACRW..... 81069090 HIDT..... 01883758 SCHNO.... 00FCFA24
+0128 IPID..... 0106CD58 PRVT..... 0106D8F0 URGC..... 0104A658
+0134 RERPT.... 00000000 CDTSR.... 8106E098 CUIR..... 818838C8
+0140 SLFD..... 8106FA10 SLFI..... 81074BD0 IMSGA.... 818D13A0
+014C MIHQ..... 81075D70 MANI..... 81076838 CSCM..... 81076F10
```

```
IOCW: 00FD0520
+0000 IOCW..... IOCW     LENW..... 0044     PGCT..... 0000
+0008 SLIH..... 8102AA00 HOTCT.... 00000000 MIHCA.... 0188E650
+0014 IOPTA.... 00000000 RSV...... 00       IPTC1.... 80
+001A SSCBT.... 0010     CDT...... 0225F400 CPAT..... 0229F3E0
+0024 CUIRQ.... 00000000 SLFCT.... 00000000 FLAG2.... F2
+002D FLAG3.... D0       RSV...... 0000     PURGQ.... 00000000
+0034 PAVE..... 01885310 IECAA.... 01885340 RSV...... 00000000
+0040 00000000

SYNC: 0188E2D0
+0000 GEN...... 00000000 PURGE.... 00000000 MGF...... 00000000
+000C 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
```

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```
+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=QUIESCE
      03=IOCMD
      04=DAVV
      05=DSTF
      06=IOPM
      07=SELFDESC
      08=DDR
      09=DYNPATH
      10=DPSVAL
      11=UNCRSV
      12=RSETEVT
      13=CHPRCVY
      14=FDEV
      15=SCHRCVY
      16=RSVD
      17=FDEV
      18-32=RSVD
```

```
* * * ACTVUCBS PROCESSING * * *

________________________________________

SUBCHANNEL SET 0 DEVICES:

UCB AT 00F1AFB0: DEVICE 00415; SUBCHANNEL 0052

UCBPRFIX: 00F1AFA8
 -0008 LOCK..... 00000000 IOQ...... 02375F00

UCBOB: 00F1AFB0
+0000 JBNR..... 00     FL5...... 88       ID....... FF
+0003 STAT..... 84     CHAN..... 0415     FL1...... 08
+0007 FLB...... 00     NXUCB.... 00000000 WGT...... 08
+000D NAME..... 415    TBYT1.... 30       TBYT2.... 30
+0012 DVCLS.... 20     UNTYP.... 0E       FLC...... 00
+0015 EXTP..... F1AF88 VTOC..... 00010100 VOLI..... VL0415
+0022 STAB..... 10     DMCT..... 00       SQC...... 00
+0025 FL4...... A0     USER..... 0000     BASE..... 00F1ADB0
+002C NEXP..... 02100168

UCBCMXT: 00F1AF88
+0000 ETI...... 00             STI...... 00             FL6...... 09
+0003 ATI...... 40             SNSCT.... 20             FLP1..... 2A
+0006 STLI..... 00             FL7...... 08             IEXT..... 02133080
+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: 02133080
+0000 RSTEM.... 00             MIHKY.... 0D       MIHTI.... 80
+0003 HOTIO.... 40             IOQF..... 02375F00 IOQL..... 02375400

SUBCHANNEL-IDENTIFICATION:
+000C CSS ID 00
+000D IID/SSID 01
+000E NUMBER 0052
+0010 PMCW1.... 289C  BI...... 0105 LPM...... F0
+0015 RSV...... 00       LPUM.....80   PIM...... F0
+0018 CHPID.... 60708090 00000000      LEVEL.... 01
+0021 IOSF1.... 08         IOTKY....00   MIHFG.... 00
+0024 LVMSK.... 00000001
ACTUAL UCB COMMON SEGMENT ADDRESS 00F1AFB0
DEVICE IS DYNAMIC
BASE UCB OF A PARALLEL ACCESS VOLUME
BASE UCB HAS BOUND ALIAS UCB 0041F AT ADDRESS 02100368
```

```
IOQ: 02375F00
+0000 ID....... IOQ            CHAIN.... 02375400    IOSB..... 00FCDE2C
+000C START.... 8103F300 FLA..... 90             PRFXO.... 00
+0012 PRI...... FF             TYPE..... 00           AIOQ..... 00000000
+0018 UCB...... 00F1AFB0    ASID..... 0017         CSSPR.... 00
+001F RSV...... 00             EPTR..... 023767C0
+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 RSV...... 00000000
+0028 00000000  00000000
+0030 DDTWA.... 00000000 00000000 00000000 00000000 00000000
+0044 00000000  00000000 00000000 00000000 00000000
+0058 00000000  00000000 00000000 00000000 00000000
+006C 00000000  RSV.......00000000 00000000 00000000
+007C DDTW2.... 00000000

IOQE: 023767C0
+0000 EID...... IOQE              SMGFP.... 02375F80     SMGBP.... 02375E80
+000C SMGSQ.... 0188C2EC        SMGFQ.... 00000000     SMRV1.... 0000
+0016 SMRV2.... 00                SMGAL.... 3C             IOTCT.... 0010
+001A MIHCT.... 0010             MIHSF.... 00            RSV...... 000000
+0020 ENCLV.... 00000000 00000000                         ORBUA.... 00F1AFB0

IOSB: 00FCDE2C
+0000 FLA...... 00             FLB...... 00             FLC...... 00
+0003 PROC..... 00             DVRID.... 00             FLD...... 01
+0006 ASID..... 0017         PGAD..... 87F00948  PKEY..... 01
+000D COD...... 7F             OPT...... 10             OPT2..... 80
+0010 UCB...... 00F1AFB0 CCWAD.... 00000000     DSTAT.... 00
+0019 SSTAT.... 00              CSWRC.... 0000          SRB...... 00FCDE00
+0020 USE...... 07F01AF0 IOPID.... 00000000  SCHC..... 0000
+002A SNS...... 0000          IPIB..... 00000000  PCHN..... 00000000
+0034 ERP...... 00000000 PCI...... 00000000     NRM...... 87F0099E
+0040 ABN...... 87F009BA DIE...... 87F00A74     RST...... 0A3E3DD8
+004C VST...... 07F01DD8 DSID..... 00000000     LEVEL.... 00
+0055 GPMSK.... 00              DCTI..... 0000          FMSK..... 00
+0059 CKEY..... 00              MDB...... 00              MDM...... 00
+005C RSV...... 00000000 CTC...... 00000000  SKM...... 00
+0065 SKBB..... 0000          SKCC..... 0000          SKH1..... 00
+006A SKH2..... 00              SKR...... 00              XID...... IOSB
+0070 XLEN..... 0030          XFLG1.... 00             XFLG2.... 00
+0074 XSSXA.... 00000000 XIOBE.... 00000000     XRCOD.... 00
+007D XTIME.... 00              XASPR.... 0000          XIOTX.... 00000000
+0084 XIOD..... 00000000 XMSC..... 00000000 00000000
+0090 XBASE.... 00000000 XRSVF.... 00000000 00000000
```

```
IOQ: 02375400
+0000 ID....... IOQ              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 RSV......00000000
+0028 00000000 00000000
+0030 DDTWA.... 00000000 00000000 00000000 00000000 00000000
+0044 00000000 00000000 00000000 00000000 00000000
+0058 00000000 00000000 00000000 00000000 00000000
+006C 00000000 RSV...... 00000000 00000000 00000000
+007C DDTW2.... 00000000

IOQE: 023763A0
+0000 EID...... IOQE         SMGFP.... 02375480    SMGBP.... 02375380
+000C SMGSQ.... 0188C2EC     SMGFQ.... 00000000    SMRV1.... 0000
+0016 SMRV2.... 00             SMGAL.... 3C              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               FLD...... 01
+0006 ASID..... 001E         PGAD..... 87                 F00948 PKEY..... 01
+000D COD...... 7F             OPT...... 10             OPT2..... 80
+0010 UCB...... 00F1AFB0     CCWAD.... 00000000        DSTAT.... 00
+0019 SSTAT.... 00             CSWRC.... 0000            SRB...... 00FCC200
```

```
+0020 USE...... 07F01AF0    IOPID.... 00000000        SCHC..... 0000
+002A SNS...... 0000        IPIB..... 00000000        PCHN..... 00000000
+0034 ERP...... 00000000    PCI...... 00000000        NRM...... 87F0099E
+0040 ABN...... 87F009BA    DIE...... 87F00A74        RST...... 0A3F7DD8
+004C VST...... 07F01DD8    DSID..... 00000000        LEVEL.... 00
+0055 GPMSK.... 00            DCTI..... 0000            FMSK..... 00
+0059 CKEY..... 00            MDB...... 00                MD...... 00
+005C RSV...... 00000000    CTC...... 00000000        SKM...... 00
+0065 SKBB..... 0000        sKCC..... 0000             SKH1..... 00
+006A SKH2..... 00            SKR...... 00               XID...... IOSB
+0070 XLEN..... 0030        XFLG1.... 00               XFLG2.... 00
+0074 XSSXA.... 00000000    XIOBE.... 00000000        XRCOD.... 00
+007D XTIME.... 00            XASPR.... 0000            XIOTX.... 00000000
+0084 XIOD..... 00000000    XMSC..... 00000000        00000000
+0090 XBASE.... 00000000    XRSVF.... 00000000        00000000

UCB AT 02100368: DEVICE 0041F; SUBCHANNEL 0084
UCBPRFIX: 02100360

-0008 LOCK..... 00000000 IOQ...... 02375400

UCBOB: 02100368
+0000 JBNR..... 00 FL5...... 88           ID....... FF
+0003 STAT..... 04 CHAN..... 041F        FL1...... 08
+0007 FLB...... 00 NXUCB.... 00000000 WGT...... 08
+000D NAME..... 41F TBYT1.... 30        TBYT2....    10
+0012 DVCLS.... 20 UNTYP.... 0E        FLC...... 00
+0015 EXTP..... 100341 VTOC..... 00000000    VOLI..... 00000000 0000
+0022 STAB..... 00 DMCT..... 00           SQC...... 00
+0025 FL4...... 10 USER..... 0000        BASE..... 00F1ADB0
+002C NEXP..... 02100168
```

```
UCBCMXT: 02100340
+0000 ETI...... 00            STI...... 00         FL6...... 09
+0003 ATI...... 00            SNSCT.... 18         FLP1..... 2A
+0006 STLI..... 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.... 60708090    00000000            LEVEL.... 01
+0021 IOSF1.... 08 IOTKY.... 00                MIHFG.... 00
+0024 LVMSK.... 00000001
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

UCBCMXT: 00F11C98
    +0000  ETI...... 00           STI...... 00        FL6...... 09
    +0003  ATI...... 40           SNSCT.... 20        FLP1..... A2
    +0006  STLI..... 00           FL7...... 40        IEXT..... 02310968
    +000C  CHPRM.... 00           SATI..... 00        ASID..... 00B4
```

```
   +0010  RSV...... 00            WTOID.... 000000       DDT...... 00FCD2BC
   +0018  CLEXT.... 00F11CE8      DCTOF.... 0000      RSV...... 0000

UCBXPX: 02310968
   +0000  RSTEM.... 00        MIHKY.... 04        MIHTI.... 01
   +0003  HOTIO.... 40        IOQF..... 00F62F00  IOQL..... 00F62F00
   +000C  SIDA..... 0001      SCHNO.... 0121      PMCW1.... 189C
   +0012  MBI...... 0118      LPM...... C0        RSV...... 00
   +0016  LPUM..... 80        PIM...... C0        CHPID.... 36B6FFFF
   +001C            FFFFFFFF  LEVEL.... 01        IOSF1.... 08
   +0022  IOTKY.... 00        MIHFG.... 00        LVMSK.... 00000001

Device is installation-static
```

```
IOQ: 00F62F00
   +0000  ID....... IOQ       CHAIN.... 00000000  IOSB..... 07C6CC80
   +000C  START.... 8102B300  FLA...... 80        RESV1.... 00
   +0012  PRI...... FF        TYPE..... 00        AIOQ..... 00000000
   +0018  UCB...... 00F11CC0  ASID..... 0001      MIHSF.... 00
   +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
   +0048            00000000  00000000  00000000  00000000  00000000
   +005C            00000000  00000000  00000000  00000000  00000000
   +0070  RSV...... 00000000  SMGFP.... 00F62F80  SMGBP.... 00F62E00
   +007C  SMGSQ.... 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...... 00F11CC0  CCWAD.... 32D0B560  DSTAT.... 00
   +0019  SSTAT.... 00        CSWRC.... 1000      SRB...... 07C6CCF0
   +0020  USE...... 07C6CC00  IOPID.... 00000000  SCHC..... 4029
   +002A  SNS...... 0000      IPIB..... 00000000  PCHN..... 00000000
   +0034  ERP...... 00000000  PCI...... 8133B898  NRM...... 8133C356
   +0040  ABN...... 8133C564  DIE...... 8133BFC0  RST...... 32D0B558
   +004C  VST...... 07C3E558  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...... 0B

UCB AT 00F2E178:  DEVICE 0080A; SUBCHANNEL 0698

 UCBPRFIX: 00F2E170
    -0008  LOCK..... 00000000  IOQ...... 00F63280

 UCBOB: 00F2E178
    +0000  JBNR..... 00        FL5...... 8A        ID....... FF
    +0003  STAT..... 8C        CHAN..... 080A      FL1...... 08
    +0007  FLB...... 00        NXUCB.... 00F2E1F8  WGT...... 00
    +000D  NAME..... 80A       TBYT1.... 30        TBYT2.... 30
    +0012  DVCLS.... 20        UNTYP.... 0F        FLC...... 00
    +0015  EXTP..... F2E150    VTOC..... 001E0100  VOLI..... PGT80A
    +0022  STAB..... 50        DMCT..... 00        SQC...... 00
    +0025  FL4...... 00        USER..... 0001

UCBCMXT: 00F2E150
   +0000  ETI...... 00        STI...... 00        FL6...... 09
   +0003  ATI...... 40        SNSCT.... 20        FLP1..... A2
   +0006  STLI..... 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

UCBXPX: 02325FC8
   +0000  RSTEM.... 00        MIHKY.... 04        MIHTI.... 01
   +0003  HOTIO.... 40        IOQF..... 00F63280  IOQL..... 00F63280
   +000C  SIDA..... 0001      SCHNO.... 0698      PMCW1.... 189C
   +0012  MBI...... 0467      LPM...... C0        RSV...... 00
   +0016  LPUM..... 40        PIM...... C0        CHPID.... 1E8CFFFF
   +001C            FFFFFFFF  LEVEL.... 01        IOSF1.... 08
   +0022  IOTKY.... 00        MIHFG.... 00        LVMSK.... 00000001
```

```
Device is installation-static
```

```
IOQ: 00F63280
   +0000  ID....... IOQ       CHAIN.... 00000000  IOSB..... 07C56C80
   +000C  START.... 8102B300  FLA...... 80        RESV1.... 00
   +0012  PRI...... FF        TYPE..... 00        AIOQ..... 00000000
   +0018  UCB...... 00F2E178  ASID..... 0001      MIHSF.... 00
   +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
   +0048            00000000  00000000  00000000  00000000  00000000
   +005C            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      PGAD..... 8133B7F8  PKEY..... 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...... 8133BFC0  RST...... 33698258
   +004C  VST...... 07C6C258  DSID..... 00000000  LEVEL.... 01
   +0055  GPMSK.... 00        DCTI..... 0000      FMSK..... 88
   +0059  CKEY..... 08        MDB...... 00        MDM...... 00
   +005C  RSV...... 00000000  CTC...... 00000000  SKM...... 00
   +0065  SKBB..... 0000      SKCC..... 02A8      SKH1..... 00
   +006A  SKH2..... 0C        SKR...... 04

----------------------------------------

ACTVUCBS   SUMMARY:

     Count of control blocks checked


       Control block        Count
       -------------        -----
          UCB                2192
             TAPE              47
             COMM               5
             DASD            1918
             DISP              32
             UREC              14
             CHAR               0
             CTC              176
          IOQ                   2
          IOSB                  2



     Messages issued:           0

                    * * * I O S C H E C K   C O M P L E T E * * *
```

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.

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VERBEXIT MMSDATA subcommand output

```
COMPON=MMS,COMPID=SCMMS,ABEND=0C1,MODULE=CNLUXLAT,RPLP=00000C60,CNLUXLAT FAILS - UNEXPECTED ERROR  1

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.ENURMF
DD name of run-time message file:                               SYS00001
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.ESPRMF
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.FRBRMF
DD name of run-time message file:                               SYS00003
Data-in-virtual ID of run-time message file:
         FFFD0958 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:
         FFFD07B0 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:                      0090094F
Refresh time for this parmlib environment:                      19053591
Size of this parmlib environment:                               00000A08
```

Figure 22. Example: VERBEXIT MMSDATA subcommand output (1 of 2)

```
Language Availability Information for this Parmlib

COMPON=MMS,COMPID=SCMMS,ABEND=0C1,MODULE=CNLUXLAT,RPLP=00000C60,CNLUXLAT 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:
        C5D5E4                                                                          |
ENU                     |


Language code:                                                  ESP
Configuration member name:                                      CNLESP01
Language data set name:
        SYS1.ESPRMF
Alternate names for this language:
        C5E2D7                                                                          |
ESP                     |
        E2D7C1D5  C9E2C8                                                                |
SPANISH                 |


Language code:                                                  FRB
Configuration member name:                                      CNLFRB01
Language data set name:
        SYS1.FRBRMF
Alternate names for this language:
        C6D9C2                                                                          |
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*.
- 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 CNLcccxx 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.
- 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
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

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 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

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" on page 513 to use in obtaining a z/OS UNIX dump.
- "Allocating a sufficient dump data set size" on page 514.
- "Using the dump command to dump z/OS UNIX data" on page 514.

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

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  - 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 *z/OS MVS System Commands*.

Using the dump command to dump z/OS UNIX data

Enter the following command to start the dump:

```
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, *rn* is the REPLY number to the prompt.

- Enter the first reply:

```
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:

```
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 ASIDs.

- Enter the last reply:

```
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 *z/OS MVS System Commands*.

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 *z/OS MVS System Messages, Vol 6 (GOS-IEA)*.

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 *z/OS MVS IPCS Commands* gives the syntax of the OMVSDATA subcommand and *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 on page 516 is an example of output from the CBSTAT subcommand.

```
STATUS FOR STRUCTURE(TCB) at 008EF788 ASID(X'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

OMVSDATA subcommand

The IPCS OMVSDATA 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.

OMVSDATA divides the information about z/OS UNIX into six reports. Each report corresponds to the OMVSDATA keywords listed in Table 47 on page 516.

Table 47. Summary: OMVSDATA keywords

Keyword	Report Displays	See topic
COMMUNICATIONS	Information about pseudo terminal user connections and OCS remote terminal connections.	"OMVSDATA COMMUNICATIONS SUMMARY subcommand output" on page 520
FILE	Information about each z/OS UNIX file system type and its mounted file systems.	"OMVSDATA FILE SUMMARY subcommand output" on page 524
IPC	Information about interprocess communication activity for shared memory, message queues and semaphores.	"OMVSDATA IPC SUMMARY subcommand output" on page 530
PROCESS	Information about kernel processes. PROCESS is the default.	"OMVSDATA PROCESS SUMMARY subcommand output" on page 533
STORAGE	Information about the storage manager cell pools.	"OMVSDATA STORAGE SUMMARY subcommand output" on page 538

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.

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:             0000005000000002

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 Address:      02FCF028
      Previous Entry Address:   00000000
      Next Entry Address:       02FCFA90
      Entry Point ID:           0F08
      Csect:                    BPXJCPC  at 01CD0000
      Entry Point:              BPXJCPC  at 01CD0000
      Footprints:               3244

      General Purpose Registers:

       0-3  02FCF690  00000000  00000000  82DBDDF8
       4-7  02DBD038  00F4AD00  7FFFCD90  00F4AD00
       8-11 02FCEF2E  00000000  01CD1FFE  01CD0FFF
      12-15 01CD0000  02FCF028  81CD132E  82F38638

      Access Registers:

       0-3  00000000  00000000  00000000  00000000
       4-7  00000002  00000000  00000002  00000000
       8-11 00000000  00000002  00000000  00000000
      12-15 00000000  00000000  00000000  00000001

   Stack Entry  1

      Stack Entry Address:      02FCFA90
      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:

       0-3  02FCFFB8  82F6509C  8294C7D0  00000000
       4-7  02FCFB98  02FCFF18  82DBDDF8  00000000
       8-11 00000164  00000000  02FCFF44  00000001
      12-15 02FCFF44  0000000C  012F3720  02F64770

      Access Registers:

       0-3  00000000  00000000  00000000  00000000
       4-7  00000002  0101001C  00000002  00000000
       8-11 0101001C  00000002  00000000  00000002
      12-15 00000000  00000000  00000000  00000001

   Stack Entry  2               * Active *

      Stack Entry Address:      02FD03F0
      Previous Entry Address:   02FCFA90
      Next Entry Address:       02FD0A20
      Entry Point ID:           0904
      Csect:                    BPXMIPCE at 01CD3C28
      Entry Point:              BPXMIARR at 01CD3EB8
      Footprints:               0000

      General Purpose Registers:

       0-3  000000FC  81CD55AC  80FEBC66  0B08000A
       4-7  02F9A288  00FD4ED8  82DBDDF8  7F0EFACC
       8-11 7F0EF938  02F9A288  00000C60  02F9A288
      12-15 00000C00  02FD0780  01CD4C27  01CD3C28

      Access Registers:

       0-3  00000000  00000000  00000000  00000000
       4-7  00000000  00000000  00000000  00000000
       8-11 00000000  00000000  00000000  00000000
      12-15 00000000  00000000  00000000  00000000
```

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
- 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

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. 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 manager and subsidiary 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 subsidiary character-special file; or identifies the controlling terminal.

Subsidiary File Token
A unique identifier associated with the subsidiary character-special file; this token + identifies the controlling terminal.

Slave Open Count
The number of opens for the subsidiary file.

Subsidiary Open Count
The number of opens for the subsidiary 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 manager 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 subsidiary writes are blocked or rejected until the lower threshold is reached.

Pending Packet Flags
Packet flags that have not yet been reported to a manager 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 manager 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 subsidiary 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 subsidiary 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 manager and subsidiary 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.

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 BPXFCSIN.

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 BPXFCSIN.

_Posix_VDisable
This character value can be used to disable workstation special characters. This field is only displayed if the file system type is BPXFCSIN.

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 `st_ino` returned from `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 `st_dev` returned from `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 **Active** or **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:

BPXFCSIN
For character special file systems

BPXFPINT
For FIFO file systems

BPXFTCLN
The z/OS UNIX file system

BPXFTSYN
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.

Interface IP Address
The interface IP address used to send the route.

Next Hop IP Address
IBM may request this information for diagnostic purposes.

TD Index
Index of the transport driver for this route.

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 he 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 Msgsnd 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 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 File System 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 expediently 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 BPXF076I.
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=*file system name*** 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=*file system name*** system 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 541.

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 513 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 513 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 BPXMCDS 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:
    - 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 513 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 541.

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 545.

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” on page 545
2. “Analyze the mount latch contention” on page 545
3. “Analyze the file system latch contention” on page 546
4. “Analyze the file latch contention” on page 547
5. “Analyze the output for outstanding sysplex messages” on page 548
6. “Analyze the output for other waiting threads” on page 549
7. “Resolve latch contention within the PFS” on page 551
8. “Terminate or cancel the latch holder” on page 551

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 SVC dump 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 BPXO063I for latch contention activity information. The message BPXO063 can provide the following output tables: `MOUNT LATCH ACTTIVIY`, `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 BPXO063I, you have mount latch contention. See “Analyze the mount latch contention” on page 545 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 546 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 547 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 on page 546.

```
SY1  D OMVS,W
SY1  BPXO063I 12.39.07 DISPLAY OMVS 426
OMVS     000E ACTIVE          OMVS=(QY)
MOUNT LATCH ACTIVITY:
    USER   ASID     TCB           REASON                        AGE
 HOLDER:
  OMVS     000E  008E9828     Inact Cycle                     00.01.18
     IS DOING: XPFS VfsInactCall / XSYS Message To: SY2
     FILE SYSTEM: filesystemname.HFS
 WAITER(S):
  OMVS     000E  008D97C8     FileSys Quiesce                 00.00.05
  OMVS     000E  008E9B58     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 on page 546.

- 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 551 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 551 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 548 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 on page 547.

```
FILE SYSTEM LATCH ACTIVITY:
    USER   ASID     TCB            SHR/EXCL                      AGE
-------------------------------------------------------------------------
Latch 432 FILE SYSTEM:  THE.FILESYS.NAME
 HOLDER(S):
   User10  0044  00880460            SHR                      00:12:08
        IS DOING: NFS ReadCall
        FILE: somefilename                 (88,1234)
   User11  0045  00880460            SHR                      00:15:58
        IS DOING: NFS ReadCall
        FILE: somefilename                 (88,1234)
    WAITER(S):
   OMVS    000E  008E9B58            EXCL                     00.01.10
Latch 678 FILE SYSTEM:  ANOTHER.FILESYS.NAME
 HOLDER(S):
   OMVS    000E  00820420            EXCL                     00:12:08
     IS DOING: ZFS SyncCall / Osi_Wait
    WAITER(S):
   User12  0022  008D97C8            SHR                      00.00.05
   User15  0072  008E9B58            SHR                      00.01.10
```

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 on page 547.

- The **HOLDER:** field tells you what program is holding the file system latch.
- The **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 551 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 551 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 548 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 on page 548.

```
FILE LATCH ACTIVITY:
    USER   ASID     TCB             SHR/EXCL                    AGE
-------------------------------------------------------------------------
LATCH  14  LSET 01  TYPE REGFILE   DEVNO 2 INO 204
FILE: myfile
FILE SYSTEM: ZOS112.ETC.ZFS
 HOLDER(S):
  TCO   0026      008E6D90           EXCL                    00.00.56
     TIME: 2010/10/08 16.21.36
     IS DOING: ZFS MKDirCall
 WAITER(S):
  TCO  0027       008E6D90           SHR                     00.06.51
     TIME:  2010/10/08  16.21.38
                      .
                      .
                      .
```

Figure 27. Example: FILE LATCH ACTIVITY table

The key to resolving file latch contention is in the **HOLDER:** and **IS DOING:** fields highlighted in tFigure 27 on page 548.

- 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

  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 551 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 551 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 548 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 on page 549). 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 008DD218  0008 SY2      01000038 LookupCall   00.03.08
  TC0       0026 008E6E88  1011 SY1      0100003A Quiesce      00.00.05
  OMVS      000E 008E9828  0804 SY2      01000039 VfsInactCall 00.01.18
 RECEIVED SYSPLEX MESSAGES:
           FROM   FROM           FROM
   ON TCB  ASID   TCB    FCODE  MEMBER   REQID     MSG TYPE     AGE
  008D97C8 0026 008E6E88  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 on page 549.

```
OTHER WAITING THREADS:
  USER     ASID   TCB         PID           AGE
 -------------------------------------------------
  USER01   0021 00908070     1234         00:12:41
    IS DOING: NFS Readdir / Running
    FILE: nfsdirname                   (33,5432)
    FILE SYSTEM: HOST12.AJAX.DIRECTORY
    HOLDING: File System Latch #123 SHR
  USER03   0041 00908070   786534         00:12:41
    IS DOING: BRLM Wait
    FILE: FileNameIsHere               (22,845)
    FILE SYSTEM: AJAX.DS88.ZFS
  USER04   0051 00908070       15         00:00:49
    IS DOING: File Latch Wait-Latch 1379
    FILE: somefilename                 (88,1234)
    FILE SYSTEM: HOST12.AJAX.DIRECTORY
    HOLDING: File System Latch #123 SHR
  USER05   0071 00908070   378992         00:08:51
    IS DOING: ZFS Write / OSI_WAIT
    FILE: zfsfilename
    FILE SYSTEM: AJAX.DS23.ZFS
```

Figure 29. Example: OTHER WAITING THREADS section

The **IS DOING** field as highlighted in Figure 29 on page 549 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 mvsnfs,listlock=` and `MODIFY mvsnfs,release=` 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 BPXOINIT,FILESYS=d,exception` and `MODIFY BPXOINIT,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 538 for more information on analysis in a shared file system configuration. Also see the `MODIFY BPXOININT,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 File System 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 to 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" on page 551

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.

   If the remote system or server is down and the file system was hard mounted, NFS will try to establish contact indefinitely. In that case, you might have to unmount the file system to free up the users.

   You can also use the shell ping command to check for connectivity to the remote system. Use display commands on to the remote server's system to see why the server is not responding. If the remote system is also a z/OS system, you can diagnose the latch contention on the remote system starting with step "1" on page 545.

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 File System 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" on page 551 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 551 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 BPXOINIT,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 reasonable time interval, the system eventually displays action 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 538.

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 549 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 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 552, 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".

```
SY2  D GRS,ANALYZE,LATCH,WAITER
SY2  ISG374I 16.15.24 GRS ANALYSIS 734
LONG WAITER ANALYSIS: ENTIRE SYSTEM
----- LONG WAITER #1
WAITTIME  JOBNAME  E/S  CASID LSETNAME/LATCHID
00:01:01  TC0      *E*  000E  SYS.BPX.A000.FSLIT.FILESYS.LSN
                              20:FS: HOST12.AJAX.DIRECTORY
BLOCKER   TC0       E
```

Figure 30. Example: D GRS,ANALYZE,LATCH,WAITER command output

In the output of the D GRS,ANALYZE,LATCH command, the latch identity strings (LATCHID) are displayed along with the latch number and latch set name. Table 48 on page 552 lists the latch identity strings for the latches used by z/OS UNIX System Services.

Table 48. Latch identity strings for the latches used by z/OS UNIX System Services

Latch Identity String (LATCHID)	Explanation
AM: <fs name>	This latch is used for any automount operations on the file system named in the latch identity string.
Automount Global	This latch is used to serialize pfsctl() calls during automount processing.

Table 48. Latch identity strings for the latches used by z/OS UNIX System Services (continued)

Latch Identity String (LATCHID)	Explanation
Byte Range Lock Manager Global	This latch is used when the system is traversing or modifying structures that are related to the byte range lock management.
Dev=<devno# in decimal>,Ino=<inode# in decimal>	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.
FS: <fs name>	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.
Logical File System	This latch is used to serialize PFS termination and restart.
MOUNT	This latch is used by the file system to serialize operations such as file system mount, unmount, move, and automount and others.
Mount/Move Failure Data Block	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.
LFS Process ID=<pid in decimal>	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.
MessageQ ID=<msg-ID in decimal>	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.
MessageQ Global	This latch is used to search and add elements to the message queue mechanism.
Name=<resource name>,Dev=<devno# in decimal>,Ino=<inode# in decimal>	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 <resource name> 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.
NW: <*domain_name*>	This latch is used for operations on the local or network socket domain whose name is shown in the latch identity string.
OSI Sleep and Wakeup	This latch is used when the system is traversing or modifying structures that are related to the osi_sleep() and osi_wakeup() services.
PIPE Global	This latch is used when the system is traversing or modifying structures that are related to PIPES.
PFS	This latch is used for PFSCTL operations.
Process Global	This latch is used for process management operations that are not limited to a single process.
Register File Interest Global	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().
Semaphore Global	This latch is used to search and add elements to the semaphore mechanism.
Semaphore ID=<sem-ID in decimal>	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.
Shared Memory Global	This latch is used to search and add elements to the shared memory mechanism.
Shared Memory ID=<shm-ID in decimal>	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.

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 49 on page 555 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 49. Summary: RSM Reports

RSMDATA Subcommand Parameter	Report	Report Contains	See topic:
ADDRSPACE	RSM address space report	Summary of central storage use for each address space.	"RSMDATA ADDRSPACE subcommand output" on page 556
DIVMAP	DIV mapped range report	Information about ranges of pages mapped by data-in-virtual.	"RSMDATA DIVMAP subcommand output" on page 561
DSPACE	Data space report	Information about data spaces.	"RSMDATA DSPACE subcommand output" on page 563
EXCEPTION	RSM diagnostics and exception report	Information about incorrect RSM data areas.	"RSMDATA EXCEPTION subcommand output" on page 564
EXECUTION	RSM execution status report	Information that IBM may need for diagnosis.	"RSMDATA EXECUTION subcommand output" on page 565
HIGHVIRTUAL	RSM high virtual page report	Information about virtual pages above 2 gigabytes in the system, including page owner, location, status, and summary of memory objects.	"RSMDATA HIGHVIRTUAL subcommand output" on page 566
HVCOMMON	RSM high virtual common report	Information about allocated high virtual common storage, including owner, location, size, and status.	"RSMDATA HVCOMMON subcommand output" on page 573
HVSHRDATA	RSM high virtual shared	Information about how high virtual storage is being data report shared through the use of the IARV64 macro.	"RSMDATA HVSHRDATA subcommand output" on page 574
REALFRAME	RSM real storage frame report	Information about real frames in the system, including the status, location, and current (or most recent) owner of each real frame.	"RSMDATA REALFRAME subcommand output" on page 576

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Table 49. Summary: RSM Reports (continued)			
RSMDATA Subcommand Parameter	**Report**	**Report Contains**	**See topic:**
RSMREQ	RSM requests report	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.	"RSMDATA RSMREQ subcommand output" on page 586
SHRDATA	Shared data report	Information about how storage is being shared through the use of the IARVSERV macro.	"RSMDATA SHRDATA subcommand output" on page 589
SUBSPACE	Subspace report	Information about subspaces	"RSMDATA SUBSPACE subcommand output" on page 593
SUMMARY	RSM summary report	Information on central storage usage on a system-wide basis. and information about any unusual RSM conditions.	"RSMDATA SUMMARY subcommand output" on page 595
VIRTPAGE	RSM virtual page report	Information about virtual pages in the system, including page owner, location, and status.	"RSMDATA VIRTPAGE subcommand output" on page 597

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 557 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.

```
                                    R S M   A D D R E S S   S P A C E   R E P O R T

JOBNAME  ASID STATUS      TOT R     PRF R  B R  A R  DBL QD     DSP R     TOT F  B F  A F     PRF F
-------- ---- -------  --------  --------  ---  ---  --- --  --------  --------  ---  ---  --------
RASP     0003 NONSWAP  00000340  00000325  000  07F  000 05  000002AB  000002DD  000  02A  000002C9
DUMPSRV  0005 NONSWAP  0000013E  00000134  002  06B  000 02  00000000  000000BB  000  068  000000B3
BPXOINIT 0051 LSWAP    0000008F  00000088  000  022  000 01  00000000  0000004D  000  022  00000049


... TOT SHAR  TOT SH V TOT HV SHAR        X P  DG
... --------  -------- ------------------ - -- --------
... 00000000  00000000 00000000_000000000 N LS 01979408
... 00000000  00000000 00000000_000000000 N LS 020A5048
... 00000000  00000000 00000000_000000000 N LS 1123C388

... TOT DREF   AUX DASD          AUX SCM           MP NAME
... --------   ----------------- ----------------- --------
... 00000014   00000000_00000000 00000000_000008E1 VARP05


Totals for this address space report (in decimal):

         SWIN         SWAUX          TERM        CREATE       RESWPIP
           20             0             0             0             0

       SWINIP       SWAUXIP       NONSWAP         LSWAP
            0             0             8             2

        TOTAL
           30

        TOT R           B R           A R         PRF R
        2,290             0         2,274         2,274

        TOT F           B F           A F         PRF F       TOT F2G
           69             0            53            53     2,097,152


           QD           DBL         DSP R
            4             0             0

        TOT DREF     TOT AUX DASD      TOT AUX SCM
         3,344       149,934           375,733
```

Figure 31. Example: RSMDATA ADDRSPACE subcommand output

Figure 32 on page 558 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.

```
                                    R S M   A D D R E S S   S P A C E   R E P O R T

JOBNAME  ASID STATUS      TOT R  DBL QD     TOT F  B F  A F  P  DG
-------- ---- -------  --------  --- --  --------  ---  ---  -- --------
*MASTER* 0001 NONSWAP  00000E5C  000 07  00000B52  000  085  LS 0217A000
PCAUTH   0002 NONSWAP  0000004F  000 01  00000040  000  024  LS 020B55B0
RASP     0003 NONSWAP  00000340  000 05  000002DD  000  02A  LS 01979408
TRACE    0004 NONSWAP  00001443  000 01  00001433  000  3FD  LS 020482B0
DUMPSRV  0005 NONSWAP  0000013E  000 02  000000BB  000  068  LS 020A5048
XCFAS    0006 NONSWAP  00008B04  000 13  00000B6A  000  54A  LS 02048060
GRS      0007 NONSWAP  00003D05  000 25  00000276  000  023  LS 01D143A0
SMSPDSE  0008 NONSWAP  0000061C  000 03  0000016F  000  030  LS 02CD3080
SMSPDSE1 0009 NONSWAP  000008AA  000 03  00000379  000  030  LS 01FB60B0
SMSVSAM  000A NONSWAP  00001633  000 15  000001FC  000  0C7  LS 01CE25B0
CONSOLE  000B NONSWAP  000006E2  000 01  0000008B  000  010  LS 02005330
WLM      000C NONSWAP  00002CAD  000 01  00000068  000  06F  LS 02BFADB0
...

Totals for this address space report (in decimal):

         SWIN         SWAUX          TERM        CREATE       RESWPIP
        1,690             0             0             0             0

       SWINIP       SWAUXIP       NONSWAP         LSWAP
            0             0            67           253

        TOTAL
        2,010

        TOT R           DBL            QD
        2,290             0             4

        TOT F           B F           A F          TOT F2G
           69             0            53        2,097,152
```

Figure 32. Example: RSM short address space report

The fields in the report are:

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

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.

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.

TOT DREF
The total number DREF frames for this address space.

AUX DASD
The total number of pages backed by auxiliary DASD for this address space.

AUX SCM
The total number of pages backed by auxiliary SCM for this address space.

MP NAME
Name of the memory pool that this address space belongs to.

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, SWEXPIP, 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
- TOT DREF
- TOT AUX DASD
- TOT AUX SCM

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.

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.

TOT DREF
The total number of DREF frames for all selected address spaces.

AUX DASD
The total number of pages backed by auxiliary DASD for all selected address spaces.

AUX SCM
The total number of pages backed by auxiliary SCM for all selected address spaces.

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.

```
               D I V   M A P P E D   R A N G E   R E P O R T


JOBNAME  ASID DSP NAME START ADDRESS      NUM BLCK HS OBJ   HS START STATUS   PF E DG
-------- ---- -------- ------------------ -------- -------- -------- -------- -- - --------
CWAVSD01 0033 -        00000050_00100000u 00000100 -        -        MAPPED   00 N 7F52F5B8
CWAVSD01 0033 -        00000000_7F400000  00000100 -        -        MAPPED   00 N 7F52F528

⋮

Totals for this DIV mapped range report (in decimal):

        MAPIP       MAPRPIP        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.

DSP NAME
Name of the data space that contains the mapped range of pages or dash (–) for address space ranges.

START ADDRESS
The address of the start of the mapped range. A lowercase letter *u* is appended to the address value if the page is part of a z/OS UNIX memory map.

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.

MAPIP
MAPRPIP
UNMAPIP
SAVEIP
RESETIP
MAPPED
The total number, in decimal, of mapped ranges that are in the indicated state. The state is given in the STATUS field.

TOTAL
The total number, in decimal, of 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.

```
                          D A T A   S P A C E   R E P O R T


JOBNAME  ASID DSPNAME  OWNG TCB CUR B MAX B K T S R F TOT R DG       DG
-------- ---- -------- -------- ----- ----- - - - - - ----- -------- --------
*MASTER* 0001 DSP01    007E4560 10000 10000 0 B C E Y 00023 00800240 80000A00
*MASTER* 0001 DSP02    007E4560 00200 00200 0 B A E Y 0001C 00800380 80000F00
RASP     0003 SYSDS000 -        7FFFF 7FFFF 0 B S E Y 0018E 7FFEF000 80000000
TRACE    0003 TRDSP    007C4000 7FFFF 7FFFF 0 B S E Y 0007F 00800480 80001301
DUMPSRV  0005 DUMP01   007E6920 007FF 007FF 0 B S E Y 00000 00800440 80001200
CONSOLE  0007 DSP01    007F0200 00030 0007F 0 B S D Y 00025 00800400 80001102
CONSOLE  0007 DSP02    007F0200 0007F 0007F 0 B S D Y 00131 008004C0 80001402
CONSOLE  0007 DSP03    007F0200 0007F 0007F 0 H - - Y 00011 008003C0 80001002
CONSOLE  0007 DSP04    007F0200 0007F 0007F 0 H - - Y 0000E 00800300 80000D02
NOSWNOMT 001E NONODS01 00000000 7FFFF 7FFFF 8 M S E Y 010C9 00800A40 80002A00
    .
    .
    .

Totals for this data space report (in decimal):

        SINGLE           ALL        COMMON          DREF          EREF
            16             4             2             7            15

         BASIC       HIPERSP         TOTAL
            22             4            26
```

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.

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 565 shows the first parts of an RSM diagnostics/exception report.

```
  R S M   D I A G N O S T I C S  /  E X C E P T I O N   R E P O R T

RSM data area containing data in error is shown below,
followed by a list of the exact reason(s) for the error(s)

01268400  0131C940  012FC000  81800000  01010000  | ..I ..{.a..... |
   +0010  0000006F  00015000  01845680  00000000  | ...?..&..d..... |
   +0020  013B1F20  012AC820  81800000  01010000  | ......H.a..... |
   +0030  00000125  02D86000  01D0D380  00000000  | .....Q-..}L..... |
   +0040  012548A0  01222F80  82801000  01000000  | ... ....b..... |
   +0050  000001AB  7FF16000  01855B80  00000000  | ... "1-..e$..... |
   +0060  0122D860  012BABA0  82801000  01000000  | ..Q-..  b..... |
   +0070  00000036  7FF17000  01848900  00000000  | ...."1...di..... |
   +0080  0133CB80  013AA740  81800000  01040000  | ......x a..... |
   +0090  000000E7  000E2000  01847C00  00000000  | ...X.....d@..... |
   +00A0  013E22A0  0127B760  81800000  01060000  | ... .. -a..... |
   +00B0  0000014C  007DB000  01847900  00000000  | ...<.' ..d'..... |
   +00C0  01282B00  01254D20  81800000  01000000  | ......(.a..... |
   +00D0  0000003F  02C3F000  01880200  00000000  | .....C0..h..... |
   +00E0  0129B500  0123BF20  82801000  0100001E  | .. ... .b..... |
   +00F0  000000F5  7F735000  018C1F00  00000000  | ...5".&.. ..... |

IAR81003I Validity check warning, reason code 0C000011, for RSM data
          area at address 01268660.  See above data at offset +0060

IAR81003I Validity check warning, reason code 0C080011, for RSM data
          area at address 01268660

01268660  01264DE0  012858E0  08800000  08000000  | ..(\...\........ |
   +0010  00000000  00030036  01845E00  00000000  | .........d;..... |

IAR81002I Incorrect count, reason code 0D029001 ASID X'0001',
             expected count:  7, actual count:     964

IAR81003I Validity check warning, reason code 0C029001, for RSM data
                    area at address 000D6F20

000D6F20  012772A0  0126F2A0  82801000  010003C4  | ... ..2 b......D |
   +0010  00000001  7FFF5000  00000000  00000000  | ....".&......... |

IAR81001I No errors found in RSM local data for ASID X'0002'

IAR81001I No errors found in RSM local data for ASID X'0003'

IAR81001I No errors found in RSM local data for ASID X'0004'

IAR81001I No errors found in RSM local data for ASID X'0005'

IAR81001I No errors found in RSM local data for ASID X'0006'
```

Figure 33. Example: RSM diagnostics/exception report

RSMDATA EXECUTION subcommand output

The RSM execution status report contains information that IBM may need for diagnosis.

```
        R S M   E X E C U T I O N   S T A T U S   R E P O R T


Pre-allocated stack summary:
----------------------------

  Processor 01:

  A - NRM  01AECC90 RSM, RSMAD for 005B, RSMDS for 0007
                    IARFFEN , IARFVAL , IARFUVAL, IARFVAL,
                    IARFUVAL, IARFVAL , IARUMPF , IARQZTRC
    - SPC  01AEFC90
                    IARVFRMN, IARQZTRC, IARQZTRC
    - RCV  01AF1490
    - RSB  01AF5C90
    - RSR  01AF6890
    - MCH  01AF8C90
    - SRM  01AFA490
                    IARXSF  , IARQZTRC, IAREGETE, IARQZTRC, IARQZTRC
    - DFL  01AFB890
                    IARFPAGD, IARQZTRC, IARQZTRC
    - DFR  01AFD090
    - CNV  01B01490
                    IARDLCON, IARQZTRC, IARUKGS

  Processor 02:

  A - NRM  01FE9000 CPU, RSM, RSMAD for 005F, RSMDS for 0004
                    IARSRBLD, IAREJASP
    - SPC  01FEC000
                    IARVFRMN, IARQZTRC, IARQZTRC
    - RCV  01FED800
    - RSB  01FF2000
    - RSR  01FF2C00
    - MCH  01FF5000
    - SRM  01FF6800
                    IARXSF  , IARQZTRC, IAREGETE, IARQZTRC
    - DFL  01FF7C00
                    IARFPAGD, IARQZTRC, IARQZTRC
    - DFR  01FF9400
    - CNV  01FFD800
                    IARDLCON, IARQZTRC, IARUKGS
  .
  .
  .
```

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 report is sorted by the ASID of the job name and, within each ASID, by virtual page address. The memory objects are listed after the detailed page report, and they are sorted by the starting virtual address. Next, an allocation and MEMLIMIT summary is displayed. Finally, if a range is specified, the total number of pages in each page state are displayed for each job name at the end of the report. If the range is omitted, the list of pages and totals are not displayed.

The numbers in the top section of the report are hexadecimal. The totals at the bottom of the report are decimal.

Report without a range specified:

```
                                    R S M   H I G H   V I R T U A L   P A G E   R E P O R T

High Virtual Report for Jobname SMSPDSE ASID '0008':

List of pages was suppressed because no range was specified.

Summary of Memory Objects:

 START VSA         END VSA           I S K F X C M V CREATE TIME         REQUESTOR RQAS USER TOKEN       SHR MEM  RESERVED TCB ADDR GUARDED SEGS
 ----------------- ----------------- - - - - - - - - ------------------- --------- ---- ---------------- -------- -------- -------- -------------
 00000010_00000000 00000010_003FFFFF N N 0 Y Y A N U 10/13/2021 20:31:19 86DE8148  0008 -                -        -        004FF068 0000_00000001
 00000010_00400000 00000010_004FFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_00500000 00000010_005FFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_00600000 00000010_006FFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_00700000 00000010_007FFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_00800000 00000010_008FFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_00900000 00000010_009FFFFF N N 5 N Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_00A00000 00000010_00AFFFFF N N 5 N Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_00B00000 00000010_00BFFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_00C00000 00000010_01BFFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_01C00000 00000010_01CFFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_01D00000 00000010_01DFFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_01E00000 00000010_01EFFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_01F00000 00000010_01FFFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_02000000 00000010_020FFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_02100000 00000010_021FFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_02200000 00000010_022FFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_02300000 00000010_023FFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_02400000 00000010_024FFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_02500000 00000010_025FFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_02600000 00000010_026FFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_02700000 00000010_027FFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_02800000 00000010_028FFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_02900000 00000010_029FFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_02A00000 00000010_02AFFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_02B00000 00000010_02BFFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_02C00000 00000010_02DFFFFF N N 5 Y Y A N U 10/13/2021 20:31:20 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_02E00000 00000010_02EFFFFF N N 5 N Y A N U 10/13/2021 20:32:06 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000
 00000010_02F00000 00000010_02FFFFFF N N 5 N Y A N U 10/13/2021 20:32:06 8249EE72  0008 00FB0900004FD6A0 -        -        004FD6A0 0000_00000000

ALLOCATION SUMMARY:
           Total Allocated: 00000000_03000000
             Total Guarded: 00000000_00100000

MEMLIMIT SUMMARY:
                  MEMLIMIT: 00000100_00000000
     Allocated MEMLIMIT=NO: 00000000_02F00000
    Allocated MEMLIMIT=YES: 00000000_00000000
          MEMLIMIT Percent:                 0%
           MEMLIMIT Source:     Auth Appl Mod

Totals were suppressed because no range was specified.
```

Report with a range specified:

```
                                    R S M   H I G H   V I R T U A L   P A G E   R E P O R T


High Virtual Report for Jobname RSAMLG6  ASID X'0034':

JOBNAME  PAGE              G K F P L V D STAT  T    R LOC LOC/LOC2           PAGE I/O FIX  DG                DG
-------- ----------------- - - - - - - - ----- - -------- ------------------ -------- ---- ----------------- --------
RSAMLG6  00000050_00000000 Y 0 Y N N U N REAL  V 009DF0E7 -                  -        0000 00000009_E1174000 00000000
                                                        -                                 00000000_7FF9A038
RSAMLG6  00000050_00001000 Y 0 Y N N U N FREF  P 00000000 -                  -        -    00000009_E1174008 00000000
                                                        -                                 00000000_7FF9A038
RSAMLG6  00000050_00002000 through 00000050_000FF000 identical to 00000050_00001000 (FE                    pages)
RSAMLG6  00000050_00100000 N - - - - - - -     - -        -                 -        -    00000000_00000000 00000000
                                                        -                                 00000000_7FFF81D0
RSAMLG6  00000050_00101000 through 00000051_00000000 identical to 00000050_00100000 (0FFF00            pages)

Summary of Memory Objects:

 START VSA         END VSA           I S K F X C M V CREATE TIME         REQUESTOR RQAS USER TOKEN       SHR MEM  RESERVED TCB ADDR GUARDED SEGS
 ----------------- ----------------- - - - - - - - - ------------------- --------- ---- ---------------- -------- -------- -------- -------------
 00000010_00000000 00000010_003FFFFF N N 0 Y Y A N U 05/10/2022 20:13:56 86E81130  0034 -                -        -        004FF068 0000_00000001
 00000010_00400000 00000010_004FFFFF N N 1 N Y A N U 05/10/2022 20:13:57 86AC2FD0  0034 004F9FD8D8D4C1E3 -        -        004FD6A0 0000_00000000
 00000010_00500000 00000010_005FFFFF N N 1 N Y A N U 05/10/2022 20:13:57 86AC2FD0  0034 004ECE38D8D4C1E3 -        -        004FD6A0 0000_00000000
 00000010_00600000 00000010_006FFFFF N N 1 N Y A N N 05/10/2022 20:13:57 81996FEE  0034 0000000000000001 -        -        004FD6A0 0000_00000000
 00000010_00700000 00000010_007FFFFF N N 1 N Y A N N 05/10/2022 20:13:57 81996FEE  0034 0000000000000002 -        -        004FD6A0 0000_00000000
 00000010_00800000 00000010_009FFFFF N N 1 Y Y U N U 05/10/2022 20:13:57 86B2C934  0034 -                -        -        004FED90 0000_00000000
 00000050_00000000 00000050_000FFFFF Y N 0 Y Y A Y U 05/10/2022 20:13:57 8990B984  0034 D7C1C7C5F2404040 -        -        004EE0E0 0000_00000000

ALLOCATION SUMMARY:
           Total Allocated: 00000000_00B00000
             Total Guarded: 00000000_00100000

MEMLIMIT SUMMARY:
                  MEMLIMIT: 00000001_80000000
     Allocated MEMLIMIT=NO: 00000000_00900000
    Allocated MEMLIMIT=YES: 00000000_00100000
          MEMLIMIT Percent:                 0%
           MEMLIMIT Source:          SMFLIM6G

High Virtual Totals (in decimal 4K units) for job RSAMLG6  ASID 0034:

                  REAL                  RL_M                 GUARD
                   512                  2048                    0

                  FREF                  FRFM                  HIDE
                     0                     0                    0

                  SWAX                  SOAI                  SIAI
                     0                     0                    0

                   AUX                  DASD                   SCM
                     0                     0                    0

                  SCMM                  RL2G
                     0                     0
```

The fields in the diagnostic data are as follows:

JOBNAME
The job name of the page owner.

Note: When the virtual page is high virtual common, HVCOMM appears instead of the job name.

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:

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

V
An indication of the sensitive state of the data in the memory object.

Y
The data has been tagged as sensitive and will be redacted when post processed by Data Privacy for Diagnostics (DPfD).

N
The data has been tagged as non-sensitive and will not be redacted when post processed by DPfD.

U
The sensitive state of the data is unknown.

?
The sensitive state of the data could not be determined.

D
An indication of whether the page is part of a mapped object:

U
The page is part of a z/OS UNIX memory map.

N
The page is not part of a mapped object.

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.

LOC/LOC2
The value on the first row is an indication of 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)

h
File that contains the mapped object, LOC is RVR address

?
Could not be determined

The value on the second row is the current or most recent secondary address of the page. The character to the right of the location indicates the storage type.

t
Shared page token

?
Could not 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.

I
An indication of whether the memory object is included in MEMLIMIT.

Y
The page is included in the MEMLIMIT.

N
The page is not included in the MEMLIMIT.

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.

X
An indication of the executable status of the memory object:

Y
Code residing in this memory object can be executed.

N
Code residing in this memory object cannot be executed.

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.

V
An indication of the sensitive state of the data in the memory object.

Y
The data has been tagged as sensitive and will be redacted when post processed by Data Privacy for Diagnostics (DPfD).

N
The data has been tagged as non-sensitive and will not be redacted when post processed by DPfD.

U
The sensitive state of the data is unknown.

M
The data has multiple tags. Examine the page data for a more granular view.

?
The sensitive state of the data could not be determined.

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.

TCB ADDR
The TCB address for the owner of the memory object.

GUARDED SEGS
Indicates the number of segments that are GUARDED in HEX units.

ALLOCATION SUMMARY

Total Allocated
Total high virtual memory allocated, in bytes.

Total Guarded
Total amount of GUARDED high virtual memory, in bytes.

MEMLIMIT SUMMARY

MEMLIMIT
The limit of usable virtual memory above the bar, in bytes.

Allocated MEMLIMIT=NO
Usable memory not counted toward MEMLIMIT.

Allocated MEMLIMIT=YES
Usable memory counted toward MEMLIMIT.

MEMLIMIT Percent
Percent of the MEMLIMIT used.

MEMLIMIT Source
Indicates how the MEMLIMIT was set. Possible values:

Auth App Mod
Set by authorized application modification.

Based on REGION=0
Unlimited based on REGION=0 specification.

IEFSMFIE
Set in IEFSMFIE.

IEFUSI
Set by the IEFUSI exit.

JCL
Set in the JCL.

MEMLIMIT Not Set
The MEMLIMIT was not set.

SMF
Set by SMF via the MEMLIMIT parameter in the SMFPRMxx parmlib member.

SMFLIMxx
Set by the indicated SMFLIMxx parmlib member.

UNIX OMVS Segment
Set by the z/OS UNIX OMVS segment.

UNIX SETOMVS
MEMLIMIT set by the z/OS UNIX SETOMVS command.

UNIX Setrlimit
Set by z/OS UNIX `setrlimit`.

UNIX Spawn
Set by z/OS UNIX `spawn`.

Unknown
The source could not be determined from the RAX.

High Virtual Totals (in decimal 4K units) for job *cccccccc* ASID *hhhh*:
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 573) 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.

```
                              R S M   H I G H   C O M M O N   R E P O R T

COMMON ADDRESS RANGE: 000001EF_80000000 - 000001FF_FFFFFFFF

START VSA         END VSA           Size St T K F L JOBNAME   JOBID    CREATE TIME         REQUESTOR RQAS UNOWNED TIME       DG
----------------- ----------------- ---- -- - - - - --------  -------- ------------------- --------- ---- ------------------ --------
000001EF_80000000 000001EF_801FFFFF 0002 AC S 0 Y N *SYSTEM*  ........ 08/11/2010 21:50:53 89F073BE  0001 -                  0239AED4
000001EF_80200000 000001EF_802FFFFF 0001 AC S 0 N N *SYSTEM*  ........ 08/11/2010 21:50:53 81776668  0001 -                  0239AF88
000001EF_80300000 000001EF_803FFFFF 0001 AC S 0 N N *SYSTEM*  ........ 08/11/2010 21:50:53 81776668  0001 -                  0239B03C
000001EF_80400000 000001EF_804FFFFF 0001 AC S 0 N N *SYSTEM*  ........ 08/11/2010 21:50:53 81776668  0001 -                  0239B0F0
000001EF_80500000 000001EF_805FFFFF 0001 AC J 0 N N *MASTER*  ........ 08/11/2010 21:50:53 813E2A80  0001 -                  0239B1A4
000001EF_80600000 000001EF_806FFFFF 0001 AC S 0 N N *SYSTEM*  ........ 08/11/2010 21:50:54 81776668  0001 -                  0239B258
000001EF_80700000 000001EF_807FFFFF 0001 AC S 0 N N *SYSTEM*  ........ 08/11/2010 21:51:01 81776668  0001 -                  0239B30C
000001EF_80800000 000001EF_808FFFFF 0001 AC J 0 N N *MASTER*  ........ 08/11/2010 21:51:01 800399A8  0001 -                  0239B3C0
000001EF_80900000 000001EF_809FFFFF 0001 AC S 0 N N *SYSTEM*  ........ 08/11/2010 21:51:15 81776668  0008 -                  0239B474
000001EF_80A00000 000001EF_80AFFFFF 0001 AC S 0 N N *SYSTEM*  ........ 08/11/2010 21:51:24 81776668  0012 -                  0239B528
000001EF_80B00000 000001EF_80BFFFFF 0001 AC J 1 Y N J273AUX   ........ 08/11/2010 21:51:30 89B27D42  0012 -                  0239B5DC
000001EF_80C00000 000001EF_80CFFFFF 0001 AC J 1 Y N J273AUX   ........ 08/11/2010 21:51:30 89B27D42  0012 -                  0239B690
000001EF_80D00000 000001EF_80DFFFFF 0001 AC J 1 Y N J273AUX   ........ 08/11/2010 21:51:30 89B27D42  0012 -                  0239B744
000001EF_80E00000 000001EF_812FFFFF 0005 OG J 0 N N OA30079   STC00043 08/11/2010 22:20:50 8906C630  001C 08/11/2010 22:21:3
000001EF_81300000 000001EF_814FFFFF 0002 OG J 0 N N OA30079   STC00043 08/11/2010 22:20:50 8906C630  001C 08/11/2010 22:21:3
000001EF_81500000 000001EF_819FFFFF 0005 OG J 0 N N OA30079   STC00043 08/11/2010 22:20:50 8906C5D4  001C 08/11/2010 22:21:3
000001EF_81A00000 000001EF_81EFFFFF 0005 OG J 0 N N OA30079   STC00043 08/11/2010 22:20:50 8906C5D4  001C 08/11/2010 22:21:3
000001EF_81F00000 000001EF_823FFFFF 0005 AC S 0 N Y *SYSTEM*  ........ 08/11/2010 22:20:50 8906C630  001C -                  0239BA14
000001EF_82400000 000001EF_828FFFFF 0005 AC J 0 N N OA30079   STC00045 08/11/2010 22:25:30 8906C630  001D -
000001EF_82900000 000001EF_82AFFFFF 0002 AC J 0 N N OA30079   STC00045 08/11/2010 22:25:30 8906C630  001D -
000001EF_82B00000 000001EF_82FFFFFF 0005 AC J 0 N N OA30079   STC00045 08/11/2010 22:25:30 8906C5D4  001D -
000001EF_83000000 000001EF_834FFFFF 0005 AC J 0 N N OA30079   STC00045 08/11/2010 22:25:30 8906C5D4  001D -
000001EF_83500000 000001EF_839FFFFF 0005 AC S 0 N Y *SYSTEM*  ........ 08/11/2010 22:25:30 8906C630  001D -                  0239B960
000001FF_FFF00000 000001FF_FFFFFFFF 0001 AC S 0 N N IOSAS     ........ 08/11/2010 21:50:53 00000000  0000 -                  0239B8AC
```

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 on page 575) 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.

```
                    R S M   H I G H   V I R T U A L   S H A R E D   D A T A   R E P O R T

SHARED ADDRESS RANGE: 00000200_00000000 - 0001FFFF_FFFFFFFF

S START VSA         END VSA           ST K F VT JOBNAME  ASID CREATE TIME         REQUESTOR RQAS USER TOKEN       DG
- ----------------- ----------------- -- - - -- -------- ---- ------------------- --------- ---- ---------------- --------
L 00000200_00500000 00000200_00EFFFFF S  4 N -  TBSHR    0020 04/23/2002 15:41:53 87001A58  0020 E2C8E3C2E2C8D940 021F23D8
  00000200_00500000 00000200_00E00000        SW TBSHR    0020
L 00000200_01000000 00000200_019FFFFF S  8 Y -  TBSHRB   001E 04/23/2002 15:41:53 87001A0E  0020 E2C8E3C2E2C8D940 021F2228
                                               TBSHR    0020
  00000200_01000000 00000200_01000000        SW TBSHRB   001E
  00000200_01000000 00000200_01100000        RO TBSHR    0020
  00000200_01100000 00000200_01300000        HD TBSHRB   001E
  00000200_01200000 00000200_01900000        SW TBSHR    0020
  00000200_01400000 00000200_01600000        RO TBSHRB   001E
  00000200_01700000 00000200_01900000        SW TBSHRB   001E
L 00000200_01A00000 00000200_01AFFFFF S  3 N -  TBSHR    0020 04/23/2002 15:41:53 87001A58  0020 -                021F2468
  00000200_01A00000 00000200_01A00000        SW TBSHR    0020
G 00000200_01B00000 00000200_01EFFFFF S  3 N -  -        -    04/23/2002 15:41:53 87001AF4  0020 E2C8E3C2E2C8D940 021F26A8
  00000200_01B00000 00000200_01E00000        SW -        -
G 00000200_02000000 00000200_083FFFFF S  0 N -  TBSHR    0020 04/23/2002 15:41:53 87001AF4  0020 E2C8E3C2E2C8D940 021F22B8
  00000200_02000000 00000200_08300000        SW -        -
G 00000200_08500000 00000200_0E8FFFFF S  0 N -  TBSHRC   001F 04/23/2002 15:41:54 87001AF4  0020 E2C8E3C2E2C8D940 021F2858
                                               TBSHRB   001E
                                               TBSHR    0020
  00000200_08500000 00000200_08D00000        RO -        -
  00000200_08E00000 00000200_09D00000        HD -        -
  00000200_09E00000 00000200_0E800000        SW -        -
```

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.

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
Diagnositic data useful to IBM

RSMDATA REALFRAME subcommand output

The RSM real frame report (Figure 36 on page 577) 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 decimal.

```
                                R S M   R E A L   S T O R A G E   F R A M E   R E P O R T

   R FRM STATUS   JOBNAME  ASID DSP NAME      PAGE ID       P E D R PAGE I/O UI FIX   DG           DG       DG
-------- -------- -------- ---- -------- ------------------ - - - - -------- -- ----- -----------  -------- ----
⋮
0007EE3D ALLOC    CONSOLE  0009 -        00000000_7FF9C000  Y N N E -        00 0000     01FB8F40  00000000 0000
0007EE3C ALLOC    CONSOLE  0009 -        00000000_7FFB0000  Y N N E -        00 0000     01FB8F00  00000000 0000
0007EE3B ALLOC    CONSOLE  0009 -        00000000_7FFC4000  Y N N E -        00 0000     01FB8EC0  00000000 0000
0007EE3A ALLOC    CONSOLE  0009 -        00000000_7FFD8000  Y N N E -        00 0000     01FB8E80  00000000 0000
0007EE38 ALLOC    CONSOLE  0009 -        00000000_7FFED000  Y N N D -        00 0000     01FB8E00  00000000 0000
0007EE35 ALLOC    CONSOLE  0009 -        00000000_7FF85000  Y N N E -        00 0000     01FB8D40  00000000 0000
0007EE33 ALLOC    CONSOLE  0009 -        00000000_7F5B9000  Y N N E -        00 0000     01FB8CC0  00000000 0000
0007EE32 ALLOC    CONSOLE  0009 -        00000000_7FF80000  Y N N E -        00 0000     01FB8C80  00000000 0000
0007EE31 ALLOC    CONSOLE  0009 -        00000000_7FF91000  Y N N D -        00 0000     01FB8C40  00000000 0000
0007EE2B ALLOC    CONSOLE  0009 -        00000000_7FF7A000  Y N N E -        00 0000     01FB8AC0  00000000 0000
0007EE2A ALLOC    CONSOLE  0009 -        00000000_7FF7B000  Y N N E -        00 0000     01FB8A80  00000000 0000
0007EE26 ALLOC    CONSOLE  0009 -        00000000_7FF77000  Y N N E -        00 0000     01FB8980  00000000 0000
0007EE27 ALLOC    CONSOLE  0009 -        00000000_7FF78000  Y N N D -        00 0000     01FB89C0  00000000 0000
0007EE28 ALLOC    CONSOLE  0009 -        00000000_7FF79000  Y N N D -        00 0000     01FB8A00  00000000 0000
0007EE25 ALLOC    CONSOLE  0009 -        00000000_004FA000  Y N N E -        00 0000     01FB8940  00000000 0000
0007EE24 ALLOC    CONSOLE  0009 -        00000000_7FF86000  Y N N D -        00 0000     01FB8900  00000000 0000
0007EE23 ALLOC    CONSOLE  0009 -        00000000_7FF75000  Y N N E -        00 0000     01FB88C0  00000000 0000
0007EE1E ALLOC    CONSOLE  0009 -        00000000_7FF6C000  Y N N D -        00 0000     01FB8780  00000000 0000
0007EE1D ALLOC    CONSOLE  0009 -        00000000_7FF5A000  Y N N D -        00 0000     01FB8740  00000000 0000
0007EE1C ALLOC    CONSOLE  0009 -        00000000_7FF58000  Y N N E -        00 0000     01FB8700  00000000 0000


   R FRM STATUS   JOBNAME  ASID DSP NAME      PAGE ID       P E D R PAGE I/O UI FIX   DG           DG       DG
-------- -------- -------- ---- -------- ------------------ - - - - -------- -- ----- -----------  -------- ----
⋮
00079EFB ALLOC    CONSOLE  0009 -        00000000_004E9000  Y N N E -        00 0000     01E7BEC0  00000000 0000
00079EFA ALLOC    CONSOLE  0009 -        00000000_004E8000  Y N N E -        00 0000     01E7BE80  00000000 0000
00079EF9 ALLOC    CONSOLE  0009 -        00000000_004E7000  Y N N E -        00 0000     01E7BE40  00000000 0000
000867A4 ALLOC    CONSOLE  0009 -        00000000_00009000f Y N N E -        00 0000     0219E900  00000000 0000
000869CD ALLOC    CONSOLE  0009 -        00000000_0000A000f Y N N E -        00 0000     021A7340  00000000 0000
00086CCA ALLOC    CONSOLE  0009 -        00000000_0A38E000f Y N N E -        00 0000     021B3280  00000000 0000
00086CC9 ALLOC    CONSOLE  0009 -        00000000_0A38F000f Y N N E -        00 0000     021B3240  00000000 0000
00086CC0 ALLOC    CONSOLE  0009 -        00000000_0A390000f Y N N E -        00 0000     021B3000  00000000 0000
00086D9F ALLOC    CONSOLE  0009 -        00000000_0A391000f Y N N E -        00 0000     021B67C0  00000000 0000
00086D9E ALLOC    CONSOLE  0009 -        00000000_0A392000f Y N N E -        00 0000     021B6780  00000000 0000
00086D4C ALLOC    CONSOLE  0009 -        00000000_0000B000f Y N N E -        00 0000     021B5300  00000000 0000
00086CC8 ALLOC    CONSOLE  0009 -        00000000_004E4000F Y N N E -        00 0000     021B3200  00000000 0000
00086D9B ALLOC    CONSOLE  0009 -        00000000_7EAE7000F Y N N E -        00 0000     021B66C0  00000000 0000
00086D98 ALLOC    CONSOLE  0009 -        00000000_7EAEC000F Y N N E -        00 0000     021B6600  00000000 0000
```

Figure 36. Example: A portion of the RSMDATA REALFRAME subcommand output (1 of 2)

```
   R FRM STATUS   JOBNAME  ASID DSP NAME      PAGE ID       P E D R PAGE I/O UI FIX   DG           DG       DG
-------- -------- -------- ---- -------- ------------------ - - - - -------- -- ----- -----------  -------- ----
⋮
00093226 ALLOC    CONSOLE  0009 -        00000000_0A372000  Y N N E -        00 0000     024C8980  00000000 0000
00093214 ALLOC    CONSOLE  0009 -        00000000_0A373000  Y N N E -        00 0000     024C8500  00000000 0000
0009320A ALLOC    CONSOLE  0009 -        00000000_0A371000  Y N N E -        00 0000     024C8280  00000000 0000
00086CF4 ALLOC    CONSOLE  0009 -        00000000_7EAEE000F Y N N E -        00 0000     021B3D00  00000000 0000
00086D96 ALLOC    CONSOLE  0009 -        00000000_7EAE5000F Y N N E -        00 0000     021B6580  00000000 0000
00086D4D ALLOC    CONSOLE  0009 -        00000000_7EAED000F Y N N E -        00 0000     021B5340  00000000 0000
00086D9A ALLOC    CONSOLE  0009 -        00000000_7EAEA000F Y N N E -        00 0000     021B6680  00000000 0000
0007B42A ALLOC    CONSOLE  0009 -        00000000_7F2F9000F Y N N E -        00 0000     01ED0A80  00000000 0000
00088583 ALLOC    CONSOLE  0009 -        00000000_7EAEF000F Y N N E -        00 0000     022160C0  00000000 0000
00088584 ALLOC    CONSOLE  0009 -        00000000_7EAF7000F Y N N E -        00 0000     02216100  00000000 0000
00088585 ALLOC    CONSOLE  0009 -        00000000_7EAF4000F Y N N E -        00 0000     02216140  00000000 0000
0007A58C ALLOC    CONSOLE  0009 -        00000000_7F320000F Y N N E -        00 0000     01E96300  00000000
0000
00093234 ALLOC    CONSOLE  0009 -        00000000_7EB01000F Y N N E -        00 0000     024C8D00  00000000
0000
0007B43C ALLOC    CONSOLE  0009 -        00000000_7F2F7000F Y N N E -        00 0000     01ED0F00  00000000 0000
00096A64 ALLOC    CONSOLE  0009 -        00000000_7FF81000  Y N N E -        00 0000     025A9900  00000000 0000
001FFEB8 ALLOC    CONSOLE  0009 -        00000000_00000000d N N Q E -        00 0021i    07FFAE00  00000000
0000
001FFEB9 ALLOC    CONSOLE  0009 -        00000000_00000000d N N Q E -        00 0000i    07FFAE40  00000000 0000
001FFEBA ALLOC    CONSOLE  0009 -        00000000_00000000d N N Q E -        00 0000i    07FFAE80  00000000 0000
001FFEBB ALLOC    CONSOLE  0009 -        00000000_00000000d N N Q E -        00 0000i    07FFAEC0  00000000 0000
0007B857 ALLOC    CONSOLE  0009 -        00000000_7FF14000  Y N N E -        00 0000i    01EE15C0  00000000 0000
0007B858 ALLOC    CONSOLE  0009 -        00000000_7FF13000  Y N N E -        00 0000i    01EE1600  00000000 0000
0007B763 ALLOC    CONSOLE  0009 -        00000000_7FF12000  Y N N E -        00 0000i    01EDD8C0  00000000 0000
⋮


R FRM STATUS   JOBNAME  ASID DSP NAME      PAGE ID       P E D R PAGE I/O UI FIX   DG           DG       DG
-------- -------- -------- ---- -------- ------------------ - - - - -------- -- ----- -----------  -------- ----

001FFEBC ALLOC    CONSOLE  0009 -        00000000_7FF09000  N N Q E -        00 0000i    07FFAF00  00000000 0000
001FFEBD ALLOC    CONSOLE  0009 -        00000000_7FF0A000  N N Q E -        00 0000i    07FFAF40  00000000 0000
001FFEBE ALLOC    CONSOLE  0009 -        00000000_7FF0B000  N N Q E -        00 0000i    07FFAF80  00000000 0000
001FFEBF ALLOC    CONSOLE  0009 -        00000000_7FF0C000  N N Q E -        00 0000i    07FFAFC0  00000000 0000
0007B764 ALLOC    CONSOLE  0009 -        00000000_7FF08000  Y N N E -        00 0038i    01EDD900  00000000 0000
0007B846 ALLOC    CONSOLE  0009 -        00000000_7FF0D000  Y N N E -        00 000Bi    01EE1180  00000000 0000
0007B859 ALLOC    CONSOLE  0009 -        00000000_7FF16000  Y N N E -        00 0000i    01EE1640  00000000 0000
0007B843 ALLOC    CONSOLE  0009 -        00000000_7FF15000  Y N N E -        00 0000i    01EE10C0  00000000 0000
0007B85A ALLOC    CONSOLE  0009 -        00000000_7FF07000  Y N N E -        00 000Di    01EE1680  00000000 0000
0007EE4C ALLOC    CONSOLE  0009 -        00000000_7FEFF000  Y N N E -        00 0001i    01FB9300  00000000 0000
0007EE4A ALLOC    CONSOLE  0009 -        00000000_7FFFE000  Y N N E -        00 0000i    01FB9280  00000000 0000
0007EE49 ALLOC    CONSOLE  0009 -        00000000_7FF11000  Y N N E -        00 0018i    01FB9240  00000000 0000
0007EE48 ALLOC    CONSOLE  0009 -        00000000_004FF000  Y N N E -        00 0000i    01FB9200  00000000 0000
⋮
Data space frames unavailable for ASID X'0009'. Storage not in dump.

 Totals for this real frame report (in decimal 4K units):


         ALLOC       ALLOCVR       ALLOC1M         AVAIL        AVAIL1M
         1,521             0             0             0              0

       AVAIL8K      AVAIL16K      AVAIL32K      AVAIL64K       AVAI128K
             0             0             0             0              0

       AVAI256K      AVAI512K
              0             0

        POLLUTE         VRINT       ALLOC2G       AVAIL2G    LFREEMAINED
              0             0             0             0             20

        OFFLINE        OFFINT      OFFINTVR      OFFINTPL    HFREEMAINED
              0             0             0             0             24

         TOTAL
         1,521
```

Figure 37. Example: A portion of the RSMDATA REALFRAME subcommand output (2 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.

ALLOCSM
Frame is backing a page that is part of a shared segment.

ALLOCVR
Allocated to a V=R job that is running or waiting for additional frames.

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.

AVAIL8K
Available 8K frame.

AVAIL16K
Available 16K frame.

AVAIL32K
Available 32K frame.

AVAIL64K
Available 64K frame.

AVAIL128K
Available 128K frame.

AVAIL256K
Available 256K frame.

AVAIL512K
Available 512K 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 £ after the entry indicates that the frame is backing a low private page that is freemained. See *z/OS MVS Initialization and Tuning Guide* for a description of this type of frame.
- An F after the entry indicates that the frame is backing a 31 bit high private 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.

D
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.

R

An indication of the page backed by the frame:

E
The frame backs an enabled reference page

D
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 SAVELIST

DIVUNMAP
Data-in-virtual UNMAP service

DSPCONV
Data space convert services

DSPCREAT
Data space create

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

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

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

SSPDELET
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

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

VSUNSHAR
IARVSERV UNSHARE service

WAITSER
RSM wait services

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, ALLOC1M, ALLOC2G, AVAIL, AVAIL1M, AVAIL2G, LFREEMAINED, HFREEMAINED, OFFLINE, OFFINT, OFFINTVR, OFFINTPL, POLLUTE, VRINT, AVAIL8K, AVAIL16K, AVAIL 32K, AVAIL64K, AVAI128K, AVAI256K, or AVAI512K. 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 587) 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).

```
R S M   R E Q U E S T S   R E P O R T

 JOBNAME  ASID TCB/SRB   FUNCTION STATUS   OWNG JOB ONAS DSP NAME      PAGE ID      COUNT    R FRM    DG
 -------- ---- --------- -------- -------- -------- ---- -------- ----------------- -------- -------- --------
 *MASTER* 0001 t006E6D78 PGFIX    COMPLETE PAGECOMM -    -        00000000_03B2C000 00000001 00003614 0218153C
 *MASTER* 0001 t006E7B60 PGFIX    COMPLETE PAGECOMM -    -        00000000_02618000 00000001 00003530 021816CC
 *MASTER* 0001 t006E7B60 PGFIX    COMPLETE PAGECOMM -    -        00000000_02616000 00000001 00003542 0218168C
 *MASTER* 0001 t00FC1E90 PGFIX    COMPLETE PAGECOMM -    -        00000000_00B95000 00000001 00000D12 021816DC
 *MASTER* 0001 t00FC1E90 PGFIX    COMPLETE PAGECOMM -    -        00000000_05821000 00000001 00005DB8 0218159C
 TRACE    0004 t006FFBF8 PGFIX    COMPLETE TRACE    0004 -        00000000_06205000 00000001 00005E44 7FFF002C
 GRS      0007 t006FFBF8 PGFIX    COMPLETE GRS      0007 -        00000000_7FFC4000 00000001 00003E01 7FFC7F9C
 GRS      0007 t006FFBF8 PGFIX    COMPLETE GRS      0007 -        00000000_7FFC3000 00000001 00003E2C 7FFC7F90
 VTAM     0018 t006EC9A8 PGFIX    COMPLETE VTAM     0018 -        00000000_006E3000 00000002 000021B3 7FFC3F3C
 VTAM     0018 t006EC9A8 PGFIX    COMPLETE PAGECOMM -    -        00000000_04413000 00000001 00001A06 021816BC
 TBBOTH   001C t006EC4C0 FLTAHPAG PGREAD   TBBOTH   001C -        00000001_01001000 00000001 00002719 020DB5E0
 TBBOTH   001C t006EC4C0 PGFIX    COMPLETE TBBOTH   001C -        00000000_06202000 00000001 00003567 7FFC3F54
 IBMUSER  001D t006DF3B8 PGFIX    COMPLETE IBMUSER  001D -        00000000_006C7000 00000003 00001754 7FFF0068
 IBMUSER  001D t006DF3B8 PGFIX    COMPLETE IBMUSER  001D -        00000000_006CD000 00000004 000015EF 7FFF005C

 Totals for active RSM requests in this report (in decimal):

       PGREAD      PGWRITE      FRAMEAA      FRAMEAB      FRAMEPA
            1            0            0            0            0

      FRAMEPH      FRAMEAH    QUADFRAME
            0            0            0

      FRAMEPB     DBLFRAME      INPROGR     COMPLETE       CANCEL
            0            0            0          248            0

       IOFAIL       XMFAIL         FAIL        TOTAL
            0            0            0          249

 Active cross-memory requests, re-sorted by owning address space:

 JOBNAME  ASID TCB/SRB   FUNCTION STATUS   OWNG JOB ONAS DSP NAME      PAGE ID      COUNT    R FRM    DG
 -------- ---- --------- -------- -------- -------- ---- -------- ----------------- -------- -------- --------
 *MASTER* 0001 t006E6D78 PGFIX    COMPLETE PAGECOMM -    -        00000000_03B2C000 00000001 00003614 0218153C
 *MASTER* 0001 t006E7B60 PGFIX    COMPLETE PAGECOMM -    -        00000000_02618000 00000001 00003530 021816CC
 *MASTER* 0001 t006E7B60 PGFIX    COMPLETE PAGECOMM -    -        00000000_02616000 00000001 00003542 0218168C
 *MASTER* 0001 t00FC1E90 PGFIX    COMPLETE PAGECOMM -    -        00000000_00B95000 00000001 00000D12 021816DC
 *MASTER* 0001 t00FC1E90 PGFIX    COMPLETE PAGECOMM -    -        00000000_05821000 00000001 00005DB8 0218159C
 VTAM     0018 t006EC9A8 PGFIX    COMPLETE PAGECOMM -    -        00000000_04413000 00000001 00001A06 021816BC
 Residual requests, sorted with most recently active first:

 JOBNAME  ASID TCB/SRB   FUNCTION STATUS   OWNG JOB ONAS DSP NAME      PAGE ID      COUNT    R FRM    DG
 -------- ---- --------- -------- -------- -------- ---- -------- ----------------- -------- -------- --------
 TBBOTH   001C t006EC4C0 FLTAHPAG PGREAD   TBBOTH   001C -        00000001_01000000 00000001 00001777 020DAE00
 J273     0014 s006EAA68 PGFIX    INPROGR  J273     0014 -        -                 00000001 -        020DB430
 J273     0014 s006EAA68 PGFIX    INPROGR  J273     0014 -        -                 00000001 -        0225AC50
 J273     0014 s006EAA68 PGFIX    INPROGR  J273     0014 -        -                 00000001 -        020DBCA0
 TBBOTH   001C -         PGOUT    PGWRITE  TBBOTH   001C -        00000000_06207000 00000001 000027D0 020DBA60
 TBBOTH   001C -         PGOUT    PGWRITE  TBBOTH   001C -        00000000_06206000 00000001 00002720 020DBD30
 TBBOTH   001C -         PGOUT    PGWRITE  TBBOTH   001C -        00000000_06205000 00000001 0000271C 0225B310
 IBMUSER  001D t006FF0D0 FLTAEPAG PGREAD   PAGECOMM -    -        00000000_0475B000 00000001 00003F13 020DB8B0

 Totals for residual RSM requests in this report (in decimal):

       PGREAD      PGWRITE      FRAMEAA      FRAMEAB      FRAMEPA
            4           15            0            0            0

      FRAMEPH      FRAMEAH    QUADFRAME
            0            0            0

      FRAMEPB     DBLFRAME      INPROGR     COMPLETE       CANCEL
            0            0           18            0            0

       IOFAIL       XMFAIL         FAIL        TOTAL
            0            0            0           37
```

Figure 38. Example: RSMDATA RSMREQ subcommand output

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)

FRAMEPH
Waiting for any real frame that resides in the preferred area. (Only for z/Architecture dumps)

FRAMEQD
Waiting for a quad-frame group. (Only for z/Architecture dumps)

OWNG JOB
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.

ONAS
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.

DSP NAME
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.

PAGE ID
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.)

COUNT
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.

R FRM
The real frame number associated with the request. A dash (–) appears if there is no specific frame related to the request.

DG
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, DBLFRAME, 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.

RSMDATA SHRDATA subcommand output

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.

```
                                                R S M   S H A R E D   D A T A   R E P O R T

SH TOKEN          K GP R V P B S STAT    R LOC LOC       LOC2      PAGE I/O VT O L F D JOBNAME  ASID DSP NAME PAGE              DG       DG
----------------- - -- - - - - - ---- -------- --------- --------- -------- -- - - - - -------- ---- -------- ---------------- -------- ----------------
00000022_20015040 1 -  E N N H N REAL 001AF751 -         -         -        SW N N N N J273AUX  001D J273CKV2 00000000_38277000 00000A59 00000022_A0029640
                                                                            SW N N N N J273AUX  001D J273CKV2 00000000_07F5C000 00000A51 00000022_A0029440
00000022_20015080 1 -  E N N H N REAL 001AF750 -         -         -        SW N N N N J273AUX  001D J273CKV2 00000000_38278000 00000A5B 00000022_A00296C0
                                                                            SW N N N N J273AUX  001D J273CKV2 00000000_07F5D000 00000A53 00000022_A00294C0
00000022_200150C0 1 -  E N N H N REAL 001AF74F -         -         -        SW N N N N J273AUX  001D J273CKV2 00000000_38279000 00000A5D 00000022_A0029740
                                                                            SW N N N N J273AUX  001D J273CKV2 00000000_07F5E000 00000A55 00000022_A0029540
00000022_20015100 1 -  E N N H N REAL 001AF74E -         -         -        SW N N N N J273AUX  001D J273CKV2 00000000_3827A000 00000A5F 00000022_A00297C0
                                                                            SW N N N N J273AUX  001D J273CKV2 00000000_07F5F000 00000A58 00000022_A0029600
00000022_20015140 1 -  E N N H N REAL 001AF74D -         -         -        SW N N N N J273AUX  001D J273CKV2 00000000_3827B000 00000A61 00000022_A0029840
                                                                            SW N N N N J273AUX  001D J273CKV2 00000000_07F60000 00000A5A 00000022_A0029680
00000022_20015180 1 -  E N N H N REAL 001AF74C -         -         -        SW N N N N J273AUX  001D J273CKV2 00000000_3827C000 00000AA2 00000022_A002A880
                                                                            SW N N N N J273AUX  001D J273CKV2 00000000_07F61000 00000AA1 00000022_A002A840
00000022_200151C0 1 -  E N N H N REAL 001AF74B -         -         -        SW N N N N J273AUX  001D J273CKV2 00000000_3827D000 00000AA4 00000022_A002A900
                                                                            SW N N N N J273AUX  001D J273CKV2 00000000_07F62000 00000AA3 00000022_A002A8C0

...

00000022_2001AB80 0 -  E N N H N REAL 00197A8C 0000CA06f -         -         -        SW N N N N MAINASID 0033 -        00000050_001F9000 00000D29 00000022_A0034A40
                                                                            SW Y N N N MAINASID 0033 -        00000050_000F9000 00000D28 00000022_A0034A00
00000022_2001ABC0 0 -  E N N H N REAL 0019799E 0000CA05f -         -         -        SW N N N N MAINASID 0033 -        00000050_001FA000 00000D4D 00000022_A0035340
                                                                            SW Y N N N MAINASID 0033 -        00000050_000FA000 00000D2A 00000022_A0034A80
00000022_2001AC00 0 -  E N N H N REAL 001A41EE 0000CA04f -         -         -        SW N N N N MAINASID 0033 -        00000050_001FB000 00000D5D 00000022_A0035740
                                                                            SW Y N N N MAINASID 0033 -        00000050_000FB000 00000D55 00000022_A0035540
00000022_2001AC40 0 -  E N N H N REAL 001A58F4 0000CA03f -         -         -        SW N N N N MAINASID 0033 -        00000050_001FC000 00000D6D 00000022_A0035B40
                                                                            SW Y N N N MAINASID 0033 -        00000050_000FC000 00000D65 00000022_A0035940
00000022_2001AC80 0 -  E N N H N REAL 001A41E8 0000CA02f -         -         -        SW N N N N MAINASID 0033 -        00000050_001FD000 00000D7D 00000022_A0035F40
                                                                            SW Y N N N MAINASID 0033 -        00000050_000FD000 00000D75 00000022_A0035D40
00000022_2001ACC0 0 -  E N N H N REAL 001A4080 0000CA01f -         -         -        SW N N N N MAINASID 0033 -        00000050_001FE000 00000D54 00000022_A0035500
                                                                            SW Y N N N MAINASID 0033 -        00000050_000FE000 00000D43 00000022_A00350C0


SH TOKEN          K GP R V P B S STAT    R LOC LOC       LOC2      PAGE I/O VT O L F D JOBNAME  ASID DSP NAME PAGE              DG       DG
----------------- - -- - - - - - ---- -------- --------- --------- -------- -- - - - - -------- ---- -------- ---------------- -------- ----------------
00000022_2001AD00 0 -  E N N H N REAL 001A4082 0000CA00f -         -         -        SW N N N N MAINASID 0033 -        00000050_001FF000 00000D5E 00000022_A0035780
                                                                            SW Y N N N MAINASID 0033 -        00000050_000FF000 00000D4E 00000022_A0035380

Totals (in decimal):

         REAL            DIV            DSN
        1,678              0              0

          AUX           DASD            SCM
            0              0              0

         FREF           DREF          TOTAL
            0              0          1,678
```

Figure 39. Example output from the RSM shared data report

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.

N
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)

S
Indicates whether all the views of the share group are restricted to being owned by a single address space.

Y
All views must be owned by a single address space.

N
View ownership is not restricted.

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

SW
Shared-write access

TW
Target-write access

UW
Unique-write access.

?
Unknown type of view.

O
Indicates whether this sharing page is the source or target.

Y
The page is the source.

N
The page is the target.

L
Indicates whether this sharing page is for a private area LSQA page.

Y
The view is for a private area LSQA page.

N
The view is not part of LSQA.

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.

F
Indicates whether this sharing page is fixed in real (Y) or not (N).

D
Indicates whether this sharing page is a disabled reference page (Y) or not (N).

JOBNAME
The job name of the sharing page owner or one of the following:

FIXCOMM
Fixed common area page.

PAGECOMM
Page in a pageable common area subpool (including disabled reference subpools), PLPA, or MLPA.

PERMCOMM
Permanently resident common area page.

ASID
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.

DSP NAME
The name of the data space that contains the sharing page. A dash (–) indicates that the page is not within a data space.

PAGE
The virtual address, in hexadecimal, of the sharing page.

DG
IBM internal diagnostic information. No customer interpretation is intended.

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 on page 594). The subspaces are sorted by ASID. The subspaces for an address space are listed by the lower limit of the subspace virtual storage address.

```
                          R S M   S U B S P A C E   R E P O R T

JOBNAME  ASID SSP NAME OWNG TCB STOKEN            DG       DG       DG       DG
-------- ---- -------- -------- ----------------- -------- -------- -------- --------
SERV0001 0041 SSP00001 009EEE80 90000A01 0000000B 7FFF1040 688FF000 0128F000 7F004000
SERV0001 0041 SSP00002 009EEE80 90000B01 0000000C 7FFF1080 688FF080 0128F080 7F002000
SERV0001 0041 SSP00003 009EEE80 90000C01 0000000D 7FFF10C0 688FF100 0128F100 00000000
    .
    .
    .

   JOBNAME  ASID START AD END ADDR STATUS   SSP NAME DG
   -------- ---- -------- -------- -------- -------- --------
   SERV0001 0041 00000000 000FFFFF GLOBAL   -        6FF00000
   SERV0001 0041 00100000 00100FFF ASSIGN   SSP00001 6FEFF000
   SERV0001 0041 00101000 00101FFF ASSIGN   SSP00002 6FEFF004
   SERV0001 0041 00102000 001FFFFF UNASSIGN -        6FEFF008
   SERV0001 0041 00200000 006FFFFF UNASSIGN -        6FF00008
   SERV0001 0041 00700000 03FFFFFF GLOBAL   -        6FF0001C
   SERV0001 0041 04000000 040FFFFF ASSIGN   SSP00001 6FF00100
   SERV0001 0041 04100000 041FFFFF ASSIGN   SSP00002 6FF00104
    .
    .
    .
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:

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.

```
                  R S M   S U M M A R Y   R E P O R T


                         Tot real      Prf real      Below Prf B Above    Prf A    Dbl real Qd Real
                         ------------ ------------ ----- ----- -------- -------- -------- -------------
In configuration . . . .     8,388,480     7,323,194 4,096 4,026  520,064  520,064        -             -
Available for allocation     8,253,599     7,176,040 4,093 4,023  516,901  516,901        8       262,136
Allocated  . . . . . .       4,007,746     3,990,397   176   119    7,153    7,153        5           243
Percent usage  . . . . .            48            55     4     2        1        1       62             0
Common fixed frames  . .         7,694         7,690    18    18    4,116    4,116        -             -
  Percent of available .             0             0     0     0        0        0        -             -
Total fixed frames . . .        31,623             -    27     -    5,807        -        -             -
  Percent of available .             0             -     0     -        1        -        -             -
Total freemained frames          2,771         2,771     -     -      106      106        -             -
  Percent of available .             0             0     -     -        0        0        -             -
  Percent of allocated .             0             0     -     -        1        1        -             -


V=R Region:
  First frame number X'00006'
  Last frame number X'0004B'
  Size (in frames)              70

Total disabled reference (DREF) pages in real:           3,467

Number of shared data pages:
  Valid and fixed in real  . .              6
  Valid and pageable in real .          1,393
  On auxiliary storage . . . .              0
  On DASD. . . . . .                        0
  On SCM . . . . . .                        0

Number of 64-bit common memory pages:
  Backed in real . . . . . .                    3,433
  Fixed in real  . . . . . .                    2,948
  DREF in real . . . . . .                          6
  On auxiliary storage . . . .                      0
  On DASD  . . . . . .                              0
  On SCM . . . . . .                                0

Number of Fixed Large Pages:
  Total  . . . . . .                               64
  Backed in real . . . . . .                        0

Number of Pageable Large Pages:
  Total  . . . . . .                              221
  Backed in real . . . . . .                        0
  Fixed in real  . . . . . .                        0

Number of 2G Pages:
  Total  . . . . . .                                4
  Backed in real . . . . . .                        2

Number of Octo Frames:
  Total Available  . . . . . .                  8,152
  Total In Use . . . . . .                         61
  Pref Available . . . . . .                        0
  Pref In Use  . . . . . .                          1


  Available Pref High Frames by Size:
    Type        Count   Amount
   ------       -----   ------
     4KB          102      408K
     8KB            3       24K
    16KB            1       16K
    32KB            0        0
    64KB            0        0
   128KB           15        1M
   256KB            9        2M
   512KB            3        1M
     1MB          17K      17G


Internal IBM diagnostic information:

00 02              144 000000D5
01 00          249,068 00000016
02 01            1,003 0000000F
00               249,068
01                 1,003
02                   144
```

Figure 41. Example: RSM summary report

The first 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

Above
Real storage frames above 16 MB, but below 2 GB

Prf A
Preferred real frames above 16 MB, but below 2 GB

Dbl real
Double frame pairs

Qd Real
Quad frame groups

The subsequent report sections display information, as follows:

V=R Region:
If there is a V=R region, this 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:
This section of the report displays the total number, in decimal, of disabled reference (DREF) pages in central storage.

Number of shared data pages:
This 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:
This 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 Large Pages:
This section of the report displays the total number, in decimal, of fixed 1 MB-pages in real storage.

Number of Pageable Large pages:
This section of the report displays the total number, in decimal of 1 MB-pages in real storage (fixed or pageable).

Number of 2G pages:
This section of the report displays the total number, in decimal, of 2 GB-pages in real storage.

Number of Octo Frames:
This section of the report displays the number, in decimal, of available and in-use octo frames (total and in preferred storage).

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.

Available Pref High Frames by Size:
This section of the report displays the total number of each pref high frame group as well as the amount, in bytes, contained in each pref high frame group.

Internal IBM diagnostic information:
The last section of the report contains diagnostic data useful to IBM.

IARnnnnns messages
Messages appear for any unusual conditions. See *z/OS MVS Dump Output Messages* for message explanations.

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.

```
                                        R S M   V I R T U A L   P A G E   R E P O R T



JOBNAME  DSP NAME PAGE     G K F R P D B L X STAT T    R LOC LOC       LOC2              PAGE I/O FIX   DG       DG       DG       DG
-------- -------- -------- - - - - - - - - - ---- - -------- --------- ----------------- -------- ----- -------- -------- -------- --
MAINASID -        00000000 Y 0 N E N N N N Y REAL V 00000000 -         -                 -        0000i 7FF0D000 00000000 00000000 00
MAINASID -        00001000 Y 0 Y E N N N N Y REAL V 00000001 -         -                 -        0000i 7FF0D008 00000000 00000000 00
MAINASID -        00002000 N - - - - - - N Y -    - -        -         -                 -        -     7FF0D010 00000000 00000000 00
MAINASID -        00003000 through 00005000 identical to 00002000 (00000003 pages)
MAINASID -        00006000 Y 8 Y E N N N N Y REAL V 0019BF48 -         -                 -        0000  7FF0D030 00000000 00000000 00
MAINASID -        00007000 N 0 N E N N N N Y REAL V 001A351B -         -                 -        0000  7FF0D038 00000000 00000000 00
MAINASID -        00008000 N 0 N E N N N N Y REAL V 001A351A -         -                 -        0000  7FF0D040 00000000 00000000 00
MAINASID -        00009000 N 0 N E N N N N Y REAL V 001A3519 -         -                 -        0000  7FF0D048 00000000 00000000 00
MAINASID -        0000A000 N 0 N E N N N N Y REAL V 001A3518 -         -                 -        0000  7FF0D050 00000000 00000000 00
MAINASID -        0000B000 N 0 N E N N N N Y REAL V 001A3673 -         -                 -        0000  7FF0D058 00000000 00000000 00
MAINASID -        0AA2E000 Y 8 Y E N N N N Y REAL V 0019C2B7 -         -                 -        0000  7F7B3170 00000000 00000000 00

...

MAINASID -        0AA33000 Y 8 Y E N N N N Y REAL V 0019C2B2 -         -                 -        0000  7F7B3198 00000000 00000000 00
MAINASID -        0AA34000 Y 8 Y E N N N N Y REAL V 0019C2B1 -         -                 -        0000  7F7B31A0 00000000 00000000 00
MAINASID -        0AA35000 Y 8 Y E N N N N Y REAL V 0019C2B0 -         -                 -        0000  7F7B31A8 00000000 00000000 00
MAINASID -        0AA36000 Y 8 Y E N N N N Y REAL V 0019C2AF -         -                 -        0000  7F7B31B0 00000000 00000000 00
MAINASID -        0AA37000 Y 8 Y E N N N N Y REAL V 0019C2AE -         -                 -        0000  7F7B31B8 00000000 00000000 00
MAINASID -        0AA38000 Y 8 Y E N N N N Y REAL V 0019C2AA 00000003v 00000003_00000001v -        0000  7F7B31C0 00000000 00000000 00
MAINASID -        0AA39000 Y 8 Y E N N N N Y REAL V 001A7210 00000003v 00000003_00000002v -        0000  7F7B31C8 00000000 00000000 00
MAINASID -        0AA3A000 Y 8 Y E N N N N Y REAL V 001A720F 00000003v 00000003_00000003v -        0000  7F7B31D0 00000000 00000000 00
MAINASID -        0AA3B000 Y 8 Y E N N N N Y REAL V 001A720E 00000003v 00000003_00000004v -        0000  7F7B31D8 00000000 00000000 00
MAINASID -        0AA3C000 Y 8 Y E N N N N Y SCM  P 001A720D 00004379f 00000022_20000100t -        0000  7F7B31E0 00000000 00000000 00
MAINASID -        0AA3D000 Y 8 Y E N N N N Y FREF P 00000000 -         00000022_200000C0t -        0000  7F7B31E8 00000000 00000000 00
MAINASID -        0AA3E000 Y 8 Y E N N N N Y SCM  P 001A720D 00004379f 00000022_20000100t -        0000  7F7B31F0 00000000 00000000 00
MAINASID -        0AA3F000 Y 8 Y E N N N N Y FREF P 00000000 -         00000022_200000C0t -        0000  7F7B31F8 00000000 00000000 00
MAINASID -        0AA40000 N - - - - - - N Y -    - -        -         -                 -        -     7F7B3200 00000000 00000000 00
MAINASID -        0AA41000 through 0AAFF000 identical to 0AA40000 (000000BF pages)
MAINASID -        0AB00000 N - - - - - - N Y -    - -        -         -                 -        -     7F7B4000 00000000 00000000 00
MAINASID -        0AB01000 through 7F3FF000 identical to 0AB00000 (000748FF pages)
MAINASID -        7F400000 N - - - - - - N Y -    - -        -         -                 -        -     7FEFD000 00000000 00000000 00
MAINASID -        7F401000 through 7F4F5000 identical to 7F400000 (000000F5 pages)

...

MAINASID -        7FFF7000 Y 0 Y E N N N N Y REAL V 0000DDC7 -         -                 -        0000i 7FF087B8 00000000 00000000 00
MAINASID -        7FFF8000 Y 0 N E N N N N Y REAL V 001A4564 -         -                 -        0000i 7FF087C0 00000000 00000000 00
MAINASID -        7FFF9000 Y 0 N E N N N N Y REAL V 001A4565 -         -                 -        0000i 7FF087C8 00000000 00000000 00
MAINASID -        7FFFA000 Y 0 N E N N N N Y REAL V 001A4566 -         -                 -        0000i 7FF087D0 00000000 00000000 00
MAINASID -        7FFFB000 Y 0 N E N N N N Y REAL V 001A4567 -         -                 -        0000i 7FF087D8 00000000 00000000 00
MAINASID -        7FFFC000 Y 0 N E N N N N Y REAL V 001A5A00 -         -                 -        0000i 7FF087E0 00000000 00000000 00
MAINASID -        7FFFD000 Y 0 N E N N N N Y REAL V 001A5A01 -         -                 -        0000i 7FF087E8 00000000 00000000 00
MAINASID -        7FFFE000 Y 0 N E N N N N Y REAL V 001A67F2 -         -                 -        0000i 7FF087F0 00000000 00000000 00
MAINASID -        7FFFF000 N - - - - - - N Y -    - -        -         -                 -        -     7FF087F8 00000000 00000000 00

Totals (in decimal 4K units) for job MAINASID ASID 002F:

          REAL            RL_M             DIV             VIO
         2,431               0               0               0

           DSN            FREF            FRFM            HIDE
             0             213               0               0

           AUX            DASD             SCM            SCMM
             2               0               2               0

          SOAI            SIAI            SWAX
             0               0               0

          DREF            SMEG
            82               0
```

JOBNAME
The job name of the page owner or one of the following:

COMMON
Non-permanently resident common area page (either PAGECOMM or FIXCOMM)

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 mapped object:

Y
The page is part of a data-in-virtual (DIV) object.

U
The page is part of z/OS UNIX memory map.

N
The page is not part of a mapped 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.

X
An indication of the executable status of the page:

Y
Code residing in this page can be executed.

N
Code residing in this page cannot be executed.

STAT
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.

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
Entire VIO logical page ID. (First half appears in the LOC 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 cccccccc 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.

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.

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REQUEST MADE TO MEMTERM ASCBNOMT=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

See *z/OS MVS Diagnosis: Tools and Service Aids* for information about analyzing logrec error records.

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 50 on page 605 try to deactivate PER completely and record diagnostic information.

Table 50. Summary: Modules that try deactivate PER and record diagnostic information

Module Name	Diagnostic Information Recorded
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.
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 insight into the process but will not see the *exact* flow. See Table 51 on page 606 for useful fields in an FRR stack header and Table 52 on page 607 for useful fields in the FRR entries.

See *z/OS MVS Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary) for a description of the FRRs and PSA.

FRR Stack Header

Table 51 on page 606 shows useful fields in the FRR stack header.

Table 51. Useful fields in an FRR Stack Header

Field Name	Offset into FRR Stack	Description
FRRSEMP	+X'0'	Address indicating an empty stack
FRRSLAST	+X'04'	Address of the last entry in the stack
FRRSELEN	+X'08'	Length of each FRR entry in the stack. This field contains a constant value of X'00000020'
FRRSCURR	+X'0C'	Address of current FRR entry. If this entry is equal to FRRSEMP at offset X'0' then the FRR stack is empty.
FRRSRTMW	+X'28'	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: • X'01' - program check • X'02' - restart key • X'03' - SVC error. An SVC was issued while in locked, disabled, or SRB mode • X'04' - DAT error • X'05' - machine check • X'06' - STERM reentry

Table 51. Useful fields in an FRR Stack Header (continued)		
Field Name	**Offset into FRR Stack**	**Description**
FRRSRTMA	+X'38'	Pointer to the RT1WA control block. Useful fields in the RT1WA control block include: • RT1WRTCA (RT1WA +X'2C') - Pointer to the SDWA control block currently in use. • RT1WEED (RT1WA +X'30') - Pointer to the EED control blocks acquired. • RT1WMODE (RT1WA +X'34') - Contains the mode at the time of entry to RTM1. The mode is one of the following: – X'80' - supervisor control mode (PSASUPER≠0) – X'40' - physically disabled mode – X'20' - global spin lock held – X'10' - global suspend lock held – X'08' - local lock held – X'04' - Type 1 SVC mode – X'02' - SRB mode – X'01' - unlocked task mode • RT1WSRMD (RT1WA +X'35') - Contains the current system mode.
FRRSENTS	+X'58'	Beginning for FRR stack entries.

FRR Entries

Table 52 on page 607 shows useful fields in the FRR stack entries.

Table 52. Useful fields in an FRR Stack Entry		
Field Name	**Offset into FRR Entry**	**Description**
FRRSFRRA	+X'0'	Address of the FRR recovery routine that will gain control if an error occurs.
FRRSFLGS	X'4'	Contains flags used for RTM processing as follows: • X'80' - This FRR is currently in control. • X'40' - Indicates that the FRR entry represents a nested FRR. • X'08' - This FRR is not allowed to retry.
FRRSPARM	X'08'	A 24 byte FRR parameter area used to pass information from the mainline function associated with this FRR to recovery.

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 the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary). 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'C')
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'E0')
- RTM2 SVRB +X'80'

The RTM2WA is described in *z/OS MVS Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary). This work area can be found through TCB+X'E0' (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 diagnosis information for the system resources manager (SRM).

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 42 on page 609 is an example of a VERBEXIT SRMDATA header report.

```
       * * *   F O R M A T T E D   S R M   D A T A   * * *

                      PARMLIB MEMBERS IN EFFECT          TABLE ADDRESSES

                            IPS=N/A                       WMST  021BE508
                            OPT=IEAOPTBT                  RMCT  015BE540

                                    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 42. Example: VERBEXIT SRMDATA Header report

Header Key:

IPS=cccccccc
Name of IEAIPS*xx* parmlib member.

OPT=cccccccc
Name of IEAOPT*xx* parmlib member.

See *z/OS MVS Initialization and Tuning Reference* for information about the IEAOPT*xx* parmlib member.

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WMST hhhhhhhh
Address of the SRM workload management specifications table.

RMCT hhhhhhhh
Address of the SRM parameter table.

System indicators

Figure 43 on page 610 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 43. Example: VERBEXIT SRMDATA System indicators report

Service class

Figure 44 on page 610 is an example of a service class report for a velocity goal.

```
*** SERVICE CLASSES ***


SERVICE CLASS = BESTEVER           SCLTOKEN = 021BE924
       PERIOD = 01                 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  00000000  00000003  00000000  00000000  00000000  00000000
00000000
                    00000000  00000000  00000000  00000000  00000000  000002DA  000000E9  00000051  00000000
00000021
                    00000000  00000000  00000000
          XMEM..... 00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
00000000
          XMEMOUCB. 00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
00000000
                    00000000

          MPL RELATED INFORMATION               MPLTOKEN= 021BF694
          CMPL..... 0000      MPLI..... 0000      MPLO..... 0000      INCU..... 0000      NSW...... 0000
          OUTU..... 0000      RUA...... 00000000  ASCT..... 00000000  ASAV..... 00000100  LRUA..... 0000
          LASA..... 00000100  ENCT..... 00000001
```

Figure 44. Example: Service class report (for velocity goal)

Figure 45 on page 611 is an example of a service class report for a response time goal.

```
SERVICE CLASS = CICSUSER          SCLTOKEN = 021C1024
   CICS/IMS REGIONS SERVING THIS SERVICE CLASS WILL BE
   TREATED AS "STORAGE CRITICAL=YES."
   SERVICE CLASS IS CPU CRITICAL.
       PERIOD = 01                PERTOKEN = 021C106C

          SHORT RESPONSE TIME GOAL               AVG_GOAL. 000003E8  DURATION. 00000000  IMP_LVL.. 0002

          LOCAL_PI. 00000000  PLEX_PI.. 00000000  SI_TAR... 00000000  SWAP_PT.. 00000000  BASE_DP.. 00F7
          SLICE_DP. 00F7      #_SLICES. 0000

          EXPANDED STORAGE ACCESS POLICY INFORMATION
          ACC_POL.. 02        VIO_POL.. 02        HSP_POL.. 02        SWAP_POL. 02

          DELAY AND STATE SAMPLES INFORMATION
          GENERAL.. 00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
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
          XMEMOUCB. 00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
00000000
                    00000000

          MPL RELATED INFORMATION                MPLTOKEN= 021C1D94
          CMPL..... 0000      MPLI..... 0000     MPLO..... 0000      INCU..... 0000      NSW...... 0000
          OUTU..... 0000      RUA...... 00000000 ASCT..... 00000000  ASAV..... 00000000  LRUA..... 0000
          LASA..... 00000000  ENCT..... 00000000
```

Figure 45. Example: Service class report (for response time goal)

Figure 46 on page 611 is an example of a service class report for a discretionary goal.

```
SERVICE CLASS = DISCRETN          SCLTOKEN = 021CA784

       PERIOD = 01                PERTOKEN = 021C995C

          DISCRETIONARY

          LOCAL_PI. 00000051  PLEX_PI.. 00000051  SI_TAR... 00000000  SWAP_PT.. 00000000  BASE_DP.. 00C0
          SLICE_DP. 00C0      #_SLICES. 0000

          EXPANDED STORAGE ACCESS POLICY INFORMATION
          PROT_CNT. 0000      LRU_CNT.. 0001      SP_AVAL.. 0000      VIO_LRU.. 0001      VIO_SPA.. 0000
          HSP_LRU.. 0001      HSP_SPA.. 0000

          DELAY AND STATE SAMPLES INFORMATION
          GENERAL.. 000004B2  00000001  00000000  00000000  00000002  00000013  00000000  00000000  00000000
00000000
                    00000007  00000237  00000000  00000000  00000000  00000000  00000000  00000000  00000000
00000000
                    00000000  00000000  00000000
          XMEM..... 00000000  00000014  00000000  00000000  00000000  00000000  00000000  00000000  00000000
00000000
          XMEMOUCB. 02240200  02129500  00000000  00000000  00000000  00000000  00000000  00000000  00000000
00000000
                    00000000

          MPL RELATED INFORMATION                MPLTOKEN= 021CA684
          CMPL..... 0000      MPLI..... 0000     MPLO..... 0001      INCU..... 0000      NSW...... 0000
          OUTU..... 0000      RUA...... 00000000 ASCT..... 00000001  ASAV..... 00000100  LRUA..... 0004
          LASA..... 0000013C  ENCT..... 00000000
```

Figure 46. Example: Service class report (for discretionary goal)

Service Class Key:

SERVICE CLASS pppppppp
Name of service class

'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 Workload management participants 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 Workload management participants 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
- zAAP Using Count
- zIIP Using Count
- 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
- zAAP Delay Samples
- zIIP 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 47 on page 613 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 47. 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 ***

JOB   MAINASID
ASID  001B
OUCB 0203CC00 LS WAIT QUEUE
                +10 (LSW)  LOGICALLY SWAPPED
                +11 (PVL)  PRIVILEGED PROGRAM
                +29 (SRC)  SWAP OUT REASON: DETECTED WAIT
                (ASCBRSME) RAX ADDRESS IS 02051300
                           SERVICE CLASS = VEL50
                           WORKLOAD = VICOM
                           PERIOD = 01
          ADDRESS SPACE IS AN ENCLAVE(S) OWNER
          ADDRESS SPACE IS CURRENTLY CPU PROTECTED
          ADDRESS SPACE IS ASSIGNED STORAGE PROTECTION
          ADDRESS SPACE IS CURRENTLY STORAGE PROTECTED
```

```
          ADDRESS SPACE IS EXEMPT FROM BEING MANAGED AS A TRANSACTION SERVER
          +0000  NAME..... OUCB      FWD..... 015BF568  BCK..... 015BF568  TMA..... 0103BAF0
QFL..... 0E
          +0011  SFL..... 00        YFL..... 40        AFL..... 48        TFL..... 93
EFL..... 03
          +0016  NQC..... 00        UFL..... 00        LFL..... 00        RFL..... 01
NDP..... F3
          +001B  TNDP..... FF       MFL..... 00        IAC..... 01        IDP..... 00
PGP..... 01
          +0020  WMG..... 002C0000  MFL2..... 00       MFL3..... 00       DMO..... 0000
DMN..... 00
          +0029  SRC..... 06        SWC..... 0003      ASCB..... 00FB5A00  PAGP..... 00000000
TMW..... 01042B39
          +0038  WMS..... 00000000  CPU..... 00000000  IOC..... 00000000  MSO..... 00000000
TMS..... 01042B39
          +004C  TMO..... 00F92399  DRFR..... 00000000  ACT..... 00000000  ACN..... 0000
CFL..... 00
          +005B  CSBT..... 04       WMR..... 00000063  WMRL..... 00000063  VAL..... 0000
PFL..... 00
          +0067  ACTL..... 00       ERS1..... 00000000  ERS2..... 00000000  DSPC..... 00
DSPN..... 00
          +0072  NTSP..... 0000     PS1..... 00000000  PS2..... 00038491  PST..... 00000214
RCT..... 00000C57
          +0084  IIT..... 00000000  NDS..... 0000      NTSG..... FF       SDP..... 00
TME..... 00004034
          +0090  TML..... 01042B39  DWMS..... 00000000  SRB..... 00000000  TWSS..... 00000000
TMP..... 00F92399
          +00A4  DSYT..... 00000000  HST..... 00000000  CFS..... 00000362  SUBN..... STC
RPG..... 0000
          +00B6  SPG..... 0000      NPG..... 0000      SRPG..... 0000     NRPG..... 0000
URPG..... 0000
          +00C0  CRPG..... 0000     ARPG..... 0000     DRFP..... 00000000  TRXN..... MAINASID
USRD.....
          +00D8  CLS.....           TRS..... 000017CF  TRR..... 000025EE  ACTP..... 00000000
SWSS..... 00000000
          +00F0  PSUM..... 00000002  FIXB..... 0000     APLV..... 00       ESAP..... 02
RST1..... 00000000
          +00FC  RST2..... 00000000  APRQ..... 00000000  RSTB..... 01042B39  EJST..... 00000000  00000000
          +0110  PSO..... 00000000  WSS..... 000001B1  HOLD..... 00000000  OUTT..... 001AD588
FIX..... 0000001C
          +0124  HSUM..... 00000000  CSUM..... 00000000  CFCT..... 0002     SWCB..... 005D
WKTM..... 00F9236E
          +0134  SRRC..... 00000000  PGTB..... 00000000  AUXB..... 00000000  CAPB..... 00000220
RESB..... 01042586
          +0148  PGIB..... 00000000  PU2B..... 00000000  BPIN..... 00000000  BPNE..... 00000000
PINE..... 00000000
          +015C  BKIA..... 00000000  BKIE..... 00000000  SWFC..... 0000     SFEC..... 0000
SEEC..... 0000
          +016A  MTRM..... 0000     WTKN..... 2C058000  NSPT..... 021FD81C  NSCT..... 021FD7D4
SCTE..... 021FD7D4
          +0180  IS..... 00000000  OUS..... 00000000  CU..... 00000000  DASD..... 00000000
CD..... 00000000
          +0194  APPD..... 00000000  APCD..... 00000000  AVD..... 00000000  ASHD..... 00000000
ACHD..... 00000000
          +01A8  ASWD..... 00000000  MD..... 00000000  CCD..... 00000000  ASPD..... 00000000
DASD..... 00000000
          +01BC  WLMQ..... 00000000  ENCL..... 00000000  ENCL..... 00000000  ENCL..... 00000000
ENCL..... 00000000
          +01D0  ENCL..... 00000000  PXMO..... 00000000  PXM1..... 00000000  PXM2..... 00000000
XSMF..... 00000000
          +0204            00000000  XDEC..... 00000000  00000000           XDET..... 00000000  00000000
          +021C  SERV..... 0000     SERV..... 0000     WAIT..... 00000000  USIN..... 0000007F
WORK..... 7FFFF000
          +022C  WAIT..... 00000016  USIN..... 000000D4  ESMB..... 7FFFF000  SHBP..... 00000000
SXM1..... 02056B80
          +0244  SXM2..... 00000000  SXMX..... 00000000  WLMF..... 10       SFLG..... 00
ASID..... 001B
          +0268  RQCT..... 00000000  CAP..... 00000000  ASMP..... 00000000  NOND..... 00000000
XENC..... 00000000
          +0238  SPTE..... 021FD81C  SQFP..... 021FD5DC  SQBP..... 021FD5DC  ESVP..... 02
ESHP..... 02
          +028E  ESTP..... 02       SONA..... 00       XDAT..... 04032028  MDEL..... 000028BF
SWSA..... 00000362
          +029C  SWSC..... 00000002  ESB1..... 00000000  ESB2..... 00000000  ESB3..... 00000000
ESB4..... 00000000
          +02B0  AXPU..... 00000000  PLAB..... 00000000  EFS..... 00000000  SDAC..... 00002A7B
APDS..... 00000000
          +02C4  TMPS..... 0000039B  TMCT..... 00000002  TMSD..... 01040E2F  TMRD..... 01040E2F
TMC..... 01042B39
          +02D8  IATK..... 2C058000  LRPS..... 01042B39  QID..... L         PQID..... I
IQFL..... 00
          +02E3  SMSK..... 10       PINB..... 00000000  PINT..... 00F91FD8  TAXB..... 00000000
```

```
VHDB..... 00000000
          +02F4  VHPB..... 00000000  VHUB..... 00000000  EXIB..... 00000000  EXOB..... 00000000
CRMB..... 00000000
          +0308  CPUS..... 00        PROP..... 0000      TMF...... 00000000  EUB1..... 00000000
EUB2..... 00000000
          +0318  EUB3..... 00000000  EUB4..... 00000000  WLM2..... 00        WL2F..... 00
XDEP..... 0000
          +0324  ENCH..... 02051C28  ENCL..... 0219D618  ETIM..... 00000000  ECPU..... 00000000
ECPT..... 00000000
          +0338            00000000  ETRC..... 00000000  GRLU..... 00000000  GR01..... 00000000
GR02..... 00000000
          +0350  SPSS..... 00000000  00000000            RSV7..... 00000000  ASST..... 00000000  00000000
          +0368  SRST..... 00000000  00000000            ETCB..... 0203CF5C  ETCB..... 0203CF5C
XIEI..... 00000000
          +0384  XIEI..... 00000000  XIEI..... 00000000  XIES..... 00000000  XDEI..... 00000000
XDEI..... 00000000
          +0398  XDEI..... 00000000  XDES..... 00000000  XPER..... 00000000
```

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.

'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 Workload management participants 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 Workload management participants 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 Workload management participants 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
           +003C  CPU...... 00000001  IOC...... 00000000  MSO...... 00000000
           +0050  DRFR..... 00000000  ACT...... 00000000  ACN...... 0000
           +005C  WMR...... 00000000  WMRL..... 00000000  VAL...... 0000
           +0068  ERS1..... 00000000  ERS2..... 00000000  DSPC..... 00
           +0074  PS1...... 00000000  PS2...... 000000F8  PST...... 00000004
           +0088  NDS...... 0001      NTSG..... FF        RSV2..... 00
           +0094  DWMS..... 00000000  SRB...... 00000037  TWSS..... 00000000
           +00A8  HST...... 00000000  CFS...... 0001C0AA  SUBN..... STC
           +00B8  NPG...... 0000      SRPG..... 0000      NRPG..... 0000
           +00C2  ARPG..... 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..... 006C590F  EJST..... 00000000
           +0114  WSS...... 00000000  HOLD..... 00000000  OUTT..... 00000001
           +0128  CSUM..... 00000000  CFCT..... 058A      SWCB..... 0022
           +0138  PGTB..... 00000000  AUXB..... 00000000  RESB..... 006C19C6
           +014C  BPIN..... 00000000  BPNE..... 00000000  PINE..... 00000000
           +0160  SWFC..... 0000      SFEC..... 0000      SEEC..... 0000
           +016C  SQBP..... 023A32E0  SPTR..... 023DBE00  SAMPPTR.. 023DBF00
           +0180  SMF30EPT. 00000000  00000000            DCPUTIM1. 00000000
           +0192  SINS..... 0000      SRVINCAP. 0000      WRKQTOKN. 7FFFF000
           +01A4  WLMF..... 10        ENSSCHCT. 00000000  FIX_B2G.. 00000000
           +01B2  ESTP..... 02        SONA..... 00        MDEL..... 00000000
           +01C0  ESB1..... 00000000  ESB2..... 00000000  ESB3..... 00000000
           +01D4  PLAB..... 00000000  EFS...... 00000000  SDAC..... 00000000
           +01E8  TMCT..... 00000000  TMSD..... 867763E5  TMRD..... 867763E5
           +0204  LRPS..... 867763E6  QID...... I         PQID..... U
           +020C  PINB..... 00000000  PINT..... 00000000  TAXB..... 00000000
           +0220  VHUB..... 00000000  EXIB..... 00000000  EXOB..... 00000000
           +0231  FLGX..... 20        TMF...... 00000000  EUB1..... 00000000
           +0244  EUB4..... 00000000  WLM2..... 00        WL2F..... 00
           +0250  ENCL..... 023DBC2C  ETIM..... 00000000  ECPU..... 00000000
           +0264  ETRC..... 00000000  EnqFlags. 0000      NQT...... 00000000
           +0278  ECQHEAD.. 023DBC60  ECQTAIL.. 023DBC60  GRLU..... 00000000
           +028C  FrStlReq. 00000000  SPSS..... 00000000  00000000
           +02A0  ASST..... 00000000  00000000            SRST..... 00000000
           +02B2  SRCI..... 0000      ETCBFRST. 023DBC9C  ETCBLAST. 023DBC9C
           +02C4  SCPI..... 002B      IOCONTI.. 00000000  IODCONTI. 00000000
           +02D8  DIOCONTI. 00000000  DIODCNTI. 00000000  DIOWTTI.. 00000000
           +02EA  FLGS..... 0000      DCTC..... 00000000  CTCI..... 00000000
           +02F5  SRCSAVE.. 00        IRST..... 00000000  IRSFAILT. 00000000
           +0300  SSPY..... 80000000  QUET..... 00000000  JCTI..... 00000000
           +0314  SCHEDENV. ..............                EBQD..... 00000000
           +0330  IOCT..... 00000000  IOCI..... 00000000  IODT..... 00000000
           +0344  CRAS..... 00000000  CAPB..... 00000000  01878224
           +0358  LATC..... 00000000  PSRS..... 00000000  ARRT..... BAA19E3F
           +0370  GMIF..... 00000000  PPCT..... 00000000  PSCT.....
00000000

                  OUCBS - Sampling Related Fields
           +0380  NAME..... ........  SVER..... 00        SLEN..... 0000
           +039C  PVSB..... 00000000  PVSA..... 00000000  LLUT..... 00000000
           +0400  SRVINACT. D6E4      WTIMBASM. E2404040  UTIMBASM. 01000000
           +0414  SHBP..... 00000000  SXM1..... 00000000  SXM2..... 00000000
           +0428            00000000  BPT2..... 00000000  00000000
           +043C  WLMF..... 00        SFLG..... 00        ASID..... 0000
           +0448  NSPT..... 00000000  SRMTOKEN. 00000000  SCTE..... 00000000
           +0464  TAFE..... 00000000  SIAR..... 0000

                  OUCBSamples - Samples Array Section
           +0480  IS....... 00000000  OUS...... 00000000  CU....... 00000000
           +0494  APPD..... 00000000  APCD..... 00000000  AVD...... 00000000
           +04A8  ASWD..... 00000000  MD....... 00000000  CCD...... 00000000
           +04BC  WLMQUDLY. 00000002  ENCPVTPA. 00000000  ENCVIOPA. 1A578000
           +04D0  ENCSWPDY. 00000000  PXMO..... 023A33CC  BPOD..... 00000000
           +04E4  BPD1..... 00000000  BPD2..... 00000000  SOSNAME.. ....

                  OUCBSamples - Samples Array Section
```

```
              +0480  IS....... 00000000  OUS...... 00000000  CU....... 00000000
              +0494  APPD..... 00000000  APCD..... 00000000  AVD...... 00000000
              +04A8  ASWD..... 00000000  MD....... 00000000  CCD...... 00000000
              +04BC  WLMQUDLY. 00000002  ENCPVTPA. 00000000  ENCVIOPA. 1A578000
              +04D0  ENCSWPDY. 00000000  PXMO..... 023A33CC  BPOD..... 00000000
              +04E4  BPD1..... 00000000  BPD2..... 00000000  SOSNAME.. ....

                     OUCBReptSamples - Report Samples Array Section
              +0500  RQCT..... 00000000  CAP...... 00000000  ASMP..... 00000000
              +0518  CAMD..... 00000000  APU...... 00000000  APD...... 00000000
              +054C  RCSU..... 00000000  RSOSNAME. SOS
```

The following information describes the fields in the OUCB out and in 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 IN QUEUE
The address of the OUCB.

+11 (sfl) xxxxxxxxx
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...... 02074B80
           ONE...... 02074E84  OPE...... 02074E84  WQLK..... 00000000  DP....... F0
           FLAG2.... 000000    FWEB..... 01CBC1F0  CAPQ..... 00000000  TSWCT.... 0002
           AISRMT... 00233C53  ECT...... 00233C53  PERST.... 00233C53  SA....... 00000004
           PSS...... 00000000  ESMBFIRS. 01CCFC00  ESMBLAST. 01CCFC00
           TCPUT.... 00000000  0052A980            SCPUT.... 00000000  0052A980
           AP1BCT... 00000000  0052A980            AP1BET... 00000000  00000000
           AP1BSWC.. 0002      AP1SC.... 0031      AP1FLAGS. 80        IODP..... F0        AP1CDC... 0000
           AP1SRC... 00000000  AP1MTC... 00000000  EHBTIME.. 00000000  EHCOUNT.. 00
           PGPO..... 00        PGO...... 00000000  PGN...... 0000      ERPG..... 0000
           SCTE..... 01D4841C  SPTE..... 01D48464  PERNEXT.. 01D48CE8  PERPREV.. 01D48CE8
           PABSWC... 0002      PGPER.... 01        PQSC..... 00000000  WAIT..... 00000000
           CON...... 00000000  IOSC..... 00000000  WAITTIME. 00000000  USINGTIM. 00000000
           USINGTIM. 00000000  WAITTIME. 00000000  DISC..... 00000000  ETCBFIRS. 020D65B8  ETCBLAST.
020D65B8
           REGCOUNT. 00000001  ECQHEAD.. 01ECA428  ECQTAIL.. 01ECA428

           ENCB Sampling Related Fields
           WSCI..... 0016      WRCI..... 0000      SXM1..... 00000000  SXM2..... 00000000  SXMX.....
00000000
           SCTE..... 01ED3CC4  SPTE..... 01ECEDCC  PGPERIOD. 01        RESETSC.. 0000      WAIT.....
00000000
           UTIMEBSM. 00000000  WTIMEBSM. 00000000  DISC..... 00000000  PSEUDOID. 8001
           ENCB Samples Array Section
           IS....... 00000000  OUS...... 00000006  CU....... 00000000  DASDIOUS. 00000000  CD.......
00000000
           APPD..... 00000000  APCD..... 00000000  AVD...... 00000000  ASHD..... 00000000  ACHD.....
00000000
```

```
            ASWD..... 00000000  MD....... 00000000  CCD...... 00000000  ASPD..... 00000000  DASDIODY.
00000000
            WLMQUDLY. 00000000  ENCLPVTP. 00000000  ENCLVIOP. 00000000  ENCLHSPP. 00000000  ENCLMPLD.
00000000
            ENCLSWPD. 00000000  PXMO..... 00000000  PXM1..... 00000000  PXM2..... 00000000  SOSNAME.. SOS
            ENCB Report Samples Array Section
            RQCT..... 00000000  CAP...... 00000000  SMPC..... 00000006  NODASDIO. 00000000
            CAMU..... 00000000  CAMD..... 00000000  APU...... 00000000  APD...... 00000000  FQD......
00000000
            RSOSNAME. RSOS
            ENCB Classification Related Fields
            TRXNAME.. STI.....  USERID...           TRXCLASS.           NETID....           LUNAME...
            PLAN.....           PACKAGE..           CONNECTN.           COLLECTN.
            CORRELAT.                               PROCEDUR.                               SOURCELU.
            COLLECTL. 01        CORRELL.. 01        SSPMLEN.. 01        ACCTLEN.. 01        PROCNAML. 01
            CONNTKN.. 05EF4090  SSPMPTR.. 025AAF29  ACCTPTR.. 025AAF29  PERFORM..           SUBSTYPE. MOST
            FUNCTION. FUNC_001  SUBSNAME. WLJEGK44  SCHEDENV.                               SUBCOLN..
            SRVCLASS. SYSOTHER  CLSTOKEN. 17088000  PROCESSL. 01
            PROCESS..                                           CLSFNAME. CLSF
```

```
            EHE  025961A8       Enqueue Hold Element in Context Queue
                                Name..... ECQE      ElemTkn.. 020007C3  025961A8
                                FwdPtr... 02575F98  BwdPtr... 025AABF4
                                Time..... B6128FCE  043C40A9            Subsys... ENQM      SubsysNm.
WLTEGK02
                                SubsysRq. ==> WLTEGK02 <===
                                EToken... 00000020  0000000A
                                TCBptr... 006E6A68  CallR14.. 86F006F0  CallASID. 0018      ASID..... 8000
                                PToken... 02000000  7FFFF000            EnqType.. 02
            ERE  02575F98       Enclave Registration Element in Context Queue
                                Name..... ECQE      ElemTkn.. 0100000C  02575F98
                                FwdPtr... 025AABF4  BwdPtr... 025961A8
                                OwnerAST. 00000060  00000006            Time..... 00785DAB
                                Subsys... MOST      SubsysNm. WLJEGK44  EToken... 00000020  0000000A
                                OUCB..... 0258F280  CallR14.. 85F12880  CallAST.. 00000060  00000006
                                SubsysRq. NO_SUBSYSREQUEST
```

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:

Key
Contents

VRAETF
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.

VRARRP
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.

VRAFP
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.

VRALBL
The name of the routine that failed.

VRAOA
The original abend code. The FRR might have changed the code.

VRAAID
The address space identifier (ASID) of the address space for which SRM was invoked.

VRACA
The caller's address, if the SYSEVENT was branch-entered.

See *z/OS MVS Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary) for VRAMAP, which describes the VRA keys, and for the IRARRPA mapping macro, which maps the RRPA.

Chapter 24. System logger

This topic contains diagnosis information for system logger.

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 affect. See "Restarting the system logger address space" on page 646 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 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. For more information, see the Coupling Facility sizer (www.ibm.com/support/docview.wss?uid=isg3T1027062).
- 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.CICSAAU3.USAUAAU3.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.CICSAAU3.USAUAAU3.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 for the subtopic on "Copying log stream offload data sets" in *z/OS MVS Setting Up a Sysplex*.

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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.

IXGLOGZF - Sample JCL to define (format) LOGRY and LOGRZ CDS types.

IXGLOGZP - Sample JCL to define policy information in LOGRY and LOGRZ CDS types.

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.

IXGRPT2 - Sample job produce an SMF88 report using ICETOOL.

For details on IXGRPT1, IXGRPT1J, and IXGRPT2, the Logger SMF88 subtype 1 reporting SYS1.SAMPLIB members, see *z/OS MVS System Management Facilities (SMF)*.

For details on IXGLOGRF, IXGLOGRP, IXGLOGZF, and IXGLOGZP, see *z/OS MVS Setting Up a Sysplex*.

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.

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 the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary) 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.

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 EDT-IXG* for more information on IXGCONN and IXGOFFLD. You can also search the IXGCON mapping macro in *z/OS MVS Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary) 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 EDT-IXG* for more information on IXGCONN and IXGDELET. You can also search the IXGCON mapping macro in *z/OS MVS Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary) for a return and reason code, and take the suggested action.

IXGDELLS – Delete a log stream from LOGR CDS

Function:
This sample JCL procedure will delete a defined log stream from the active system logger couple data set (CDS) being used for system logger on the system where the job executes.

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 System Authorization 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* for more information on IXGINVNT. You can also search the IXGCON mapping macro in *z/OS MVS Data Areas* in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary) 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 48 on page 625 is an example of a IXG251I prefixed error message.

```
IXG251I IKJ56893I DATA SET
IXGLOGR.CICSTS13.CICSVR.DFHLGLOG.A0000000 NOT
 ALLOCATED+
IXG251I IGD17103I CATALOG ERROR WHILE DEFINING VSAM DATA SET IXGLOGR.CICSTS13.CICSVR.DFHLGLOG.A0000000
IXG251I RETURN CODE IS 56 REASON CODE IS 6 IGG0CLFT
IXG251I IGD306I UNEXPECTED ERROR DURING IGG0CLFT PROCESSING
IXG251I RETURN CODE 56 REASON CODE 6
IXG251I THE MODULE THAT DETECTED THE ERROR IS IGDVTSCU
IXG251I SMS MODULE TRACE BACK - VTSCU VTSCT VTSCH VTSCD VTSCC VTSCR SIRT
IXG251I SYMPTOM RECORD CREATED, PROBLEM ID IS IGD00007
IXG251I IGD17219I UNABLE TO CONTINUE DEFINE OF DATA SET IXGLOGR.CICSTS13.CICSVR.DFHLGLOG.A0000000
IXG002E LOGR POLICY PROCESSING ENDED WITH RETCODE=00000008 RSNCODE=00000805
IXG003I LOGR POLICY PROCESSING ENCOUNTERED AN UNEXPECTED ERROR.
DIAGNOSIS INFORMATION: 00000004 000042CF 0107001B 00000000
```

Figure 48. Example: IXG251I prefixed error message

Note: If you take the second word of the Diagnosis Information and convert it from hex to decimal, you will get the IGD message suffix. In this case, &hex;**42CF** is 17103 decimal. Searching the Syslog for Message **IGD17103I** will allow you to find more information related to this problem.

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 646 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 IBM z 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 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 *xxxx* is a unique user ID and *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 *z/OS Communications Server: IP Configuration Guide* and *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
BPXI004I 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 areany 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=BPX1SOC ERRNO=0000045A ERRNOJR=112B0000

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 Component trace in *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)
   r vv,STRLIST=(STRNAME=structure_name,LOCKENTRIES,ACC=NOLIM,
                 (LISTNUM=ALL,ENTRYDATA=SERIALIZE,ADJUNCT=CAPTURE)),CONT
   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,XESDATA),CONT
   r yy,REMOTE=(SYSLIST=*('XCFAS','IXGLOGR'),DSPNAME,SDATA),END
   ```

   Notes:

   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=SVCD,
   DATA=(1R?+4,EQ,C4C6C8D3,+8,EQ,C7F0F7F7),
   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,SQA,TRT,CSA,GRSQ,XESDATA),
   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 INDATASET('hlq.xxxx.A00000yyy')
/*
```

   Notes:

   a. *hlq* is IXGLOGR by default, unless HLQ(*hlq*) is specified when the log stream is defined

   b. *xxxx* is the defined log stream name

   c. *A0000yyy* 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.

```
//IDCAMS2 JOB MSGLEVEL=(1,1),NOTIFY=&SYSUID
//PRINTIT EXEC PGM=IDCAMS
//SYSPRINT DD SYSOUT=H
//SYSIN DD *
  LISTCAT ALIAS ALL
  LISTCAT ALIAS ALL CAT('SROCAT.CATALOG')
  LISTCAT ENT('USER.CATALOG.NAME') ALL CAT('USER.CATALOG.NAME')
  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* 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.

```
//LISTUTL1 JOB MSGLEVEL=(1,1),NOTIFY=&SYSUID,MSGCLASS=A
//STEP1 EXEC PGM=IXCMIAPU
//SYSPRINT DD SYSOUT=*
//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.

```
LOGSTREAM NAME(SYSPLEX.OPERLOG) 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:
         00000000000000000000000000000000000000000000000000000000000000000000
         00000000000000000000000000000000000000000000000000000000000000000000

     LOG STREAM CONNECTION INFO:
  SYSTEMS CONNECTED: 0

LOG STREAM DATA SET INFO:

  DATA SET NAMES IN USE: HHLQ.SYSPLEX.OPERLOG.

  Ext.   <SEQ#>    Lowest Blockid    Highest GMT   Highest Local
  -----  --------  --------------    -----------   -------------
 *00001  A0000000  0000000000000000

   NUMBER OF DATA SETS IN LOG STREAM: 1


POSSIBLE ORPHANED LOG STREAM DATA SETS:

  NUMBER OF POSSIBLE ORPHANED LOG STREAM DATA SETS: 0

STRUCTURE NAME(LIST14) LOGSNUM(10)
          MAXBUFSIZE(65532) AVGBUFSIZE(32766)
          EFFECTIVE AVERAGE BUFFER SIZE(32766)

          LOGSTREAM NAME                    CONNECTION
          ----------------                  ----------
          SYSPLEX.OPERLOG                   NO

          LOGSTREAMS CURRENTLY DEFINED TO THIS STRUCTURE(1)
```

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, IXGDELET or IXGBRWSE service, the application can collect additional diagnosis 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/IXGF1WOW 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/IXGA1SWT RIDS/IXGINPVT#L LVLS/770
    FLDS/RETCODE VALU/H00000004 FLDS/REASON VALU/0117000B
    ```

- 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

-------------------------------------------------------------------------

      LINE #     CONTROL CARDS

           1      DATA TYPE(LOGR) REPORT(YES)
           2       LIST LOGSTREAM NAME(*) DETAIL(YES)
           3       LIST STRUCTURE NAME(*) DETAIL(YES)

      ADMINISTRATIVE DATA UTILITY:  MESSAGES                     DATA TYPE = LOGR

-------------------------------------------------------------------------


      IXG005I LOGR POLICY PROCESSING LINE# 2

         LOGSTREAM NAME(USER01.STREAM.NOTUSED) 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() RETPD(0) AUTODELETE(NO) OFFLOADRECALL(NO)
                   ZAI(NO) ZAIDATA('NO_ZAIDATA') WARNPRIMARY(NO) LS_ALLOCAHEAD(0)
                   DASDONLY(YES) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ) GROUP(PRODUCTION)
                   MAXBUFSIZE(65532)
```

```
              LOG STREAM ATTRIBUTES:

                User Data:
                  00000000000000000000000000000000000000000000000000000000000000000000
                  00000000000000000000000000000000000000000000000000000000000000000000

                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#>
                Ext.   <SEQ#>    Lowest Blockid /  Highest GMT /      Highest Local /    Status
                                  Highest Blockid   Highest RBA        System Name
                -----  --------  ----------------  -----------------  -----------------  ---------
               *00001  A0000000                                        CURRENT
                                                                      SYSTEM_1


                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) DUPLEXMODE(UNCOND)
                    RMNAME() DESCRIPTION() RETPD(0) AUTODELETE(NO) OFFLOADRECALL(NO)
                    ZAI(NO) ZAIDATA('NO_ZAIDATA') WARNPRIMARY(NO) LS_ALLOCAHEAD(0)
                    DASDONLY(YES) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ) GROUP(PRODUCTION)

              LOG STREAM ATTRIBUTES:

                POSSIBLE LOSS OF DATA, LOW BLKID: 0000001111111111, HIGH BLKID: 00000002222222222

                User Data:
                  00000000000000000000000000000000000000000000000000000000000000000000
                  00000000000000000000000000000000000000000000000000000000000000000000
```

```
                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.LOSS.OF.DATA.<SEQ#>

                Ext.   <SEQ#>    Lowest Blockid /  Highest GMT /      Highest Local /   Status
                                  Highest Blockid   Highest RBA        System Name
                -----  --------  ----------------  -----------------  ----------------- ---------
               *00001  A0000000  0000000000000001  02/25/02 18:09:03  02/25/02 13:09:03 CURRENT
                                  0000000000013BA7  00013CD8           SYSTEM_3

                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_ALLOCAHEAD(0)
                    DASDONLY(NO) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ) GROUP(PRODUCTION)
```

```
              LOG STREAM ATTRIBUTES:

                User Data:
                  00000000000000000000000000000000000000000000000000000000000000000000
                  00000000000000000000000000000000000000000000000000000000000000000000

                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
                                 000000000005C832  00046EC1           SYS1

                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_ALLOCAHEAD(0)
                    DASDONLY(NO) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ) GROUP(PRODUCTION)
                    ORIGINALNAME(ORIGINAL.STREAM.NAME)

              LOG STREAM ATTRIBUTES:

                User Data:
                  00000000000000000000000000000000000000000000000000000000000000000000
                  00000000000000000000000000000000000000000000000000000000000000000000

                Time Defined: 02/25/02 17:32:22 (GMT)

              LOG STREAM CONNECTION INFO:

                SYSTEMS CONNECTED: 3

                SYSTEM    STRUCTURE         CON CONNECTION  CONNECTION
                NAME      VERSION           ID  VERSION     STATE
                --------  ----------------  --  ----------  ----------
                SY1       B73E4F38CD23F649  01  00010008    Active
                SY2       B73E4F38CD23F649  02  00020008    Active
                SY3       B73E4F38CD23F649  02  00020008    Failed


              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#>
```

```
        Ext.   <SEQ#>    Lowest Blockid /  Highest GMT /      Highest Local / Status
                          Highest Blockid   Highest RBA        System Name
        -----  --------  ----------------  -----------------  ----------------- ---------
       *00001  A0000166  000000000F000001  02/25/02 18:48:31  02/25/02 13:48:31 DELETE PENDING
                         000000000F012B6C  00013BA0           SYSTEM_1
               A0000167  000000000F013BA1  02/25/02 18:48:32  02/25/02 13:48:31 DELETED
                         000000000F0266EB  00013BA0           SYSTEM_5
        .00002  A0000168  000000000F027741  02/25/02 18:48:32  02/25/02 13:48:31 CURRENT
                         000000000F02E45A  00007D5C           SYSTEM_1

        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() RETPD(0) AUTODELETE(NO) OFFLOADRECALL(NO)
          ZAI(NO) ZAIDATA('NO_ZAIDATA') WARNPRIMARY(NO) LS_ALLOCAHEAD(0)
          DASDONLY(NO) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ) GROUP(PRODUCTION)
```

```
       LOG STREAM ATTRIBUTES:

        User Data:
          00000000000000000000000000000000000000000000000000000000000000000000
          00000000000000000000000000000000000000000000000000000000000000000000

        Time Defined: 02/25/02 17:32:22 (GMT)

      LOG STREAM CONNECTION INFO:

        SYSTEMS CONNECTED: 1

        SYSTEM    STRUCTURE         CON CONNECTION  CONNECTION
        NAME      VERSION           ID  VERSION     STATE
        --------  ----------------  --  ----------  ----------
        SY1       B73E462D11704E4A  01  00010004    Failed


      LOG STREAM DATA SET INFO:

        DATA SET NAMES IN USE: IXGLOGR.USER01.FAILED.LOGSTRM.<SEQ#>


        Ext.   <SEQ#>    Lowest Blockid /  Highest GMT /      Highest Local /       Status
                          Highest Blockid   Highest RBA        System Name
              -----  --------  ----------------  -----------------  ---------------  --------
      *00001  A0000000  0000000000000001  02/25/02 17:26:45  02/25/02 12:26:45 CURRENT
                        0000000000013BA7  00013CD8           SYSTEM_3

        NUMBER OF DATA SETS IN LOG STREAM: 1


      POSSIBLE ORPHANED LOG STREAM DATA SETS:

        NUMBER OF POSSIBLE ORPHANED LOG STREAM DATA SETS: 0

STRUCTURE NAME(LOGGERSTR1) LOGSNUM(10)
          MAXBUFSIZE(65532) AVGBUFSIZE(32766)
          EFFECTIVE AVERAGE BUFFER SIZE(32766) GROUP(PRODUCTION)

          LOGSTREAM NAME                    CONNECTION
          --------------                    ----------
          USER01.FAILED.LOGSTRM             YES

          LOGSTREAMS CURRENTLY DEFINED TO THIS STRUCTURE(1)

STRUCTURE NAME(LOGGERSTR2) LOGSNUM(10)
          MAXBUFSIZE(65532) AVGBUFSIZE(32766)
          EFFECTIVE AVERAGE BUFFER SIZE(32766) GROUP(PRODUCTION)

          LOGSTREAM NAME                    CONNECTION
          --------------                    ----------
          USER01.DELETE.PENDING             YES
          USER01.ORPHAN.DATASET             NO
```

```
                  LOGSTREAMS CURRENTLY DEFINED TO THIS STRUCTURE(2)

LOGR Inventory Record Summary:


      LOGR COUPLE DATA SET FORMAT LEVEL: HBB7705

      /*Functional Items: */
      /* SMDUPLEX(1) */


      ADMINISTRATIVE DATA UTILITY:  REPORT                     DATA TYPE = LOGR


      Type                            Formatted             In-use
      ------------------              ---------             ------

      LSR (Log Stream)                      15                   7

      LSTRR (Structure)                     15                   2

      DSEXTENT (Data Set Extent)             5                   0
```

```
         LOGSTREAM NAME(USER.STREAM.EXAMPLE) STRUCTNAME(LOGGERSTR1) LS_DATACLAS()
                   LS_MGMTCLAS() LS_STORCLAS() HLQ(NO_HLQ)MODEL(NO) LS_SIZE(0)
                   STG_MGMTCLAS(MGMTDR) STG_STORCLAS(STORDR) STG_DATACLAS(STG2GIG) STG_SIZE(524288)
                   LOWOFFLOAD(0) HIGHOFFLOAD(80) STG_DUPLEX(NO) DUPLEXMODE()
                   RMNAME() DESCRIPTION() RETPD(0) AUTODELETE(NO) OFFLOADRECALL(NO)
                   ZAI(NO) ZAIDATA('NO_ZAIDATA') WARNPRIMARY(NO) LS_ALLOCAHEAD(0)
                   DASDONLY(NO) DIAG(NO) LOGGERDUPLEX(COND) EHLQ(IXGLOGR) GROUP(PRODUCTION)

         LOGSTREAM NAME(USER.STREAM.EXAMPLE) STRUCTNAME(LOGGERSTR1) LS_DATACLAS()
                   LS_MGMTCLAS() LS_STORCLAS() HLQ(NO_HLQ) MODEL(NO) LS_SIZE(0)
                   STG_MGMTCLAS(MGMTDR) STG_STORCLAS(STORDR) STG_DATACLAS(STG2GIG) STG_SIZE(524288)
                   LOWOFFLOAD(0) HIGHOFFLOAD(80) STG_DUPLEX(NO) DUPLEXMODE()
                   RMNAME() DESCRIPTION() RETPD(0) AUTODELETE(NO) OFFLOADRECALL(NO)
                   ZAI(NO) ZAIDATA('NO_ZAIDATA') WARNPRIMARY(NO) LS_ALLOCAHEAD(0)
                   DASDONLY(NO) DIAG(NO) LOGGERDUPLEX(COND) EHLQ(IXGLOGR) GROUP(PRODUCTION)

         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_ALLOCAHEAD(0)
                   DASDONLY(NO) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ) GROUP(PRODUCTION)
                   ORIGINALNAME(ORIGINAL.STREAM.NAME)

         LOGSTREAM NAME(USER01.STREAM.NOTUSED) 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() RETPD(0) AUTODELETE(NO) OFFLOADRECALL(NO)
                   ZAI(NO) ZAIDATA('NO_ZAIDATA') WARNPRIMARY(NO) LS_ALLOCAHEAD(0)
                   DASDONLY(YES) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ) GROUP(PRODUCTION)
                   MAXBUFSIZE(65532)

         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() RETPD(0) AUTODELETE(NO) OFFLOADRECALL(NO)
                   ZAI(NO) ZAIDATA('NO_ZAIDATA') WARNPRIMARY(NO) LS_ALLOCAHEAD(0)
                   DASDONLY(YES) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ) GROUP(PRODUCTION)

         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_ALLOCAHEAD(0)
                   DASDONLY(NO) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ) GROUP(PRODUCTION)

         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() RETPD(0) AUTODELETE(NO) OFFLOADRECALL(NO)
                   ZAI(NO) ZAIDATA('NO_ZAIDATA') WARNPRIMARY(NO) LS_ALLOCAHEAD(0)
                   DASDONLY(NO) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ) GROUP(PRODUCTION)
```

```
   STRUCTURE NAME(LOGGERSTR1) LOGSNUM(10)
             MAXBUFSIZE(65532) AVGBUFSIZE(4092)
             EFFECTIVE AVERAGE BUFFER SIZE(4092) GROUP(PRODUCTION)
             LOGSTREAMS CURRENTLY DEFINED TO THIS STRUCTURE(3)

ADMINISTRATIVE DATA UTILITY:  REPORT                        DATA TYPE = LOGR
-------------------------------------------------------------------------

            LOGSTREAMS CURRENTLY DEFINED TO THIS STRUCTURE(1)

   STRUCTURE NAME(LOGGERSTR2) LOGSNUM(10)
             MAXBUFSIZE(65532) AVGBUFSIZE(32766)
             EFFECTIVE AVERAGE BUFFER SIZE(32766) GROUP(PRODUCTION)
             LOGSTREAMS CURRENTLY DEFINED TO THIS STRUCTURE(2)
```

Figure 49 on page 638 shows an example of the system logger inventory summary report provided for a single-system scope active primary couple data set when DATA TYPE(LOGRY) or TYPE(LOGRZ) is specified on the IXCMIAPU utility. The output format is similar to the summary LOGR report output, the exceptions being that the FMTLEVEL functional item replaces the SMDUPLEX item and that there are no LSTRR type records.

```
ADMINISTRATIVE DATA UTILITY:  REPORT        DATA TYPE=LOGRZ
  LOGRZ Inventory Record Summary

LOGRZ COUPLE DATA SET FORMAT LEVEL: HBB77C0
/*Functional Items: */
/* FMTLEVEL(1) */


Type                           Formatted          In-use
-------------------            ---------          ------
LSR (Log Stream)                      15               7
DSEXTENT (Data Set Extent              5               0
```

Figure 49. Example: System Logger Inventory Summary Report - DATATYPE(LOGRY) or TYPE(LOGRZ)

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 50 on page 638) with the characteristics of the log stream will be returned at the end of the detail list.

```
LINE #     CONTROL CARDS

           1       DATA TYPE(LOGR) REPORT(YES)
           2       LIST LOGSTREAM NAME(*) DETAIL(YES)
           3       LIST STRUCTURE NAME(*) DETAIL(YES)

      ADMINISTRATIVE DATA UTILITY:  MESSAGES                    DATA TYPE = LOGR
```

Figure 50. 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 Programming: Authorized Assembler Services Guide*. Figure 51 on page 639 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() RETPD(0) AUTODELETE(NO) OFFLOADRECALL(NO)
          ZAI(NO) ZAIDATA('NO_ZAIDATA') WARNPRIMARY(NO) LS_ALLOCAHEAD(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 51. Example: Log stream with possible loss of data

Figure 52 on page 639 shows the Log Stream Attribute section. The timestamp displays the time that the log stream is defined.

```
          LOG STREAM ATTRIBUTES:

           User Data:
             00000000000000000000000000000000000000000000000000000000
             00000000000000000000000000000000000000000000000000000000

           Time Defined: 02/25/02 17:32:22 (GMT)
```

Figure 52. 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 53 on page 640 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.
- **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#>

           Ext.   <SEQ#>    Lowest Blockid /  Highest GMT /      Highest Local /   Status
                             Highest Blockid   Highest RBA        System Name
           -----  --------  ----------------  -----------------  ----------------- ---------
          *00001  A0000000  0000000000000000                                       CURRENT
                            0000000000000000  00000000           SYSTEM_1
```

Figure 53. Example: Data sets that have not been written to

Figure 54 on page 640 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.

```
Ext.    <SEQ#>    Lowest Blockid /  Highest GMT /      Highest Local /   Status
                  Highest Blockid   Highest RBA        System Name
------  --------  ----------------  -----------------  ----------------- ---------
*00001  A0000166  000000000F000001  02/25/02 18:48:31  02/25/02 13:48:31 DELETE PENDING
                  000000000F012B6C  00013BA0           SYSTEM_1
        A0000167  000000000F013BA1  02/25/02 18:48:32  02/25/02 13:48:31 DELETED
                  000000000F0266EB  00013BA0           SYSTEM_5
.00002  A0000168  000000000F027741  02/25/02 18:48:32  02/25/02 13:48:31 CURRENT
                  000000000F02E45A  00007D5C           SYSTEM_1
        A0000169  0000000000000000                                       ADV-CURRENT
                  ****UNKNOWN*****  00000000           SYSTEM_1
        A0000170  0000000000000000                                       ADV-CURRENT
                  ****UNKNOWN*****  00000000           SYSTEM_1
        A0000171  0000000000000000                                       ADV-CURRENT
                  ****UNKNOWN*****  00000000           SYSTEM_1
```

Figure 54. 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.
- 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 zeros 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 55 on page 641 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.

```
POSSIBLE ORPHANED LOG STREAM DATA SETS:

                DATA SET NAMES:
                -----------------------------------------
                IXGLOGR.USER01.ORPHAN.DATASET.A0000000

                NUMBER OF POSSIBLE ORPHANED LOG STREAM DATA SETS: 1

                CATALOG ERROR - ORPHAN LIST MAY BE INCOMPLETE

          LOGSTREAM NAME(USER01.ORPHAN.DATASET) STRUCTNAME(LOGGERSTR2) LS_DATACL
                    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(UN
                    RMNAME() DESCRIPTION() RETPD(0) AUTODELETE(NO) OFFLOADRECALL
                    ZAI(NO) ZAIDATA('NO_ZAIDATA') WARNPRIMARY(NO) LS_ALLOCAHEAD(0)
                    DASDONLY(NO) DIAG(NO) LOGGERDUPLEX() EHLQ(NO_EHLQ) GROUP(PRODUCTION)
```

Figure 55. Example: Orphaned data set

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.

```
                LOG STREAM CONNECTION INFO:

                SYSTEMS CONNECTED: 1

                SYSTEM    STRUCTURE         CON CONNECTION  CONNECTION
                NAME      VERSION           ID  VERSION     STATE
                --------  ----------------  --  ----------  ----------
                SY1       B73E462D11704E4A  01  00010004    Failed
```

Figure 56. Example: Log stream Connection state failed

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
```

Figure 57 on page 642 shows an example of a system logger inventory summary report provided for a single-system scope active primary couple data set when DATA TYPE(LOGRY) or TYPE(LOGRZ) is specified on the IXCMIAPU utility. The output format is similar to the summary LOGR report output, except that the FMTLEVEL functional item replaces the SMDUPLEX item and that there are no LSTRR type records.

```
ADMINISTRATIVE DATA UTILITY:  REPORT        DATA TYPE=LOGRZ
  LOGRZ Inventory Record Summary

LOGRZ COUPLE DATA SET FORMAT LEVEL: HBB77C0
/*Functional Items: */
/* FMTLEVEL(1) */


Type                            Formatted           In-use
------------------              ---------           ------
LSR (Log Stream)                       15                7
DSEXTENT (Data Set Extent)              5                0
```

Figure 57. Example: System logger inventory summary report

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
```

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
                    000000000005C832  00046EC1           SYS1
/* IDCAMS COMMAND */
   LISTCAT ENTRIES(IXGLOGR.USER.LOGSTREAM.A0000001) ALL
CLUSTER ------- IXGLOGR.USER.LOGSTREAM.A0000001
     IN-CAT --- SROCAT.CATALOG
     HISTORY
       DATASET-OWNER-----(NULL)     CREATION--------2008.172
       RELEASE----------------2     EXPIRATION------0000.000
     SMSDATA
       STORAGECLASS -----LOGGER     MANAGEMENTCLASS-STANDARD
       DATACLASS --------LS1MEG     LBACKUP ---0000.000.0000
       CA-RECLAIM------------------(NO)
          EATTR-------------(NULL)
       BWO STATUS------00000000     BWO TIMESTAMP---00000 00:00:00.0
       BWO---------------(NULL)
     RLSDATA
       LOG ----------------(NULL)   RECOVERY REQUIRED --(NO)     FRLOG ------------(NULL)
       VSAM QUIESCED -------(NO)    RLS IN USE ---------(NO)
       LOGSTREAMID----------------------------(NULL)
       RECOVERY TIMESTAMP LOCAL-----X'0000000000000000'
       RECOVERY TIMESTAMP GMT-------X'0000000000000000'
     PROTECTION-PSWD-----(NULL)     RACF----------------(NO)
     ASSOCIATIONS
       DATA-----IXGLOGR.USER.LOGSTREAM.A0000001.DATA
   DATA ------- IXGLOGR.USER.LOGSTREAM.A0000001.DATA
     IN-CAT --- SROCAT.CATALOG
     HISTORY
       DATASET-OWNER-----(NULL)     CREATION--------2008.172
       RELEASE----------------2     EXPIRATION------0000.000
       ACCOUNT-INFO-----------------------------------(NULL)
     PROTECTION-PSWD-----(NULL)     RACF----------------(NO)
     ASSOCIATIONS
```

```
      CLUSTER--IXGLOGR.USER.LOGSTREAM.A0000001
     ATTRIBUTES
       KEYLEN-----------------0     AVGLRECL---------------0     BUFSPACE------------8192     CISIZE--------------4096
       RKP--------------------0     MAXLRECL---------------0     EXCPEXIT----------(NULL)     CI/CA-----------------36
       SHROPTNS(3,3)   RECOVERY     UNIQUE           NOERASE     LINEAR        NOWRITECHK     NOIMBED       NOREPLICAT
       UNORDERED        NOREUSE     NONSPANNED
     STATISTICS
       REC-TOTAL--------------0     SPLITS-CI--------------0     EXCPS------------------0
       REC-DELETED------------0     SPLITS-CA--------------0     EXTENTS----------------1
       REC-INSERTED-----------0     FREESPACE-%CI----------0     SYSTEM-TIMESTAMP:
       REC-UPDATED------------0     FREESPACE-%CA----------0          X'0000000000000000'
       REC-RETRIEVED----------0     FREESPC----------------0
     ALLOCATION
       SPACE-TYPE---------TRACK     HI-A-RBA----------147456
       SPACE-PRI--------------3     HI-U-RBA----------147456
       SPACE-SEC--------------0
```

```
     VOLUME
       VOLSER------------SMSVL3     PHYREC-SIZE---------4096     HI-A-RBA----------147456     EXTENT-NUMBER----------1
       DEVTYPE------X'3010200F'     PHYRECS/TRK-----------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
         A0000002  00000000000A36F3  06/21/08 00:22:11  02/25/02 19:22:11 CURRENT
                   00000000000C7073  00024000           SYS1

 /* IDCAMS COMMAND */
    LISTCAT ENTRIES(IXGLOGR.USER.LOGSTREAM.A0000002) ALL
CLUSTER ------- IXGLOGR.USER.LOGSTREAM.A0000002
     IN-CAT --- SROCAT.CATALOG
     HISTORY
       DATASET-OWNER-----(NULL)     CREATION--------2008.172
       RELEASE----------------2     EXPIRATION------0000.000
     SMSDATA
       STORAGECLASS -----LOGGER     MANAGEMENTCLASS-STANDARD
       DATACLASS --------LS1MEG     LBACKUP ---0000.000.0000
       BWO STATUS------00000000     BWO TIMESTAMP---00000 00:00:00.0
       BWO--------------(NULL)
     RLSDATA
       LOG ----------------(NULL)   RECOVERY REQUIRED --(NO)     FRLOG ------------(NULL)
       VSAM QUIESCED -------(NO)    RLS IN USE ---------(NO)
       LOGSTREAMID-----------------------------(NULL)
       RECOVERY TIMESTAMP LOCAL-----X'0000000000000000'
       RECOVERY TIMESTAMP GMT-------X'0000000000000000'
     PROTECTION-PSWD-----(NULL)     RACF----------------(NO)
     ASSOCIATIONS
       DATA-----IXGLOGR.USER.LOGSTREAM.A0000002.DATA
   DATA ------- IXGLOGR.USER.LOGSTREAM.A0000002.DATA
     IN-CAT --- SROCAT.CATALOG
     HISTORY
       DATASET-OWNER-----(NULL)     CREATION--------2008.172
       RELEASE----------------2     EXPIRATION------0000.000
       ACCOUNT-INFO-----------------------------------(NULL)
     PROTECTION-PSWD-----(NULL)     RACF----------------(NO)
     ASSOCIATIONS
       CLUSTER--IXGLOGR.USER.LOGSTREAM.A0000002
     ATTRIBUTES
       KEYLEN-----------------0     AVGLRECL---------------0     BUFSPACE------------8192     CISIZE--------------4096
       RKP--------------------0     MAXLRECL---------------0     EXCPEXIT----------(NULL)     CI/CA-----------------36
       SHROPTNS(3,3)   RECOVERY     UNIQUE           NOERASE     LINEAR        NOWRITECHK     NOIMBED       NOREPLICAT
       UNORDERED        NOREUSE     NONSPANNED
     STATISTICS
       REC-TOTAL--------------0     SPLITS-CI--------------0     EXCPS------------------0
       REC-DELETED------------0     SPLITS-CA--------------0     EXTENTS----------------1
       REC-INSERTED-----------0     FREESPACE-%CI----------0     SYSTEM-TIMESTAMP:
       REC-UPDATED------------0     FREESPACE-%CA----------0          X'0000000000000000'
       REC-RETRIEVED----------0     FREESPC----------------0
     ALLOCATION
       SPACE-TYPE---------TRACK     HI-A-RBA----------147456
       SPACE-PRI--------------3     HI-U-RBA----------147456
       SPACE-SEC--------------0
     VOLUME
       VOLSER------------SMSVL3     PHYREC-SIZE---------4096     HI-A-RBA----------147456     EXTENT-NUMBER----------1
       DEVTYPE------X'3010200F'     PHYRECS/TRK-----------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

  NUMBER OF DATA SETS IN LOG STREAM: 2
```

Utility error messages

If the IXCMIAPU 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 IXCMIAPU Error Messages:

1. Error messages from IXCMIAPU:

```
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)
     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                     DATA TYPE = LOGR

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=00000838
IXG003I LOGR POLICY PROCESSING ENCOUNTERED AN UNEXPECTED ERROR.
DIAGNOSIS INFORMATION: 00000004 000003F6 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                        DATA TYPE = LOGR

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                     DATA TYPE = LOGR

IXG005I LOGR POLICY PROCESSING LINE# 2
IXG018E STRUCTURE LISTXX DOES NOT EXIST
IXG002E LOGR POLICY PROCESSING ENDED WITH RETCODE=00000008 RSNCODE=00000827
```

```
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                          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(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                  DATA TYPE = LOGR
IXG005I LOGR POLICY PROCESSING LINE# 2
IXG004I LOGR POLICY PROCESSING ENDED WITHOUT ERROR
IXG005I LOGR POLICY PROCESSING INE# 3
IXG018E STRUCTURE LISTXX DOES NOT EXIST
IXG447I LOGR POLICY PROCESSING FOUND AN ERROR BUT CONTINUES
RETCODE=00000008 RSN=00000827
IXG003I LOGR POLICY PROCESSING ENCOUNTERED AN UNEXPECTED ERROR.
DIAGNOSIS INFORMATION: 00000008 0000F801 05030004 050B000B
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
      IXG005I LOGR POLICY PROCESSING LINE# 3
      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 58 on page 646.

```
System Name    Type of          Module identifier   TimeStamp          Tracing Module
                 Ctrace record    and location                           description

JB0            SERIAL           06050002            11:43:25.857844    WRKUN ADD AND START RQE

ASCB addr     TCB  addr      Job__________Name      Stack addr    Asid/#Mods    Module Id
00F60080      007DE7E0       C9C2D4E4  E2D9F540     27790F28      01760001      04010000
```

Figure 58. 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. *z/OS MVS IPCS Commands* gives the syntax of the LOGGER subcommand.

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 *z/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 622. For more information on availability of the IXGLOGR address space, see *z/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 653 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 53 on page 647 shows the latch set names and latch numbers of the three types of latches.

Table 53. Latch types used by Logger

Latch type	Latch set name	Latch number
Miscellaneous latches	'SYS.IXGLOGER_MISC	8
Structure or task latches	'SYS.IXGLOGER_STRUCTURE_LATCH_SET	1024
Log stream latches	'SYS.IXGLOGER_LCBIT___CTA:12345678_SLSA:1234	224 per latch set name

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, 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 59 on page 648 shows output of ISG374I messages from the D GRS,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.

```
SY1  d grs,an,latch,depend,detail
SY1  ISG374I 14.23.53 GRS ANALYSIS 460
DEPENDENCY ANALYSIS: ENTIRE SYSTEM
----- LONG WAITER #1
         JOBNAME: IXGLOGR   (ASID=002B, TCB=005DDE88)
         REQUEST: EXCLUSIVE                        LT:7F42907800000001
WAITING  00:01:33 FOR RESOURCE (CREATOR ASID=002B)
SYS.IXGLOGER_LCBIT___CTA:00000003_SLSA:0001       LST:7F42BD00000000BD
2:IXGLOGR.SOME.LOG.STREAM
         JOBNAME: WRITE3    (ASID=0026, TCB=005D3A08)
         REQUEST: SHARED                           LT:7F42901000000002
ANALYSIS ENDED: THIS UNIT OF WORK IS NOT WAITING
```

Figure 59. Example: Logger waiting to get latch exclusive

Figure 60 on page 648 shows the output of ISG374I messages from the D GRS,ANALYZE,LATCH,DEPENDENCY command. Logger recommends the detail display because the regular display truncates a portion of the latch set name.

```
SY1  d grs,an,latch,depend
SY1  ISG374I 14.23.48 GRS ANALYSIS 457
DEPENDENCY ANALYSIS: ENTIRE SYSTEM
----- LONG WAITER #1
WAITTIME  JOBNAME  E/S  CASID LSETNAME/LATCHID
00:01:28  IXGLOGR  *E*  002B  SYS.IXGLOGER_LCBIT___CTA:00000003_SLSA T
                            2:IXGLOGR.SOME.LOG.STREAM
                                                    BLOCKER   WRITE3    S
ANALYSIS ENDED: THIS UNIT OF WORK IS NOT WAITING
```

Figure 60. Example: Output from ISG374I messages - regular display

Figure 61 on page 648 shows the output of other ISG374I messages from D GRS,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 SYS.IXGLOGER_LCBIT___CTA:00000324_SLSA:0001 while job READLOG holds the latch shared.

```
SY1  d grs,an,latch,dependency,detail
SY1  ISG374I 12.55.00 GRS ANALYSIS 553
DEPENDENCY ANALYSIS: ENTIRE SYSTEM
----- LONG WAITER #1
         JOBNAME: IXGLOGR   (ASID=0015, TCB=005DE408)
         REQUEST: EXCLUSIVE                        LT:7F33A01000000000
WAITING  00:00:05 FOR RESOURCE (CREATOR ASID=0015)
SYS.IXGLOGER_LCBIT___CTA:00000324_SLSA:0001       LST:7F33CD000000009D
1:IXGLOGR.DASDONLY.STREAM
         JOBNAME: READLOG   (ASID=002A, TCB=005D7D90)
         REQUEST: SHARED                           LT:7F33B01000000000
ANALYSIS ENDED: THIS UNIT OF WORK IS NOT WAITING
```

Figure 61. Example: Output from ISG374I messages

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 62 on page 649.

```
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=86102ABE
   REQID=0000005800000001

RESOURCE #0018 IS REQUIRED BY:
  JOBNAME=IXGLOGR   ASID=0016  TCB=007EB6B8
   DATA=EXCLUSIVE  RETADDR=860BAFC6

  JOBNAME=IXGLOGR   ASID=0016  TCB=007F91C8
   DATA=EXCLUSIVE  RETADDR=860A70A2
```

Figure 62. 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 63 on page 650 is a sample of the output from this command.

```
LOCAL SUSPENDED SRB QUEUE
SSRB: 030DA988

   +0000  ID..... SSRB      FLNK..... 0341D310    ASCB..... 00FA3280
   +000C  CPAF..... 0000    PASI..... 0016        PTCB..... 007EB6B8
   +0014  EPA..... 00000000 RMTR..... 813C4C60    PARM..... 00000000
   +0020  WEB..... 029E4598 PKF..... 00           FLGS..... 08
   +0026  HLHI..... 00      FLGS..... 00          FRRA..... 00000000
   +0030  FPRS..... 00000000 00000000  00000000   00000000 00000000
   +0044            00000000 00000000  00000000   TRAN..... 00000000
   +0054  SAFN..... 0000    TYPE..... 0C          FLGS..... F8
   +0058  GPR0..... 00000000 GPR1..... FFFFFFFF
   +0060  GPR2..... FFFFFFFF GPR3..... FFFFFFFF    GPR4..... FFFFFFFF
   +006C  GPR5..... FFFFFFFF GPR6..... FFFFFFFF    GPR7..... FFFFFFFF
   +0078  GPR8..... FFFFFFFF GPR9..... FFFFFFFF    GPRA..... FFFFFFFF
   +0084  GPRB..... FFFFFFFF GPRC..... FFFFFFFF    GPRD..... FFFFFFFF
   +0090  GPRE..... FFFFFFFF GPRF..... 86148DEC
   +0098  CPSW..... 470C0000 8112F9A2
   +00A0  CPUT..... 00FFFFFF E0403800
   +00A8  TIME..... 00000000 0B242800              XSB..... 030DAF80
   +00B4  ORMT..... 06150B10 LSA1..... 023B5048    R0BC..... 00060110
   +00C0  LSDP..... 023B5168 ALOV..... 00000000
```

Figure 63. 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: 023B50C8
   GENERAL PURPOSE REGISTER VALUES
   00-03.... 25D663D4  266F1B30  00000000  266F1728
   04-07.... 00FE8AC8  00000C58  00000000  00FCD080
   08-11.... 25F59A50  266F0018  266F1B30  06148D9F
   12-15.... 06147DA0  266F1950  00000317  00020000            <--IXGL1WRK
   PKM...... 8000      SASN..... 0016      EAX...... 0000
   PASN..... 0016      PSW...... 470C0000  86148DEC
   TARG..... 00000317  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)
- 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 64 on page 651 is an example of a LOGGER report.

```
System Logger Report
--------------------
LOGR Couple Dataset Level:   HBB6603

          System Logger Asid:           0014
          System Logger state information
          ---------------------------
             Available
             Ctrace is active
             System level recovery performed
             Couple Dataset available
             SMS has been checked
Report for Generalized tasks
----------------------------

BLF01 Tcb Address           007E2B68
BLF01 Request Que           00000000
             Waiting For work
WORKT Tcb Address           007E24B0
WORKT Request Que           00000000
             Waiting For work
F1TTT Tcb Address           007E2220
F1TTT Request Que           00000000
             Waiting For work
A1TSK Tcb Address           007E29D0
A1TSK Request Que           05823880
             Processing work or initializing

M1TSK Tcb Address           007E1E88
M1TSK Request Que           00000000
             Waiting For work
A1HSM Tcb Address           007E2740
A1HSM Request Que           00000000
             Waiting For work
L1TSK Tcb Address           007E1A60
L1TSK Request Que           05824840
             Processing work or initializing

LSTSK Tcb Address           007E17D0
LSTSK Request Que           05823B20
             Processing work or initializing
```

Figure 64. 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 65. Example: LOGGER report, continued

```
Register Information for Stack Entry 01 of  02
----------------------------------------------

Ep Name: IXGW1TSK addr: 03D17368 in Module: IXGW1TSK addr: 03D17368

 GENERAL PURPOSE REGISTER VALUES
     0-3  05858ABC  05A5215C  00000058  00000000
     4-7  05A51F1E  01599228  058230A0  05800000
     8-11 01599000  00000058  00000000  03D18367
    12-15 03D17368  05A52018  83D18264  83D1C810
 ACCESS REGISTER VALUES
     0-3  007E2B68  00000000  00000000  00000000
     4-7  00000000  00000000  00000000  00000000
     8-11 00000000  00000000  00000000  00000000
    12-15 00000000  00000000  00000000  00000001


Register Information for Stack Entry 02 of  02

----------------------------------------------

Ep Name: IXGC4DIS addr: 03D1C810 in Module: IXGC4DIS addr: 03D1C810

 GENERAL PURPOSE REGISTER VALUES
     0-3  06050003  83D20766  83BD8360  00000000
     4-7  05A52A0C  03D20E48  05A52AE4  05A52DE4
     8-11 015A08C0  03D1F80D  03D2080C  03D1E80E
    12-15 015A28C0  00FD2330  03D1D80F  03D1C810
 ACCESS REGISTER VALUES
     0-3  007E2B68  00000000  00000000  00000000
     4-7  00000000  00000000  00000000  00000000
     8-11 00000000  00000000  00000000  00000000
    12-15 00000000  00000000  00000000  00000001
EcbList: 05A50B60
     Count.... 00000002
     Ecb@..... 05800028   Ecb@..... 0582509C
```

Figure 66. Example: LOGGER report, continued

```
ECB: 05800028
               00000000
             Is being processed
ECB: 0582509C
               40000000
             Posted
             Is being processed

Report For Structure: LIST03           Conname: IXGLOGR_SY2

STRCB: 0581C0F8
     Structure Information:
        Asynchronous Write Count           0000
        Current Connect Token              C9E7C3D3  D6F0F0F2  7F6D9308  00010004
        Saved rebuild Conn Token           C9E7C3D3  D6F0F0F2  7F6D9308  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:  IXJRME36.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 67. Example: LOGGER report, continued

```
Report for Logstream Connector in: ASID(X'0022')

LCCB: 0581BA78
        Sequence Number                          0000001B
        Asynchronous Events Count                00000000
        Connectors Ttoken                        00000088  00000001  0000000D  007E1200

             Read and Write Authorization


Report for Logstream Connector in: ASID(X'0017')

LCCB: 0581F468
        Sequence Number                          00000019
        Asynchronous Events Count                00000000
        Connectors Ttoken                        0000005C  00000004  00000003  007E1B68

             Read and Write Authorization


Report for Logstream Connector in: ASID(X'0042')

LCCB: 0581F708
        Sequence Number                          00000012
        Asynchronous Events Count                00000000
        Connectors Ttoken                        00000108  00000001  00000005  007E15B8

             Read and Write Authorization
Report for Logstream:  IXJRME36.STREAM1

LCB: 05806278
     DSSEQ.... ........

             Config2 Logstream
             Logstream Available
             DUPLEX=YES
             SMF Buffer available
             RMNAME specified on define
             disconnect waiting for wow
             Disconnect Pending
             Store Thru mode


Report for LOGGER Modules:

Ep Name: IXGAIMM  at address: 06119C20    Csect: IXGAIMM  at address: 06119C20
Ep Name: IXGAIMM9 at address: 06119F70    Csect: IXGAIMM  at address: 06119C20
Ep Name: IXGAIAFP at address: 0609BB48    Csect: IXGAIAFP at address: 0609BB48
Ep Name: IXGAIAF9 at address: 0609BCF8    Csect: IXGAIAFP at address: 0609BB48
Ep Name: IXGAIALC at address: 061221C0    Csect: IXGAIALC at address: 061221C0
Ep Name: IXGAIAL9 at address: 061225D8    Csect: IXGAIALC at address: 061221C0
Ep Name: IXGAIAUS at address: 0609CB38    Csect: IXGAIAUS at address: 0609CB38
Ep Name: IXGAIAU9 at address: 0609D3A0    Csect: IXGAIAUS at address: 0609CB38
```

Figure 68. 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 *z/OS MVS System Commands*.

- D GRS,Latch,Jobname=IXGLOGR to show all latches held by logger address space.
- 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 646 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,ANAYLZE,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,COUPLE,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
  - IXGDIRCT
  - IXGDMTOK
  - IXGINV
  - IXGLBBCE
  - IXGLBBLS
  - IXGLBCB
  - IXGLBBCS
  - IXGLBELS
  - IXGLBLB
  - IXGLCB
  - IXGLCBIT
  - IXGLCCB
  - IXGLSAB
  - IXGPCNTL

  - IXGPVTCT
  - 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 69 on page 657 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

SUBSYS = XYZ  (PRIMARY)
   DYNAMIC = YES   STATUS = ACTIVE     COMMANDS = NO    EVENTRTN = NO
   SUBSYSTEM DEFINITION DATA
    SSCVT ADDRESS = 00B25C2C
    USER FIELD 1 = 00B0B7D0    USER FIELD 2 = 00B0B7C0
   SUBSYSTEM VECTOR TABLE DATA
    TOKEN = N/A         ADDRESS = 00B0B270    STATUS = ACTIVE
    FUNC =   1          FUNC =  2             FUNC =  3
    FUNC =   4          FUNC =  5             FUNC =  6

SUBSYS = NEW1
   DYNAMIC = YES   STATUS = ACTIVE     COMMANDS = YES   EVENTRTN = YES
   SUBSYSTEM DEFINITION DATA
    SSCVT ADDRESS = 00B25CE0
    USER FIELD 1 = 00000000    USER FIELD 2 = 00000000
   SUBSYSTEM VECTOR TABLE DATA
    TOKEN = D1FE96D9    ADDRESS = 04324160    STATUS = INACTIVE
    FUNC =   4          FUNC =  10            FUNC =  50
    TOKEN = D1FE96A1    ADDRESS = 04323070    STATUS = ACTIVE
    FUNC =   7          FUNC =  16            FUNC =  17
    FUNC =  38          FUNC =  39

SUBSYS = ABC
   DYNAMIC = NO    STATUS = ACTIVE     COMMANDS = N/A   EVENTRTN = N/A
   SUBSYSTEM DEFINITION DATA
    SSCVT ADDRESS = 00B25C08
    USER FIELD 1 = 00000000    USER FIELD 2 = 00000000
   SUBSYSTEM VECTOR TABLE DATA
    TOKEN = N/A         ADDRESS = 00B25A58    STATUS = ACTIVE
    FUNC =   4          FUNC =   5            FUNC =   6
    FUNC =   8          FUNC =   9            FUNC =  10

SUBSYS = EFGH
   DYNAMIC = NO    STATUS = INACTIVE   COMMANDS = N/A   EVENTRTN = N/A
   SUBSYSTEM DEFINITION DATA
    SSCVT ADDRESS = 00B25C74
    USER FIELD 1 = 00000000    USER FIELD 2 = 00000000
```

Figure 69. Example: SSIDATA report

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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* 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`

Chapter 26. Workload Management (WLM)

This topic contains diagnosis information for workload management (WLM).

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 54 on page 661.

Table 54. Summary: WLMDATA keywords

Keyword	Report Displays:	Explanation
STATUS	Information about WLM status for systems in the sysplex.	"WLMDATA status report" on page 663
POLICY	Information about the service policy	"WLMDATA policy report" on page 676
WORKMANAGER	Information about work associated with the work managers using workload management services.	"WLMDATA WORKMANAGER report" on page 680
QUEUEMANAGER	Information about work associated with the queue managers using workload management services.	"WLMDATA queue manager report" on page 685
SERVERMANAGER	Information about work associated with the server managers using workload management services.	"WLMDATA server manager report" on page 695
SCHENV	Information about scheduling environments.	"WLMDATA scheduling environment report" on page 711
CFMANAGER	Information about Coupling Facility Manager processing.	"WLMDATA Coupling Facility manager report" on page 719
CONTENTION	Information about resource contention topology function.	"WLMDATA contention report" on page 734

All WLMDATA reports contain a standard header. "WLMDATA report header" on page 662 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.

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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 70 on page 662 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
                            QUEUEMANAGER
                            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 70. Example: WLMDATA report header

Report(s)
One or more of the following report types:

- STATUS
- POLICY
- WORKMANAGER
- SERVERMANAGER
- QUEUEMANAGER
- SCHENV
- CFMANAGER
- CONTENTION

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

```
***** STATUS SUMMARY REPORT *****

   Global WLM Sysplex Manager Information
   --------------------------------------

   Maximum number of systems..................... 32

   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 71. 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,
- 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 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.

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 72. 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.
- **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:xx:ss
  - mm - month
  - dd - day
  - yyyy - year
  - hh - hours (Hours presented from 01 to 24.)
  - xx - 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

```
WLM Function Information
------------------------

Sysplex Communications Management
   Status..................................... Open
   Time that this function had state set..... 08/04/1996 18:02:07
   Message Object Anchors
      First pending response object.......... 00000000
      Last pending response object........... 00000000
      First message object................... 00000000
      Last message object.................... 00000000
   Message Counts
      Number of messages sent................ 27
      Number of messages received............ 0
      Number of acknowledgements received.... 0
```

Figure 73. Example: WLM function information

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: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.

WLM system information

The system information section represents data that is unique for each system that is being handled by the WLM sysplex manager.

```
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
```

Figure 74. 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:

- 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.

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 ................. MAIN01
      Service definition description ........... Main service definition
      Time of installation .................... 02/08/2020 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
   Number of service class entries ................................ 20
   Number of service class period entries ......................... 22
   Number of resource group and tenant resource group entries ..... 4
   Number of report class and tenant report class entries ......... 0


   No exceptional conditions were found by the POLICY SUMMARY report.
```

Figure 75. 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.

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 and tenant resource group entries
Number of resource group and tenant resource group entries in the resource group definition section.

Number of report class and tenant report class entries
Number of report class and tenant 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 ...................... 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 .................. MAIN01
      Service definition description ........... Main service definition
      Time of installation ..................... 02/08/2020 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
   Number of service class entries ................................ 20
   Number of service class period entries ......................... 22
   Number of resource group and tenant resource group entries ..... 4
   Number of report class and tenant report class entries ......... 0

   Policy in effect on this system matches the active policy on the

   Detailed Policy Information
   ---------------------------
```

```
   Service Definition Options
      I/O priority management:              YES
      Dynamic Alias Tuning Management:      YES
      I/O Priority Groups enabled:          NO
      Discretionary Goal Mgmt disabled:     NO


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.

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 and tenant resource group entries
Number of resource group and tenant resource group entries in the resource group definition section.

Number of report class and tenant report class entries
Number of report class and tenant report class entries in the report class definition section.

I/O priority management: *xxx*
Indicates whether I/O delays should be included in the denominator of the execution velocity equation. *xxx* can be either YES or NO.

Dynamic Alias Tuning Management: *xxx*
Indicates whether dynamic alias tuning management is enabled. *xxx* can be either YES or NO.

I/O priority Groups enabled: *xxx*
Indicates whether I/O priority groups are considered or ignored. *xxx* can be either YES or NO.

Discretionary Goal Mgmt disabled: *xxx*
Indicates whether discretionary goal management is disabled. *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.

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 Workload management participants 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 Workload management participants 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........................... gggggggg

      SUMMARY OF CONNECTION SUB-REPORT
      --------------------------------

      Subsystem type.......................... hhhh
      Connection flags
         xxxxxxxxxxxx
      Subsystem name.......................... iiiiiiii
         Number of associated ASCBs.............. jjjjjjjj
         Number of associated ASCBs.............. jjjjjjjj
         Connector's TCB address................. kkkkkkkk

   No connection to report on
```

Figure 76. 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
```

```
      ------------------------------
      Subsystem type..................... IMS
      Connection flags
         xxxxxxxxxxxx
      Subsystem name..................... IMSU
         Number of associated ASCBs..... 3
         Connector's TCB address........ 006EE848
         Connector's protect key........ 07
         Associated ASCB address........ 00F5ED00
         Associated ASCB address........ 00F4C700
         Associated ASCB address........ 00F77E80
   ASID.................................. X'0033'
      Total number of monitoring envs owned... 166
      ASCB Address....................... 00F5EB80
      Connect token...................... 07CE00D8
      DETAIL OF CONNECTION SUB-REPORT
      ------------------------------
      Subsystem type..................... CICS
      Subsystem name..................... CICSDAU1
         Number of associated ASCBs..... 0
         Connector's TCB address........ 006D8B00
         Connector's protect key........ 08
      DETAIL OF MONITORING ENVIRONMENT SUB-REPORT
      ----------------------------------------
      Monitoring token................... FF70BDA8
      Control token...................... 06DFD2C0
         Owner's TCB address............ 006D8B00
         Subsystem type................. CICS
         Subsystem name................. CICSDTU1
         State of work request.......... WAIT TIMER
         Switch continuation information..... N/A
         Abnormal condition............. NONE
         Service class token status..... OLD
            Service class............... ********
            Report class................ ********
         Protect key.................... 08
         Owner data..................... A0000000
         Owner token.................... 00000000
         Work request arrival time...... 02/14/1996 15:19:42
         Work request execution start time..... 02/14/1996 15:19:43
         Dispatching unit TCB........... 00000000
         Dispatching unit ASCB.......... 00F5E400
         Parent monitoring token........ 00000000
         Parent control token........... 00000000
         Dependent monitoring token..... 00000000
         Dependent control token........ 00000000
         Userid......................... CICSUSER
         Transaction name............... CSSY
         Transaction class.............. ********
         Source LU name................. ........
```

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.

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.

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.

"QUEUEMANAGER summary report" on page 686, "QUEUEMANAGER exception report" on page 688, and "QUEUEMANAGER detail report" on page 689 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

```
***** QUEUEMANAGER 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.............. Active
    Application Environment Counts
      Total target............................. xxxxxxxx
      Total bound.............................. xxxxxxxx
      Number of starting servers............... xxxxxxxx
      Number of connected servers.............. xxxxxxxx

      Transaction Environment Information
      -----------------------------------

      Transaction Environment Service Class.... AQISSLOW
      Transaction Environment Counts
        Target................................. xxxxxxxx
        Bound.................................. xxxxxxxx
      Transaction Environment Work Queue....... Empty

        Work Queue Information
        ----------------------------------

        Work Unit User Data..... xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx

        Work Queue Information
        ----------------------------------

        Work Unit User Data..... xxxxxxxx xxxxxxxx xxxxxxxx xxxxxxxx

  Application Environment Table Information
  -----------------------------------------

  Application Environment Name......... PAYROLL
    Subsystem Type............................. DB2
    Procedure Name............................. PAYROLL
```

Figure 77. 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;

- 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
     ------------------------------

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 78. 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
  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
    xxxxxxxxxxxxxxxxxxxxxxx
  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
      xxxxxxxxxxxxxxxxxx
    Application Environment Queues    ......... xxxxxxxx
      First server............................. xxxxxxxx
      Last server.............................. xxxxxxxx
      First transaction environment............ xxxxxxxx
      Last transaction environment............. xxxxxxxx

      Transaction Environment Information
      -----------------------------------

      Transaction Environment Service Class.... AQISSLOW
      Transaction Environment Counts
        Target................................. xxxxxxxx
        Bound.................................. xxxxxxxx
      Transaction Environment Work Queue....... Empty
      Transaction Environment Flags
        xxxxxxxxxxxxxxxxx
      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
             xxxxxxxxxxxxxxxxx
           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


         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
             xxxxxxxxxxxxxxxxxxxxxxxx
           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.

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.

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

  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.

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 696, "SERVERMANAGER exception report" on page 700, and "SERVERMANAGER detail report" on page 700 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

```
***** 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 79. 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.

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 80. 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
        SRM Order Stack............................ xxxxxxxx
      New Address Space Table
        Slot 1..................................... xxxxxxxx
        Slot 2..................................... xxxxxxxx
        Slot 3..................................... xxxxxxxx
      EM CSC Information
        CSC Flags
          xxxxxxxxxxxxxxxxxxxx
        CSC Work Structure......................... xxxxxxxx
        Internal SVCAE............................. xxxxxxxx
```

```
Work Manager Information
------------------------

Subsystem Type.............................. DB2
Subsystem Name.............................. DB2A
Work Manager State.......................... Active
Work Manager Flags
  xxxxxxxxxxxxxxxxxxxxxx
Work Manager Queues
  First application environment.............. xxxxxxxx
  Last application environment............... xxxxxxxx
XDAT Connection............................. 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
   xxxxxxxxxxxxxxxxxx
 Application Environment Queues
   First server............................ xxxxxxxx
   Last server............................. xxxxxxxx
   First transaction environment........... xxxxxxxx
   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
     xxxxxxxxxxxxxxxxxx
   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 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.......................... PAYROLL
     Start Parameters
     Limit on starting server address spaces
       Single address space per system
     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
         xxxxxxxxxxxxxxxxxxxxxxx
       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.

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.

- 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

  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.

- 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.

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.

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

```
***** SCHENV SUMMARY REPORT *****

Scheduling Environment Table Information
----------------------------------------

  Scheduling Environments
  -----------------------

    Scheduling Environment Name.... CRYPTO
      Description.................. CRYPTO Environment

    Scheduling Environment Name.... DB2
      Description.................. DB2 Environment


  Resources
  ---------

    Resource Name      Description
    -------------      -----------
    CRYPTO             CRYPTO required
    DB2                DB2 required
    DB2_NOT_4          DB2 V4 NOT required
    IMS                IMS required
    OS390R3            release/version identifier
    OS390R4            release/version identifier
.
.
.
```

Figure 81. Example: SCHENV summary report

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.

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.

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.

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 IWMSEVAL Issued.............. xx/xx/xxxx xx:xx:xx
     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
  ------------------

    Size Of Header............................ xxxxxxxx
    Size Of Scheduling Environment Table...... xxxxxxxx
    Header TOD Value.......................... xx/xx/xxxx xx:xx:xx
    Size Of System Status Area................ xxxxxxxx
    Number Of Scheduling Environment Entries..... xxxxxxxx
    Number Of SR Entries...................... xxxxxxxx
    Number Of Resource Entries................ xxxxxxxx
    Number Of System Status Area Entries..... xxxxxxxx


  Scheduling Environments
  -----------------------

    Scheduling Environment Name.... CRYPTO
      Description.................. CRYPTO Environment

      Resource Name    Required State
      -------------    --------------
      CRYPTO           ON

    Scheduling Environment Name.... DB2
      Description.................. DB2 Environment

      Resource Name    Required State
      -------------    --------------
      DB2              ON
      OS390R4          ON


  Resources
  ---------

    Resource Name      Resource Description
    -------------      --------------------
    CRYPTO             CRYPTO required
    DB2                DB2 required
    DB2_NOT_4          DB2 V4 NOT required
    IMS                IMS required
    OS390R3            release/version required
    OS390R4            release/version required

  Scheduling Environments
  -----------------------

    Scheduling Environment Name.... CRYPTO
      Description.................. CRYPTO Environment

      Resource Name    Required State
      -------------    --------------
      CRYPTO           ON

    Scheduling Environment Name.... DB2
      Description.................. DB2 Environment

      Resource Name    Required State
      -------------    --------------
      DB2              ON
      OS390R4          ON


  Resources
  ---------

    Resource Name      Resource Description
    -------------      --------------------
    CRYPTO             CRYPTO required
```

```
    DB2                DB2 required
    DB2_NOT_4          DB2 V4 NOT required
    IMS                IMS required
    OS390R3            release/version required
    OS390R4            release/version required


  Scheduling Environments System Status Information
  -------------------------------------------------

    System..................... SY1

      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................... CRYPO
        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

        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................... CRYPO
        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

        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

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.

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.

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 represent 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 us 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" on page 720, "CFMANAGER exception report" on page 722, and "CFMANAGER detail report" on page 722 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....................................... SYSZWLM_WORKUNIT
    Type.......................................... CACHE
    Connect/Disconnect Flags
      Connected
      Connect Failed
      Disconnected
      Disconnect Failed
```

Figure 82. 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:

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.

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:

- **SYSZWLM_WORKUNIT** (legacy product)
- **SYSZWLM_***xxxxxxxx* (z/OS Release 1 or later)

Type
Defines the type of structure. The type can be:

- **CACHE**
- **LIST** (legacy only)

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 83. 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

ASID: X'gggg'
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...................................... SYSZWLM_WORKUNIT
    Type......................................... CACHE
    Connect/Disconnect Flags
      Connected
      Connect Failed
      Disconnected
      Disconnect Failed
    Connection Information
      CONTOKEN..................... C9E7C3D3D6F0F3F27F6D328000010039
      Connect Version.............................. 00010039
      Structure Version............................ B0107C9758459807
      CONID........................................ 01
      Connect Name................................. #SYS1
    Control Information
      CONDATA...................................... 0804000000000000
        Functionality Level........................ 08
        Type.......................................   04
      Vector Token....................... 000000000000000200000000
      Vector Length................................ 00000020
      DISCDATA..................................... 0808000400000000
        Functionality Level........................ 08
        Reason.....................................   08
        Specific Information......................     0004
    Service Information
      Connect Information
        Connect Return Code........................ 00000010
        Connect Reason Code........................ 00000004
        Connect Reason/Return Code Who............. WLM
      Disconnect Information
        Disconnect Return Code..................... 00000000
        Disconnect Reason Code..................... 00000000
     Structure..................................... SYSZWLM_76854381
    Type......................................... CACHE
    Connect/Disconnect Flags
      Connected
    Connection Information
      CONTOKEN..................... C9E7C3D3D6F0F0F27F69542800010001
      Connect Version.............................. 00010001
      Structure Version............................ B2FC12B84625BB42
      CONID........................................ 01
      Connect Name................................. #SYS1
    Control Information
      CONDATA...................................... 0208000000000000
        Functionality Level........................ 02
        Type.......................................   08
      Vector Token....................... 022724B065B7A00101000002
      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
     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.............. C9E6D4E701010000010000010000160
                                 00000000000000000000000000000000
      Enclave Token............................. 000000C40000007F
      Multisystem Enclave....................... 08DBA000
      Update Version Number..................... 0000000000000000
      Exporter Queue Head....................... 08DB9F28
      Exporter Queue Tail....................... 08DAA040
      Importer Queue Head....................... 08DB9FB0
      Importer Queue Tail....................... 08DB9FB0
      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.............................. 088C
        Cache Entry Length In Bytes.............. 1000
        Export Token............. C9E6D4E701010000010000010000160
                                  00000000000000000000000000000000
        Originating System Name.................. SYS1
        Update Version Number.................... 0000000000000000
        Control Section Offset................... 0054
        Control Section Length................... 0054
        Participant Section Offset............... 00A8
        Participant Section Length............... 000C
        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................................... 0000005C00000006
        Jobname.................................. EIBC1C11
        Transaction Trace Token.. 00000000000000000000000000000000
                                  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
      Owner Is A System Task
      Original Enclave Restarted By Policy Activation
      One Or More Local Enclaves Reached Last Period
      Original Enclave Was Reset To New Service Class Or Reset Quiesced
      Original Enclave Was Reset Quiesced
  Participant Section
    Participant Entry 02
      System Token.......................... 00000000
      Service............................... 00000000
      Creation Time......................... 01A2B1A2
  Classification Section
    Collection Length..................... 05
    Correlation Length.................... 03
    Procedure Name Length................. 01
    Process Name Length................... 01
    Subsystem Type........................ BOSS
    Subsystem Name........................ WLJEIBC1
    Transaction Name...................... EIBC1C11
    Userid................................ IBMUSER
    Transaction Class..................... BOSS1
    Connection Type.......................
    Correlation Identifier................ CTT
    Logical Unit Name.....................
    Network ID............................
    Plan Name............................. TEST
    Package Name.......................... UPS
    Perform Value.........................
    Subsystem Priority.................... 80000000
    Scheduling Environment................
    Subsystem Collection Name.............
```

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:

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_***xxxxxxxx* (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**
- **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.

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 IWMCFCIT 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 readind a LDE cache entry.

CDE Structure Size
Size used when readind a CDE cache entry.

XDE Structure Size
Size used when readind 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.

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 multi system 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.

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 IWMCLSFY 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**
- **Logical Unit Name**
- **Network ID**
- **Plan Name**
- **Package Name**
- **Perform Value**
- **Subsystem Priority**
- **Scheduling Environment**
- **Subsystem Collection Name**

WLMDATA contention report

The Contention Report requests information that is associated with the resource contention topology function. The resource contention topology is workload management'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" on page 734), DETAIL ("CONTENTION exception report" on page 737), or EXCEPTION ("CONTENTION detail report" on page 738).

CONTENTION summary report

The following is an example of the CONTENTION summary report:

```
                ***** CONTENTION SUMMARY REPORT *****

Resources in contention table
-----------------------------

RSRCE    Scope SS    SS         HT     WT  RID
Address  S/M   Type  Name                  length
               ------------------------------------------------
               ResourceID  (first 50 bytes)
```

```
-----------------------------------------------------------------
7F6F1238   S   most  TSTCNTN   0002   0002 0108
               RESOURCE_START


Transactions with contention table
----------------------------------

TRXNE    Type  Index Token              HR    WR
Address  A/E
-----------------------------------------------
7FFD7028   A   0028  000000A000000001  0002   0002


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

  Transactions that hold this resource

    Transaction element information.....................7FFD7028
      Transaction identifier
        Type........Address space     Index.................0028
        Token.......000000A000000001

      Contention element information...................7F6F11B8
        Entity
          Type.................01      AStoken...000000A000000001
          TCB address...006EC120      Etoken....0000000000000000

    Transaction element information.....................7FFD7028
      Transaction identifier
        Type........Address space     Index.................0028
        Token.......000000A000000001

      Contention element information...................7F6F1138
        Entity
          Type.................01      AStoken...000000A000000001
          TCB address...00000000      Etoken....0000000000000000

  Transactions that are waiting for this resource

    Transaction element information.....................7FFD7028
      Transaction identifier
        Type........Address space     Index.................0028
        Token.......000000A000000001

      Contention element information...................7F6F1178
        Entity
          Type.................02      AStoken...000000A000000001
          TCB address...006EC120      Etoken....0000000000000000

    Transaction element information.....................7FFD7028
      Transaction identifier
        Type........Address space     Index.................0028
        Token.......000000A000000001

      Contention element information...................7F6E5218
        Entity
          Type.................02      AStoken...000000A000000001
          TCB address...00000000      Etoken....0000000000000000

Transactions with contention
----------------------------

  Transaction element information.....................7FFD7028
    Transaction identifier
      Type..........Address space     Index.................0028
      Token.........000000A000000001
```

```
        Resources the transaction is holding

          Resource element information.....................7F6F1238
            Resource Description
              Scope............Single System
              Subsytem type....most           Subsytem name...TSTCNTN
              ResourceID length................................0108
              ResourceID......RESOURCE_START
                           ==>
                           ==>
                           ==>
                           ==>
                           ==>
                           ==>            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
              Subsytem type....most           Subsytem name...TSTCNTN
              ResourceID length................................0108
              ResourceID......RESOURCE_START
                           ==>
                           ==>
                           ==>
                           ==>
                           ==>
                           ==>            RESOURCE_END

            Contention element information..................7F6F1138
              Entity
                Type.............01      AStoken...000000A000000001
                TCB address...00000000      Etoken....0000000000000000

        Resources the transaction is waiting for

          Resource element information.....................7F6F1238
            Resource Description
              Scope............Single System
              Subsytem type....most           Subsytem name...TSTCNTN
              ResourceID length................................0108
              ResourceID......RESOURCE_START
                           ==>
                           ==>
                           ==>
                           ==>
                           ==>
                           ==>            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
              Subsytem type....most           Subsytem name...TSTCNTN
              ResourceID length................................0108
              ResourceID......RESOURCE_START
                           ==>
                           ==>
                           ==>
                           ==>
                           ==>
                           ==>            RESOURCE_END

            Contention element information..................7F6E5218
              Entity
                Type.............02      AStoken...000000A000000001
                TCB address...00000000      Etoken....0000000000000000
```

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.

CONTENTION exception report

```
  ***** CONTENTION EXCEPTION REPORT *****
CONTENTION 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 84. 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      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.....7F6F1138     Next.............7FFD7034
        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..........7F6F11B8     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.............7F6F11B8
        Resource anchored contention element queue
          Previous.....7F6F1248     Next.............7F6F11B8

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..........7F6F11B8     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..............7FFD7040
            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..........7F6F11B8     Last..............7F6F1138
            Anchor of Waiter contention elements
              First..........7F6F1178     Last..............7F6E5218
          Previous.....7F6F1254     Next..............7F6F1178

          Contention element information...................7F6E5218
            Entity
              Type.................02      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.....7FFD7040     Next..............7F6F1178
              Resource anchored contention element queue
                Previous.....7F6F1254     Next..............7F6F1178



    Transactions with contention
    ----------------------------

      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

      Resources the transaction is holding

        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

          Contention element information...................7F6F11B8
            Entity
              Type.................01      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.....7F6F1138     Next..............7FFD7034
              Resource anchored contention element queue
```

```
          Previous.....7F6F1138     Next.............7F6F1248

      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

        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.............7F6F11B8
            Resource anchored contention element queue
              Previous.....7F6F1248     Next.............7F6F11B8

    Resources the transaction is waiting for

        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

          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.............7FFD7040
              Resource anchored contention element queue
                Previous.....7F6E5218     Next.............7F6F1254

        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

            Contention element information...................7F6E5218
              Entity
                Type.............02      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.....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 55 on page 745 to help you narrow down what area of sysplex services your problem is in.
Table 56 on page 748 indicates what operator commands would give additional problem determination data.
Table 57 on page 750 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 55 on page 745 and the associated notes to help determine which problem areas the symptoms point to.

Table 55. Determining the problem area for sysplex services (XCF and XES)

Problem Area–> **Symptoms** **‖** **‖** **V**	**Connection Services IXLCONN IXLDISC IXLEERSP**	**Rebuild Processing**	**Mainline Services "1" on page 746**	**Coupling Facility Interface**	**Couple Dataset Services**	**CFRM**	**XCF Signaling**	**SFM**	**ARM**	**XCF Client / Server**	**XCF Note Pad**
	XES				**XCF**						
MESSAGES											
From a subsystem	Note "2" on page 746	Note "3" on page 746	Note "5" on page 746			X			X		
From XES(IXL) to the console	X	X	Note "6" on page 746	Note "6" on page 746		X					X
From XCF(IXC) to the console					X	X	Note "10" on page 747	Note "11" on page 747	X	X	X
About a policy						X			X		
About GRS ring disruptions							X				
About loss of signaling connectivity							X				
In SYSLOG	Note "14" on page 747				X	X	X			X	X
About couple data set switch					X	X		Note "12" on page 747	Note "19" on page 748		
About restarts									Note "20" on page 748		
About CFRM policy not active						X					

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Table 55. Determining the problem area for sysplex services (XCF and XES) (continued)

Problem Area–> Symptoms ‖ ‖ V	Connection Services IXLCONN IXLDISC IXLEERSP	Rebuild Processing	Mainline Services "1" on page 746	Coupling Facility Interface	Couple Dataset Services	CFRM	XCF Signaling	SFM	ARM	XCF Client / Server	XCF Note Pad
LOGREC DATA SET											
Software record	Note "15" on page 747				Note "22" on page 748			Note "13" on page 747	Note "21" on page 748		
ABEND026	Note "16" on page 747	Note "16" on page 747	Note "7" on page 746								
Hardware record			Note "17" on page 747	Note "17" on page 747							
SYSTEM STATUS											
ABEND00C					X	X	X	X	X	X	X
ABEND026	X	X	Note "18" on page 747	X							
WAIT0A2/9C						X					
WAIT0A2/10					X						
WAIT0A2/130									X		
WAIT0A2/140									X		
WAIT0A2/68										X	X
WAIT0A2/6A											X
System hang						X					
Poor performance for the CF or system				X							
Excessive spin				Note "8" on page 747							
Subsystem hang	X	Note "4" on page 746	X			X					
Subsystem ABEND			X						X		
Performance degradation					Note "9" on page 747						

Fast path: Explanatory notes for Table 55 on page 745.

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:

Reason code	Explanation
x‘0E0D0001’	Indicates that an unexpected return code was received from the user's event exit. The connector is terminated.
x‘0E0D0101’	Indicates that an error occurred in the user's event exit. The connector is terminated.

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 56 on page 748 to gather more data about the problem. Use the problem areas from Table 55 on page 745 to determine which operator commands may provide additional information for your problem.

Note: This data should be saved for use with service personnel.

Table 56. Operator commands to help narrow down a sysplex services problem

Problem Area—> Operator command * * V	**Connection Services IXLCONN IXLDISC IXLEERSP**	**Rebuild Processing**	**Mainline Services“ 1” on page 749**	**Coupling Facility Interface**	**Couple Dataset Services**	**CFRM**	**XCF Signaling**	**SFM**	**ARM**	**XCF Client/ Server**	**XCF Note Pad**
	XES				**XCF**						
D XCF,STR“2” on page 749	X	X				Note “11” on page 749					X
D XCF,STR,STRNAME= “3” on page 749	X	X	X			X	X				X
D CF“4” on page 749	X		X	X		X					X
D XCF,CF“5” on page 749	X		X			X		X			X
D R,L“6” on page 749			X	X			Note “12” on page 749				
D GRS“7” on page 749							X				
D XCF,PATHIN/OUT “8” on page 749							X	X		X	X
D XCF,POL“9” on page 749						X		X	X		X
D XCF,C “13” on page 749					X	X		X	X		
D XCF,ARMSTATUS“14” on page 749									X		
D XCF,SERVER“15” on page 749										X	X
D XCF,NOTEPAD“16” on page 749											X
Subsystem Commands“10” on page 749	X	X	X			X			X		

Table 56. Operator commands to help narrow down a sysplex services problem (continued)

Problem Area–> Operator command * * V	Connection Services IXLCONN IXLDISC IXLEERSP	Rebuild Processing	Mainline Services“ 1” on page 749	Coupling Facility Interface	Couple Dataset Services	CFRM	XCF Signaling	SFM	ARM	XCF Client/ Server	XCF Note Pad

Note:

1. Mainline Services include: IXLLIST IXLCACHE IXLFCOMP IXLVECTR IXLLOCK IXLSYNCH IXLRT IXLUSYNC.
2. D XCF,STR command will display general structure information. The operator can then determine the coupling facility structure the application is currently using.
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.
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.
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 might 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 might indicate a problem.
9. D XCF,POLICY indicates the status of the policies, and when they were last updated.
10. The appropriate subsystem commands might 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 might 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 might 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.
15. D XCF,SERVER provides information about servers that are defined in the sysplex.
16. D XCF,NOTEPAD provides information about XCF note pads that are defined in the sysplex.

Some notes for Table 56 on page 748

1. Mainline Services include: IXLLIST IXLCACHE IXLFCOMP IXLVECTR IXLLOCK IXLSYNCH IXLRT IXLUSYNC.
2. D XCF,STR command will display general structure information. The operator can then determine the coupling facility structure the application is currently using.
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 may indicate a problem.

   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.
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 57 on page 750.

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 57. Data to gather for sysplex services problem

Problem Area—> **Data to Gather** **‖** **‖** **V**	**Connection Services IXLCONN IXLDISC IXLEERSP**	**Rebuild Processing**	**Mainline Services" 1" on page 753**	**Coupling Facility Interface**	**Couple Dataset Services**	**CFRM**	**XCF Signaling**	**SFM**	**ARM**	**XCF Client/ Server**	**XCF Note Pad**
	XES				**XCF**						
SDUMP DATA											
ASID=											
Connector's address space (issued IXLCONN)	X	X	X	X		X					
XCFAS	X	X	X	X	X	X	X	X	X	X	X
DSPNAME=											
All related to issuer of IXLCONN	X	X	X	X		X					

Table 57. Data to gather for sysplex services problem (continued)

Problem Area–> **Data to Gather** **‖** **‖** **V**	**Connection Services IXLCONN IXLDISC IXLEERSP**	**Rebuild Processing**	**Mainline Services** “1” on page 753	**Coupling Facility Interface**	**Couple Dataset Services**	**CFRM**	**XCF Signaling**	**SFM**	**ARM**	**XCF Client/ Server**	**XCF Note Pad**
All XCFAS	X	X	X	X	X	X	X	X	X	X	X
SDATA=											
XESDATA	X	X	X	X	X	X	X “6” on page 753	X		X “6” on page 753	X
COUPLE	X	X	X	X	X	X	X	X	X	X	X
RGN	X	X	X	X	X	X	X	X	X	X	X
CSA	X	X	X	X	X	X	X	X	X	X	X
SQA	X	X	X	X	X	X	X	X	X	X	X
NUC	X	X	X	X	X	X	X	X	X	X	X
LSQA	X	X	X	X	X	X	X	X	X	X	X
TRT	X	X	X	X	X	X	X	X	X	X	X
SUM	X	X	X	X	X	X	X	X	X	X	X
ADRDSSU Output for (Note “4” on page 753)											
ARM couple data sets									X		
CFRM couple data sets	X	X			X	X	X			X	X
SFM couple data sets					X			X			
Sysplex couple data sets	X	X			X	X	X			X	X
Component Trace Options for comp=SYSXCF											
ARM									X		
CFRM	X	X				X	X “6” on page 753			X “6” on page 753	X
GROUP											
GRPNAME=											
NOTEPAD											X
SERIAL					X	X					
SERVER										X	X
SFM								X			
SIGNAL							Note “3” on page 753			X	X
STATUS								X			
STORAGE											
Component Trace Options for comp=SYSXES											
ALL											

Table 57. Data to gather for sysplex services problem (continued)

Problem Area–> **Data to Gather** **‖** **‖** **V**	**Connection Services IXLCONN IXLDISC IXLEERSP**	**Rebuild Processing**	**Mainline Services" 1" on page 753**	**Coupling Facility Interface**	**Couple Dataset Services**	**CFRM**	**XCF Signaling**	**SFM**	**ARM**	**XCF Client/ Server**	**XCF Note Pad**
CONFIG				X		X					
CONNECT	X	X				X	X"6" on page 753			X"6" on page 753	X
HWLAYER	M	M	X	X		X	X"6" on page 753			X"6" on page 753	X
LOCKMGR			X								
RECOVERY	X	X	X								
REQUEST			X								
SIGNAL	M	M	M								
STORAGE											
Output from IPCS Subcommand COUPLE											
ARM									X		
GROUP											
SERIAL					X	X					
SIGNAL							X			X	X
STORAGE											
SYSPLEX								X			
XCFSTACK					X	X	X	X			
CFRM	X	X				X					
Output from IPCS Subcommand XESDATA											
CACHE			X								
CONNECTION	X	X	X			X	X"6" on page 753				X
FACILITY			X	X		X					
LIST			X				X"6" on page 753				X
LOCKMGR			X								
LOCKRESOURCE			X								
XESSTACK	X	X	X	X							
Other IPCS Subcommands											
CTRACE SYSXES	X	X	X	X		X	X"6" on page 753			X"6" on page 753	X
CTRACE SYSXCF	X	X			X	X	X	X	X	X	X

Table 57. Data to gather for sysplex services problem (continued)

Problem Area–> Data to Gather ‖ ‖ V	Connection Services IXLCONN IXLDISC IXLEERSP	Rebuild Processing	Mainline Services“ 1” on page 753	Coupling Facility Interface	Couple Dataset Services	CFRM	XCF Signaling	SFM	ARM	XCF Client/ Server	XCF Note Pad
OTHER DATA											
CTRACE output from external writer for SYSXCF or SYSXES	X	X	X	X	X	X	X	X	X	X	X
SYSLOG OUTPUT	X	X		X	X	X	X	X	X	X	X
LOGREC DATASET	X			X	X			X	X	X	X
IODF					Note “5” on page 753						

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 IXLVECTR IXLLOCK 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:

   ```
   //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 DFSMSdss Storage Administration*, 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 58 on page 754.

Table 58. COUPLE keywords and corresponding reports

Keyword	Report Displays	See topic
ARM	Information about elements and restart groups registered with the automatic restart manager.	“COUPLE ARM DETAIL report” on page 755
CFRM	Information about coupling facility resource management.	“COUPLE CFRM SUMMARY report” on page 758
GROUP	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.	“COUPLE GROUP DETAIL report” on page 763
SERIAL	Information about serialization on shared resources in the sysplex.	“COUPLE SERIAL DETAIL report” on page 765
SIGNAL	Information about the XCF signalling services, signalling paths defined in the sysplex, and active signalling requests.	“COUPLE SIGNAL DETAIL report” on page 770
STORAGE	Information about XCF dataspace usage and storage allocation.	None
SYSPLEX	Information about status and monitoring for systems and members in the sysplex.	“COUPLE SYSPLEX DETAIL report” on page 777
XCFSTACK	Information about cross-system coupling facility services. This report contains diagnostic information for IBM service personnel.	None

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: IXCDSMEM, IXCDSCBD, IXCDSCBE, IXCARDCB,
                   IXCARDIO, IXCDSTKA, IXCDSTKB, IXCDSTKC,
                   IXCDSTKD, IXCDSTKE, IXCDSTKF, IXCDSSGA,
                   IXCDSMUS, IXCDSLK1, IXCDSLO1, IXCAP1DS,
                   IXLCTCAD, IXLCBCAD, IXCDSMEX

Sysplex name: UTCPLXJ8

System name: JB0


 CTN ID:  zpet-stp-01  Clock Status: Active   Timing Mode: ETR

Optional function status:
  Function Name                  Status      Default
  DUPLEXCF16                     ENABLED     DISABLED
  SYSSTATDETECT                  ENABLED     ENABLED
  USERINTERVAL                   ENABLED     DISABLED
  CRITICALPAGING                 DISABLED    DISABLED
  DUPLEXCFDIAG                   ENABLED     DISABLED
  CFLCRMGMT                      DISABLED    DISABLED
  COUPLINGTHININT                ENABLED     ENABLED
  CFSTRQMON                      ENABLED     DISABLED

     COUPLE DATA SET INFORMATION
     ---------------------------

Type:  SYSPLEX (IXCLKMD)

    Primary Data Set:  SYS1.CDS00
```

```
        Volume Serial:  CDSCDP
               DDName:  SYS00001
        Device Number:  3D30
          Format Time:  09/26/2007 15:22:23.722341
                        (C141BB4650F65081)

      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.

   Alternate Data Set:  SYS1.CDS01
        Volume Serial:  CDSCDA
               DDName:  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:  CFRM (IXCLOFD)

 . . . (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
```

```
       * * * *  A R M  D E T A I L  R E P O R T  * * * *


     AUTOMATIC RESTART MANAGER (ARM) STATUS FOR SYSTEM: SYSTEM1
     ----------------------------------------------------------
  ARM Couple Data Set Accessible: Yes
              ARM Policy Active: 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
---------------- ------------ -------- ---- -------------- --------
DER15ELEM6       Restarting   DEU49E61 0021 SYSTEM2        00016590
           Element Type: DEREGTST
        Element Job Type: STC
     Element Association: None
          JES Group Name: PLPSB       Diag094: 0000000000000000
    Initial Registration: 09/01/1994 08:09:02.423215
     Restart in Progress: Yes     Restart Group: DER15
                                       Element Level: 00000002
  Suspended for WaitPred: No                Diag095: 00000000
          Total Restarts:         1
     Last Three Restarts: 09/01/1994 08:11:58.351810 N/A                        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       Diag094: 0000000000000000
    Initial Registration: 09/01/1994 08:09:03.366300
     Restart in Progress: Yes     Restart Group: DER15
                                       Element Level: 00000002
  Suspended for WaitPred: No                Diag095: 00000000
          Total Restarts:         1
     Last Three Restarts: 09/01/1994 08:11:58.433102 N/A                        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       Diag094: 00000025A9D08AF2
    Initial Registration: 09/01/1994 08:09:05.660736
     Restart in Progress: No      Restart Group: DER14
                                       Element Level: 00000001
  Suspended for WaitPred: No                Diag095: 00000000
          Total Restarts:         1
     Last Three Restarts: 09/01/1994 08:11:58.511831 N/A                        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       Diag094: 00000024A9D08AF1
    Initial Registration: 09/01/1994 08:09:01.428510
     Restart in Progress: No      Restart Group: DER14
                                       Element Level: 00000002
  Suspended for WaitPred: No                Diag095: 00000000
          Total Restarts:         1
     Last Three Restarts: 09/01/1994 08:11:58.271718 N/A                        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       Diag094: 0000000000000000
    Initial Registration: 09/01/1994 08:08:58.318698
     Restart in Progress: Yes     Restart Group: DER14
                                       Element Level: 00000003
  Suspended for WaitPred: No                Diag095: 00000000
          Total Restarts:         1
     Last Three Restarts: 09/01/1994 08:11:57.817460 N/A                        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       Diag094: 00000026A9D08AF3
    Initial Registration: 09/01/1994 08:08:58.522493
     Restart in Progress: Yes     Restart Group: DER14
                                  Element Level: 00000003
  Suspended for WaitPred: Yes (Explicit)     Diag095: 042EB900
         Total Restarts:        1
     Last Three Restarts: 09/01/1994 08:11:58.028996 N/A                       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       Diag094: 00000027A9D08AF4
    Initial Registration: 09/01/1994 08:09:01.249597
     Restart in Progress: Yes     Restart Group: DER14
                                  Element Level: 00000004
  Suspended for WaitPred: Yes (Explicit)     Diag095: 042EBC80
         Total Restarts:        1
     Last Three Restarts: 09/01/1994 08:11:58.192198 N/A                       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
---------------- ------------ -------- ---- -------------- --------
DER14ELEM3       Restarting   DEU49E31 001E SYSTEM2        00015018
            Element Type: DEREGTST
        Element Job Type: STC
     Element Association: None
          JES Group Name: PLPSB       Diag094: 0000000000000000
    Initial Registration: 09/01/1994 08:08:59.553246
     Restart in Progress: Yes     Restart Group: DER14
                                  Element Level: 00000005
  Suspended for WaitPred: No                Diag095: 00000000
         Total Restarts:        1
     Last Three Restarts: 09/01/1994 08:11:58.112401 N/A                       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
```

```
     ARM ACTIVE REQUEST DATA FOR SYSTEM: SYSTEM1
     -------------------------------------------

Element Name     Request Type    Jobname  ASID Diag097
---------------- --------------- -------- ---- --------
N/A              De-register     DEU49E81 012D 0444BC80

     ARM PENDING REQUEST DATA FOR SYSTEM: SYSTEM1
     --------------------------------------------

Element Name     Request Type    Jobname  ASID Diag097
---------------- --------------- -------- ---- --------
DER14ELEM1       Register        DEU49E11 001C 042EA900
DER15ELEM7       Register        DEU49E71 0022 042EAC80
DER15ELEM6       Register        DEU49E61 0021 042EB200
N/A              De-register     DEU49E81 012D 042EB580

     SUMMARY OF ARM RESTART PROCESSING ON CURRENT SYSTEM: SYSTEM1
     -----------------------------------------------------------
     NON CROSS SYSTEM RESTART PROCESSING:

Element Name     Last Restart Event             Time For Time Out
---------------- ------------------------------ ------------------
     There is no information to report.
     CROSS SYSTEM RESTART PROCESSING:
 WorkLoad Restart Exit In Control: No     Parm List Addr: N/A
  Restart Group: DER15
                       WaitPred
Element Name     Level Suspended Last Restart Event             Time For Time Out
---------------- ----- --------- ------------------------------ ------------------
DER15ELEM6       00002 No        Element Restarted              298 seconds
                  Restart TOD: 09/01/1994 08:12:01.962066
                Re-registered: N/A
                       WaitPred
Element Name     Level Suspended Last Restart Event             Time For Time Out
---------------- ----- --------- ------------------------------ ------------------
DER15ELEM7       00002 No        Element Restarted              300 seconds
                  Restart TOD: 09/01/1994 08:12:02.997678
                Re-registered: N/A
  Restart Group: DER14
                       WaitPred
Element Name     Level Suspended Last Restart Event             Time For Time Out
---------------- ----- --------- ------------------------------ ------------------
DER14ELEM1       00003 No        Element Restarted              223 seconds
                  Restart TOD: 09/01/1994 08:12:03.437495
                Re-registered: N/A
                       WaitPred
Element Name     Level Suspended Last Restart Event             Time For Time Out
```

```
---------------- ----- --------- ------------------------------ ------------------
DER14ELEM2       00003 Yes       Element Re-registered          299 seconds
                  Restart TOD: 09/01/1994 08:12:04.911881
                Re-registered: 09/01/1994 08:13:20.079824
                       WaitPred
Element Name     Level Suspended Last Restart Event             Time For Time Out
---------------- ----- --------- ------------------------------ ------------------
DER14ELEM4       00004 Yes       Element Re-registered          299 seconds
                  Restart TOD: 09/01/1994 08:12:05.520138
                Re-registered: 09/01/1994 08:13:19.987219
                       WaitPred
Element Name     Level Suspended Last Restart Event             Time For Time Out
---------------- ----- --------- ------------------------------ ------------------
DER14ELEM3       00005 No        Element Restarted              225 seconds
                  Restart TOD: 09/01/1994 08:12:05.999556
                Re-registered: N/A
IXC80305I ARM DETAIL report encountered one or more validity check warnings.

        * * * *  END OF COUPLE (CROSS-SYSTEM COUPLING FACILITY) REPORT  * * * *
```

COUPLE 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
```

```
        * * * *   C F R M   S U M M A R Y   R E P O R T   * * * *
-****************************************************** 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
LOIS Address: 7EF4BF40
*************************************************** Active Policy Information ***
Data Space Name: IXCDSLO1
 Subtype   Address   Length    Structure Name    StblNum   StblSeq#
  ------------------------------------------------------------------
  IXCLOTBL  00001020  0000652C  IGWLOCK00         00000000  00000000
************************************************** Facility Information ********
Facilities Known To System: N64
 HFST Address: 7EF4B718
 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
                         SYID: BDB85DEA B91865F8
                         MFID: 00000003
                  HFST Index: 00000001  Address: 7EF4B750  Flags: A0020000
 Facility Name: LPF
           Coupling Facility: 002094.IBM.02.0000000E346C
                    Partition: F
                        CPCID: 00
                      CFLevel: 14
1LOST CDS CONN ON N64
                6  11:42:06 10/27/05
```

```
+_____________________________________________________________________________
            In Active Policy: Yes
```

```
                  Connected: Yes
             In Use By System: Yes
                   In Cleanup: No
          Monitored by system: Yes
                    Ownership: SVPLEX1  10/06/2005 09:05:51.026949
                         SYID: BDB85DE5 473059F0
                         MFID: 00000001
                  HFST Index: 00000003  Address: 7EF4B820  Flags: A0020000
 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
                         SYID: BDB86FFA 5235A077
                         MFID: 00000002
                  HFST Index: 00000002  Address: 7EF4B7B8  Flags: A0000000
**************************************************** Structure Information ****
Structure Information for System: N64
LOST Address: 7F6C8FD0  Manager System Name: N64       SysID: 01001306
Header ConfirmQ: 00000000
Data Space Name: IXCDSCBE
                                                                 Participant  Entry
 Structure Name   StblNum  StblSeq#    AsrbQ    #EPBs    #EMBs   NotifyESN  ConfirmQ
 ---------------------------------------------------------------------------------
 DBSVPLX1_LOCK1   00000072 00000000 0002B318        1        1   00000009   00000000
 DBSVPLX1_SCA     0000007D 00000000 0002B518        1        1   00000009   00000000
 IGWLOCK00        00000000 00000000 00020E18        1        1   00000012   00000000
 IRRXCF00_B001    00000017 00000002 00020718        1        1   00000016   00000000
 IRRXCF00_B002    00000019 00000002 00020918        1        1   00000009   00000000
 IRRXCF00_B003    0000001B 00000002 00020B18        1        1   00000016   00000000
 IRRXCF00_P001    00000016 00000002 00020618        1        1   00000009   00000000
 IRRXCF00_P002    00000018 00000002 00020818        1        1   00000016   00000000
 IRRXCF00_P003    0000001A 00000002 00020A18        1        1   00000009   00000000
 ISGLOCK          0000001D 00000002 00020418        1        1   00000016   00000000
 ISTGENERIC       00000014 00000000 0002B018        1        1   0000001C   00000000
 IXCPLEX_PATH1    0000000F 00000002 00020018        0        0   00000000   00000000
 IXCPLEX_PATH2    00000010 00000002 00020218        0        0   00000000   00000000
 IXCPLEX_PATH3    00000011 00000002 00020318        0        0   00000000   00000000
 IXCPLEX_PATH4    00000012 00000002 00020118        0        0   00000000   00000000
 LOGGER_STR1      0000001E 00000000 0002B118        0        0   0000001A   00000000
 SYSIGGCAS_ECS    00000015 00000003 00020D18        1        1   0000001F   00000000
 SYSZWLM_ABEC2084 00000002 00000002 00020C18        1        1   00000013   00000000
 SYSZWLM_WORKUNIT 00000001 00000002 00020518        1        1   00000017   00000000
 THRCACDB2_1      0000007F 00000001 0002B418        1        1   00000009   00000000
 THRCACDB2_2      00000080 00000001 0002B618        1        1   00000009   00000000
 THRCACDB2_3      00000081 00000001 0002B718        1        1   00000009   00000000
 THRCACDB2_4      00000082 00000001 0002B818        1        1   00000009   00000000
1LOST CDS CONN ON N64                   7  11:42:07 10/27/05
```

```
 +_________________________________________________________________________________
THRCACDB2_5      00000083 00000001 0002B918        1        1   00000009   00000000
THRCACIMS_1      00000084 00000001 0002BA18        1        1   00000009   00000000
 THRCACIMS_2      00000085 00000001 0002BB18        1        1   00000009   00000000
 THRLCKDB2_1      00000086 00000001 0002BD18        1        1   00000009   00000000
 THRLCKGRS_1      00000087 00000001 0002BC18        1        1   00000009   00000000
 THRLCKIMS_1      00000088 00000001 0002B218        0        0   0000005C   00000000
 THRLSTCQS_1      00000091 00000001 00032718        1        1   00000009   00000000
 THRLSTLOG_1      00000089 00000001 0002BE18        1        1   00000009   00000000
 THRLSTLOG_2      0000008A 00000001 00032118        1        1   00000009   00000000
 THRLSTMNPS_1     00000092 00000001 00032918        1        1   00000009   00000000
 THRLSTMQ_1       0000008C 00000001 00032218        1        1   00000009   00000000
 THRLSTMQ_2       0000008D 00000001 00032318        1        1   00000009   00000000
 THRLSTMQ_3       0000008E 00000001 00032418        1        1   00000009   00000000
 THRLSTMQ_4       0000008F 00000001 00032518        1        1   00000009   00000000
 THRLSTMQ_5       00000090 00000001 00032618        1        1   00000009   00000000
 THRLSTMQA_1      0000008B 00000001 00032818        1        1   00000009   00000000
**************************************************** Request Information ************
Requests Queued (LOREs)    Data Space Name: IXCDSCBE  (Q Legend: LOCI Q: C-CurEl,
P-Process,
-Journal, R-Request
                                                                 LOST ConfirmQ:
H-Header,
 E-Entry)
Service/Function        Structure Name   Q Address  Thread   TOD
Function Specific Information-----------------------------------------------------
 RsrConfirmSSID          SYSZWLM_WORKUNIT C 0004C018 00003C0D 10/06/2005 11:07:46.560485
 XloMsgBasedEvent        SYSIGGCAS_ECS    P 0004C808 00003C0F 10/06/2005 11:07:46.560840 N66
    03001308 Ack SsidRelNotify
 RsrConfirmSSID          SYSIGGCAS_ECS    P 0004D018 00003C11 10/06/2005 11:07:46.562254
 XloMsgBasedEvent        IRRXCF00_P002    P 0004D808 00003C13 10/06/2005 11:07:46.564894 N66
     03001308 Ack SsidRelNotify
 XloMsgBasedEvent        IRRXCF00_P001    P 0004E018 00003C15 10/06/2005 11:07:46.565008 N66
   03001308 Ack SsidRelNotify
 XloMsgBasedEvent        IRRXCF00_B001    P 0004E808 00003C17 10/06/2005 11:07:46.565078 N66
   03001308 Ack SsidRelNotify
 RsrConfirmSSID          IRRXCF00_P001    P 0004F018 00003C19 10/06/2005 11:07:46.566436
```

```
 RsrConfirmSSID          IRRXCF00_B001    P 0004F808 00003C1B 10/06/2005 11:07:46.566559
 RsrConfirmSSID          IRRXCF00_P002    P 00050018 00003C1D 10/06/2005 11:07:46.566682
 XloMsgBasedEvent        IRRXCF00_B002    P 00050808 00003C1F 10/06/2005 11:07:46.566840 N66
    03001308 Ack SsidRelNotify
 RsrConfirmSSID          IRRXCF00_B002    P 00051018 00003C21 10/06/2005 11:07:46.566994
 XloMsgBasedEvent        IRRXCF00_P003    P 00051808 00003C23 10/06/2005 11:07:46.567346 N66
    03001308 Ack SsidRelNotify
 XloMsgBasedEvent        IRRXCF00_B003    P 00052018 00003C25 10/06/2005 11:07:46.567544 N66
    03001308 Ack SsidRelNotify
 RsrConfirmSSID          IRRXCF00_P003    P 00052808 00003C27 10/06/2005 11:07:46.568139
 RsrConfirmSSID          IRRXCF00_B003    P 00053018 00003C29 10/06/2005 11:07:46.568295
 XloMsgBasedEvent        DBSVPLX1_SCA     P 00053808 00003C2B 10/06/2005 11:07:46.592769 N66
    03001308 Ack SsidRelNotify
 XloMsgBasedEvent        THRCACIMS_1      P 00054018 00003C2D 10/06/2005 11:07:46.593025 N66
     03001308 Ack SsidRelNotify
 XloMsgBasedEvent        THRCACDB2_2      P 00054808 00003C2F 10/06/2005 11:07:46.593124 N66
    03001308 Ack SsidRelNotify
 XloMsgBasedEvent        THRCACDB2_1      P 00055018 00003C31 10/06/2005 11:07:46.593219 N66
    03001308 Ack SsidRelNotify
 XloMsgBasedEvent        THRCACIMS_2      P 00055808 00003C33 10/06/2005 11:07:46.593405 N66
    03001308 Ack SsidRelNotify
 XloMsgBasedEvent        THRLCKDB2_1      P 00056018 00003C35 10/06/2005 11:07:46.593503 N66
    03001308 Ack SsidRelNotify
 RsrConfirmSSID          THRCACDB2_4      P 00056808 00003C37 10/06/2005 11:07:46.593528
 RsrConfirmSSID          THRCACDB2_3      P 00057018 00003C3B 10/06/2005 11:07:46.593682
 XloMsgBasedEvent        THRCACDB2_3      P 00057808 00003C3C 10/06/2005 11:07:46.593682 N66
     03001308 Ack SsidRelNotify
 RsrConfirmSSID          THRCACIMS_2      P 00058018 00003C3D 10/06/2005 11:07:46.593755
 RsrConfirmSSID          THRCACDB2_5      P 00058808 00003C41 10/06/2005 11:07:46.593838
 RsrConfirmSSID          THRCACDB2_2      P 00059018 00003C42 10/06/2005 11:07:46.593909
 XloMsgBasedEvent        THRCACDB2_5      P 00059808 00003C44 10/06/2005 11:07:46.593921 N66
    03001308 Ack SsidRelNotify
```

```
 XloMsgBasedEvent        THRCACDB2_4      P 0005A018 00003C45 10/06/2005 11:07:46.593991 N66
    03001308 Ack SsidRelNotify
 RsrConfirmSSID          THRCACDB2_1      P 0005A808 00003C47 10/06/2005 11:07:46.594030
 RsrConfirmSSID          THRCACIMS_1      P 0005B018 00003C49 10/06/2005 11:07:46.595202
 XloMsgBasedEvent        THRLCKGRS_1      P 0005B808 00003C4B 10/06/2005 11:07:46.597308 N66
    03001308 Ack SsidRelNotify
 RsrConfirmSSID          THRLSTLOG_1      P 0005C018 00003C4D 10/06/2005 11:07:46.597448
 XloMsgBasedEvent        THRLSTLOG_1      P 0005C808 00003C4F 10/06/2005 11:07:46.597467 N66
    03001308 Ack SsidRelNotify
1LOST CDS CONN ON N64                     11:42:08 10/27/05
+-------------------------------------------------------------------------------
RsrConfirmSSID          THRLSTLOG_2      P 0005D018 00003C51 10/06/2005 11:07:46.597775
 XloMsgBasedEvent        THRLSTLOG_2      P 0005D808 00003C53 10/06/2005 11:07:46.597866 N66
    03001308 Ack SsidRelNotify
 XloMsgBasedEvent        THRLSTMQ_2       P 0005E018 00003C56 10/06/2005 11:07:46.597965 N66
    03001308 Ack SsidRelNotify
 XloMsgBasedEvent        THRLSTMQA_1      P 0005E808 00003C57 10/06/2005 11:07:46.597968 N66
    03001308 Ack SsidRelNotify
 XloMsgBasedEvent        THRLSTMQ_1       P 0005F018 00003C59 10/06/2005 11:07:46.598267 N66
    03001308 Ack SsidRelNotify
 XloMsgBasedEvent        THRLSTMQ_3       P 0005F808 00003C5B 10/06/2005 11:07:46.598373 N66
    03001308 Ack SsidRelNotify
 XloMsgBasedEvent        THRLSTMQ_4       P 00060018 00003C5D 10/06/2005 11:07:46.598560 N66
    03001308 Ack SsidRelNotify
 XloMsgBasedEvent        THRLSTMNPS_1     P 00060808 00003C5F 10/06/2005 11:07:46.598711 N66
    03001308 Ack SsidRelNotify
 XloMsgBasedEvent        THRLSTMQ_5       P 00061018 00003C61 10/06/2005 11:07:46.598808 N66
    03001308 Ack SsidRelNotify
 XloMsgBasedEvent        THRLSTCQS_1      P 00061808 00003C63 10/06/2005 11:07:46.598877 N66
     03001308 Ack SsidRelNotify
 RsrConfirmSSID          THRLSTMNPS_1     P 00062018 00003C65 10/06/2005 11:07:46.599113
 RsrConfirmSSID          THRLSTCQS_1      P 00062808 00003C67 10/06/2005 11:07:46.599191
 RsrConfirmSSID          DBSVPLX1_SCA     P 00063018 00003C69 10/06/2005 11:07:46.603333
 XloCRTErelease          -                P 00063808 00003C6A 10/06/2005 11:07:47.130241
 XloCRTErelease          -                P 00064018 00003C6B 10/06/2005 11:07:47.130361
 XloCRTErelease          -                P 00064808 00003C6C 10/06/2005 11:07:47.130413
 XloUpdatePol            -                P 00065018 00003C6D 10/06/2005 11:07:47.130466
 DsrConvert              IGWLOCK00        R 00096808 00003D5A 10/06/2005 11:07:49.274573
 RsrConfirmSSID          THRLSTMQ_2       R 00096018 00003D59 10/06/2005 11:07:48.405926
 RsrConfirmSSID          THRLSTMQ_4       R 00095808 00003D57 10/06/2005 11:07:48.404967
 RsrConfirmSSID          THRLSTMQ_1       R 00095018 00003D55 10/06/2005 11:07:48.404028
 RsrConfirmSSID          THRLSTMQA_1      R 00094808 00003D53 10/06/2005 11:07:48.403329
 RsrConfirmSSID          THRLSTMQ_5       R 00094018 00003D51 10/06/2005 11:07:48.402744
 RsrConfirmSSID          THRLSTMQ_3       R 00093808 00003D4F 10/06/2005 11:07:48.402453
 RsrConfirmSSID          THRLSTMQ_2       R 00093018 00003D4D 10/06/2005 11:07:48.402182
 RsrConfirmSSID          THRLSTMQ_3       R 00092808 00003D4C 10/06/2005 11:07:48.400855
 RsrConfirmSSID          THRLSTMQ_4       R 00092018 00003D4B 10/06/2005 11:07:48.400562
 RsrConfirmSSID          THRLSTMQ_1       R 00091808 00003D4A 10/06/2005 11:07:48.399939
 RsrConfirmSSID          THRLSTMQ_2       R 00091018 00003D49 10/06/2005 11:07:48.397549
 RsrConfirmSSID          THRLSTMQ_5       R 00090808 00003D47 10/06/2005 11:07:48.396734
 RsrConfirmSSID          THRLSTMQA_1      R 00090018 00003D46 10/06/2005 11:07:48.396420
 RsrConfirmSSID          THRLSTMQ_4       R 0008F808 00003D45 10/06/2005 11:07:48.395125
 RsrConfirmSSID          THRLSTMQ_3       R 0008F018 00003D43 10/06/2005 11:07:48.393781
 RsrConfirmSSID          THRLSTMQ_1       R 0008E808 00003D41 10/06/2005 11:07:48.393304
 RsrConfirmSSID          THRLSTMQ_5       R 0008E018 00003D3F 10/06/2005 11:07:48.392771
 RsrConfirmSSID          ISTGENERIC       R 0008D808 00003D3D 10/06/2005 11:07:48.392222
 RsrConfirmSSID          THRLSTMQA_1      R 0008D018 00003D3B 10/06/2005 11:07:48.392220
 RsrConfirmSSID          ISTGENERIC       R 0008C808 00003D39 10/06/2005 11:07:48.391152
 RsrConfirmSSID          ISTGENERIC       R 0008C018 00003D38 10/06/2005 11:07:48.391136
```

```
 XloForce               ISTGENERIC       R 0008B808 00003D36 10/06/2005 11:07:48.327743
 RsrConfirmSSID         THRLSTLOG_2      R 0008B018 00003D35 10/06/2005 11:07:48.309275
 RsrConfirmSSID         THRLSTMNPS_1     R 0008A808 00003D34 10/06/2005 11:07:48.309113
 RsrConfirmSSID         THRLSTCQS_1      R 0008A018 00003D33 10/06/2005 11:07:48.309111
 RsrConfirmSSID         DBSVPLX1_SCA     R 0004B808 00003D32 10/06/2005 11:07:48.286352
 RsrConfirmSSID         THRLSTLOG_1      R 0004B018 00003D31 10/06/2005 11:07:48.277945
```

```
 RsrConfirmSSID         THRCACIMS_1      R 0004A808 00003D30 10/06/2005 11:07:48.277893
 RsrConfirmSSID         THRCACIMS_2      R 0004A018 00003D2F 10/06/2005 11:07:48.277864
 XloMsgBasedEvent       THRLSTMQ_4       R 00049808 00003D2E 10/06/2005 11:07:48.277767 N64
    01001306 Ack SsidRelNotify
 XloMsgBasedEvent       THRCACIMS_2      R 00049018 00003D2D 10/06/2005 11:07:48.277705 N64
    01001306 Ack SsidRelNotify
 XloMsgBasedEvent       THRLSTMNPS_1     R 00048808 00003D2B 10/06/2005 11:07:48.277671 N64
   01001306 Ack SsidRelNotify
 RsrConfirmSSID         THRCACDB2_5      R 00048018 00003D2A 10/06/2005 11:07:48.277650
 XloMsgBasedEvent       THRLSTCQS_1      R 00047808 00003D27 10/06/2005 11:07:48.277589 N64
   01001306 Ack SsidRelNotify
 XloMsgBasedEvent       THRLSTMQ_5       R 00047018 00003D25 10/06/2005 11:07:48.277515 N64
    01001306 Ack SsidRelNotify
 XloMsgBasedEvent       THRLSTLOG_2      R 00046808 00003D23 10/06/2005 11:07:48.277464 N64
    01001306 Ack SsidRelNotify
 XloMsgBasedEvent       THRLSTMQ_3       R 00046018 00003D21 10/06/2005 11:07:48.277374 N64
   01001306 Ack SsidRelNotify
 XloMsgBasedEvent       THRLSTMQ_2       R 00045808 00003D1F 10/06/2005 11:07:48.277317 N64
    01001306 Ack SsidRelNotify
 XloMsgBasedEvent       THRLCKGRS_1      R 00045018 00003D1D 10/06/2005 11:07:48.277256 N64
    01001306 Ack SsidRelNotify
 XloMsgBasedEvent       THRLSTMQ_1       R 00044808 00003D1B 10/06/2005 11:07:48.277187 N64
   01001306 Ack SsidRelNotify
1LOST CDS CONN ON N64

                            9  11:42:10 10/27/05
+_____________________________________________________________________________________
XloMsgBasedEvent       THRLSTMQA_1      R 00044018 00003D19 10/06/2005 11:07:48.277120 N64
    01001306 Ack SsidRelNotify
 XloMsgBasedEvent       THRLSTLOG_1      R 00043808 00003D17 10/06/2005 11:07:48.277062 N64
   01001306 Ack SsidRelNotify
 XloMsgBasedEvent       THRLCKDB2_1      R 00043018 00003D15 10/06/2005 11:07:48.277009 N64
   01001306 Ack SsidRelNotify
 XloMsgBasedEvent       THRCACIMS_1      R 00042808 00003D13 10/06/2005 11:07:48.276909 N64
    01001306 Ack SsidRelNotify
 XloMsgBasedEvent       THRCACDB2_5      R 00042018 00003D11 10/06/2005 11:07:48.276844 N64
   01001306 Ack SsidRelNotify
 XloMsgBasedEvent       THRCACDB2_3      R 00087808 00003D0F 10/06/2005 11:07:48.276516 N64
   01001306 Ack SsidRelNotify
 RsrConfirmSSID         THRCACDB2_4      R 00087018 00003D0E 10/06/2005 11:07:48.276498
 RsrConfirmSSID         THRCACDB2_3      R 00085808 00003D0D 10/06/2005 11:07:48.276450
 XloMsgBasedEvent       THRCACDB2_4      R 00041808 00003D0B 10/06/2005 11:07:48.276321 N64
   01001306 Ack SsidRelNotify
 XloMsgBasedEvent       THRCACDB2_2      R 00041018 00003D09 10/06/2005 11:07:48.276256 N64
   01001306 Ack SsidRelNotify
 RsrConfirmSSID         THRCACDB2_2      R 00040808 00003D08 10/06/2005 11:07:48.276228
 RsrConfirmSSID         IRRXCF00_P003    R 00085018 00003D06 10/06/2005 11:07:48.275603
 RsrConfirmSSID         IRRXCF00_B003    R 00084808 00003D05 10/06/2005 11:07:48.275468
 RsrConfirmSSID         IRRXCF00_B002    R 00084018 00003D04 10/06/2005 11:07:48.275381
 XloMsgBasedEvent       IRRXCF00_P003    R 00082808 00003D03 10/06/2005 11:07:48.275352 N64
   01001306 Ack SsidRelNotify
 RsrConfirmSSID         IRRXCF00_P002    R 00040018 00003D02 10/06/2005 11:07:48.275289
 RsrConfirmSSID         THRCACDB2_1      R 0003F808 00003D01 10/06/2005 11:07:48.275244
 XloMsgBasedEvent       IRRXCF00_P002    R 0003F018 00003D00 10/06/2005 11:07:48.275181 N64
   01001306 Ack SsidRelNotify
 RsrConfirmSSID         IRRXCF00_P001    R 0003E808 00003CFF 10/06/2005 11:07:48.275114
 XloMsgBasedEvent       THRCACDB2_1      R 0003E018 00003CFE 10/06/2005 11:07:48.275060 N64
   01001306 Ack SsidRelNotify
```

```
 RsrConfirmSSID         IRRXCF00_B001    R 0003D808 00003CFC 10/06/2005 11:07:48.275023
 XloMsgBasedEvent       DBSVPLX1_SCA     R 0003D018 00003CFB 10/06/2005 11:07:48.274994 N64
    01001306 Ack SsidRelNotify
 XloMsgBasedEvent       IRRXCF00_B003    R 0003C808 00003CF8 10/06/2005 11:07:48.274864 N64
  01001306 Ack SsidRelNotify
 XloMsgBasedEvent       IRRXCF00_B002    R 0003C018 00003CF5 10/06/2005 11:07:48.274756 N64
    01001306 Ack SsidRelNotify
 XloMsgBasedEvent       IRRXCF00_B001    R 0003B808 00003CF3 10/06/2005 11:07:48.274698 N64
   01001306 Ack SsidRelNotify
 XloMsgBasedEvent       IRRXCF00_P001    R 0003B018 00003CF1 10/06/2005 11:07:48.274614 N64
   01001306 Ack SsidRelNotify
 XloMsgBasedEvent       SYSIGGCAS_ECS    R 0003A808 00003CEF 10/06/2005 11:07:48.274376 N64
   01001306 Ack SsidRelNotify
 RsrConfirmSSID         SYSIGGCAS_ECS    R 0003A018 00003CEE 10/06/2005 11:07:48.274342
 RsrConfirmSSID         SYSZWLM_ABEC2084 R 00039808 00003CEC 10/06/2005 11:07:48.273789
 RsrConfirmSSID         SYSZWLM_WORKUNIT R 00039018 00003CEB 10/06/2005 11:07:48.273761
 XloMsgBasedEvent       ISTGENERIC       R 00038808 00003CEA 10/06/2005 11:07:48.273643 N64
    01001306 Ack SsidRelNotify
 XloMsgBasedEvent       SYSZWLM_ABEC2084 R 00038018 00003CE9 10/06/2005 11:07:48.273611 N64
   01001306 Ack SsidRelNotify
 XloMsgBasedEvent       SYSZWLM_WORKUNIT R 00037808 00003CE6 10/06/2005 11:07:48.273518 N64
    01001306 Ack SsidRelNotify
 XloMsgBasedEvent       DBSVPLX1_LOCK1   R 00037018 00003CE4 10/06/2005 11:07:48.273415 N64
   01001306 Ack SsidRelNotify
 XloMsgBasedEvent       ISGLOCK          R 00028808 00003CE2 10/06/2005 11:07:48.273208 N64
```

```
    01001306 Ack SsidRelNotify
 IxcQuery                -               R 00082018 00003CE0 10/06/2005 11:07:48.214355
09/17/2042 19:53:47.370496 00000000 00000000
 RsrConfirmSSID          IXCPLEX_PATH4   R 00081808 00003CDF 10/06/2005 11:07:48.166435
 RsrConfirmSSID          IXCPLEX_PATH3   R 00081018 00003CDE 10/06/2005 11:07:48.113413
 RsrConfirmSSID          IXCPLEX_PATH2   R 00080808 00003CDD 10/06/2005 11:07:48.058709
 DsrConvert              IRRXCF00_B003   R 00080018 00003CDC 10/06/2005 11:07:48.055631
 RsrConfirmSSID          IXCPLEX_PATH1   R 0007F808 00003CDB 10/06/2005 11:07:47.986876
 RsrConfirmSSID          DBSVPLX1_SCA    R 0007F018 00003CDA 10/06/2005 11:07:47.868214
 XloMsgBasedEvent        THRLSTMNPS_1    R 0007E808 00003CD8 10/06/2005 11:07:47.844329 N67

 RsrConfirmSSID          THRLSTCQS_1     R 0007E018 00003CD6 10/06/2005 11:07:47.844311
 RsrConfirmSSID          THRLSTMNPS_1    R 0007D808 00003CD4 10/06/2005 11:07:47.844186
 XloMsgBasedEvent        THRLSTCQS_1     R 0007D018 00003CD2 10/06/2005 11:07:47.844127 N67
 XloMsgBasedEvent        THRLSTMQ_5      R 0007C808 00003CD0 10/06/2005 11:07:47.842086 N67
    04001309 Ack SsidRelNotify
 RsrConfirmSSID          THRCACDB2_1     R 0007C018 00003CCE 10/06/2005 11:07:47.841921
 XloMsgBasedEvent        THRLSTMQ_4      R 0007B808 00003CCC 10/06/2005 11:07:47.841791 N67
    04001309 Ack SsidRelNotify
 XloMsgBasedEvent        THRLSTMQ_3      R 0007B018 00003CCB 10/06/2005 11:07:47.841788 N67
     04001309 Ack SsidRelNotify
 XloMsgBasedEvent        THRLSTMQ_2      R 0007A808 00003CC8 10/06/2005 11:07:47.841656 N67
    04001309 Ack SsidRelNotify
 XloMsgBasedEvent        THRLSTMQ_1      R 0007A018 00003CC7 10/06/2005 11:07:47.841655 N67
     04001309 Ack SsidRelNotify
 XloMsgBasedEvent        THRLSTMQA_1     R 00079808 00003CC4 10/06/2005 11:07:47.841516 N67
     04001309 Ack SsidRelNotify
 RsrConfirmSSID          THRLSTLOG_1     R 00079018 00003CC2 10/06/2005 11:07:47.840798
 RsrConfirmSSID          THRLSTLOG_2     R 00078808 00003CC1 10/06/2005 11:07:47.840744
 RsrConfirmSSID          THRCACIMS_2     R 00078018 00003CBE 10/06/2005 11:07:47.839834
 RsrConfirmSSID          THRCACDB2_2     R 00077808 00003CBC 10/06/2005 11:07:47.838579
 RsrConfirmSSID          THRCACIMS_1     R 00077018 00003CBB 10/06/2005 11:07:47.838442
1LOST CDS CONN ON N64
                 10  11:42:13 10/27/05
```

```
 +-------------------------------------------------------------------------------------
 RsrConfirmSSID          THRCACDB2_5     R 00076808 00003CBA 10/06/2005 11:07:47.838371
 XloMsgBasedEvent        THRLSTLOG_1     R 00076018 00003CB9 10/06/2005 11:07:47.838316 N67
     04001309 Ack SsidRelNotify
 RsrConfirmSSID          THRCACDB2_3     R 00075808 00003CB7 10/06/2005 11:07:47.838214
 RsrConfirmSSID          THRCACDB2_4     R 00075018 00003CB5 10/06/2005 11:07:47.838191
 XloMsgBasedEvent        THRLSTLOG_2     R 00074808 00003CB2 10/06/2005 11:07:47.837999 N67
     04001309 Ack SsidRelNotify
 XloMsgBasedEvent        THRCACIMS_2     R 00074018 00003CAF 10/06/2005 11:07:47.837806 N67
    04001309 Ack SsidRelNotify
 XloMsgBasedEvent        THRLCKGRS_1     R 00073808 00003CAD 10/06/2005 11:07:47.837756 N67
    04001309 Ack SsidRelNotify
 XloMsgBasedEvent        THRLCKDB2_1     R 00073018 00003CAA 10/06/2005 11:07:47.837612 N67
    04001309 Ack SsidRelNotify
 XloMsgBasedEvent        THRCACIMS_1     R 00072808 00003CA8 10/06/2005 11:07:47.837410 N67
    04001309 Ack SsidRelNotify
 XloMsgBasedEvent        THRCACDB2_5     R 00072018 00003CA6 10/06/2005 11:07:47.837396 N67
     04001309 Ack SsidRelNotify
 XloMsgBasedEvent        THRCACDB2_4     R 00071808 00003CA4 10/06/2005 11:07:47.837223 N67
    04001309 Ack SsidRelNotify
 XloMsgBasedEvent        THRCACDB2_3     R 00071018 00003CA2 10/06/2005 11:07:47.837163 N67
    04001309 Ack SsidRelNotify
 XloMsgBasedEvent        THRCACDB2_2     R 00070808 00003CA0 10/06/2005 11:07:47.837048 N67
     04001309 Ack SsidRelNotify
 XloMsgBasedEvent        THRCACDB2_1     R 00070018 00003C9E 10/06/2005 11:07:47.837013 N67
     04001309 Ack SsidRelNotify
 RsrConfirmSSID          IRRXCF00_B003   R 0006F808 00003C9C 10/06/2005 11:07:47.836941
 RsrConfirmSSID          IRRXCF00_P003   R 0006F018 00003C9A 10/06/2005 11:07:47.836850
 XloMsgBasedEvent        DBSVPLX1_SCA    R 0006E808 00003C98 10/06/2005 11:07:47.836735 N67
    04001309 Ack SsidRelNotify
 XloMsgBasedEvent        IRRXCF00_B003   R 0006E018 00003C96 10/06/2005 11:07:47.836669 N67
    04001309 Ack SsidRelNotify
 XloMsgBasedEvent        IRRXCF00_P003   R 0006D808 00003C94 10/06/2005 11:07:47.836409 N67
    04001309 Ack SsidRelNotify
 RsrConfirmSSID          IRRXCF00_B002   R 0006D018 00003C92 10/06/2005 11:07:47.836249
 RsrConfirmSSID          IRRXCF00_B001   R 0006C808 00003C90 10/06/2005 11:07:47.836124
 RsrConfirmSSID          IRRXCF00_P002   R 0006C018 00003C8F 10/06/2005 11:07:47.836094
 RsrConfirmSSID          IRRXCF00_P001   R 0006B808 00003C8C 10/06/2005 11:07:47.836014
 XloMsgBasedEvent        IRRXCF00_P001   R 0006B018 00003C8A 10/06/2005 11:07:47.835901 N67
     04001309 Ack SsidRelNotify
 XloMsgBasedEvent        IRRXCF00_B002   R 0006A808 00003C88 10/06/2005 11:07:47.835743 N67
     04001309 Ack SsidRelNotify
 XloMsgBasedEvent        IRRXCF00_P002   R 0006A018 00003C86 10/06/2005 11:07:47.834955 N67
     04001309 Ack SsidRelNotify
 XloMsgBasedEvent        IRRXCF00_B001   R 00069808 00003C84 10/06/2005 11:07:47.834626 N67
    04001309 Ack SsidRelNotify
 XloMsgBasedEvent        SYSIGGCAS_ECS   R 00069018 00003C82 10/06/2005 11:07:47.833960 N67
    04001309 Ack SsidRelNotify
 XloMsgBasedEvent        ISTGENERIC      R 00068808 00003C80 10/06/2005 11:07:47.833857 N67
    04001309 Ack SsidRelNotify
 RsrConfirmSSID          SYSIGGCAS_ECS   R 00068018 00003C7F 10/06/2005 11:07:47.833856
 RsrConfirmSSID          SYSZWLM_WORKUNIT R 00067808 00003C7C 10/06/2005 11:07:47.833718
 XloMsgBasedEvent        SYSZWLM_WORKUNIT R 00067018 00003C7A 10/06/2005 11:07:47.833645 N67
     04001309 Ack SsidRelNotify
 XloMsgBasedEvent        DBSVPLX1_LOCK1  R 00066808 00003C78 10/06/2005 11:07:47.833348 N67
    04001309 Ack SsidRelNotify
 XloMsgBasedEvent        ISGLOCK         R 00066018 00003C76 10/06/2005 11:07:47.833230 N67
```

```
    04001309 Ack SsidRelNotify
 RsrConfirmSSID          LOGGER_STR1      R 00065808 00003C74 10/06/2005 11:07:47.435407
 XloMsgBasedEvent        IGWLOCK00        R 00028018 00003C72 10/06/2005 11:07:47.166955 N67
    04001309 Ack SsidRelNotify
```

```
 IxcQuery                -                R 0001F808 00003C70 10/06/2005 11:07:47.131043
09/17/2042 19:53:47.370496 00000000 00000000
 XloMsgBasedEvent        IGWLOCK00        R 0001F018 00003C6F 10/06/2005 11:07:47.130775 N64
    01001306 Ack SsidRelNotify
CFRM SUMMARY report encountered one or more validity check warnings.
 Run COUPLE CFRM EXCEPTION report.
-
    * * * *  END OF COUPLE (CROSS-SYSTEM COUPLING FACILITY) REPORT  * * * *
```

COUPLE GROUP DETAIL report

This report provides detailed information about groups and their members that are currently defined to the sysplex. The GROUP report displays:

- 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
     -------------------------------------
 Group: SYSMCS      Member: SYSMCS#MCS         System: N/A
                    Diag021:00500200 Diag022:00540200
                  Member State: Created
                      Memtoken: 00000001 00040001
     Permanent Status Recording: ON
                           ASID: N/A
                        Jobname: N/A
           Address Space STOKEN: 00000028 00000001
                     User State: 04040001 00000024 A87EA568 B5F89905
                                 04000001 00040009 00000000 00000000
      Time stamp of last update: 12/06/93 14:11:51
     History Data (listed in reverse chronological order):
     Event: User State Event                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                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                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                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_XCJTIC13
    Permanent Status Recording: OFF
    System Cleanup Participant: NO
                      Critical: NO
             Recovery Manager: NO
    Cleanup for local SysGoing: NO
                     System ID: 04000020
                          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


                                Member State  Member State
           Time of Event        before event  after event       Event Type
    -------------------------  ------------  ------------  -----------------
    01/15/2015 10:53:29.122268  Not defined   Active        Member State Event


    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: 000000F8 0000001A
             Termination level: Task
                    User State: 00000000 00000000 00000000 00000000
                                00000000 00000000 00000000 00000000
      Prior member deactivated: 01/15/2015 10:42:59.807246
```

```
                Member defined: 01/15/2015 10:53:29.146531
     Time stamp of last update: 01/15/2015 10:53:29.146531


                               Member State  Member State
           Time of Event       before event  after event       Event Type
     ------------------------  ------------  ------------  -----------------
     01/15/2015 10:53:29.146531  Not defined   Active        Member State Event


     No group exit associated with current member.

     Gathered Member Information Report

        Time when data gathered: 01/15/2015 10:54:29.555824
                    REAM Address: 00027018
                         Stalled: Yes
      Causing Sympathy Sickness: No
                  Deemed Impaired: No
                Confirmed Impaired: No
                  Message Isolated: Yes
                    Impactful MISO: Yes
                   Impacted by MISO: Yes

     REQUESTS QUEUED FOR PROCESSING
     ------------------------------

 No requests are queued for group services processing.
 No requests are queued for group notification processing.
```

```
    * * *  END OF COUPLE (CROSS-SYSTEM COUPLING FACILITY) REPORT  * * * *
```

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
```

```
   * * * *   S E R I A L   D E T A I L   R E P O R T   * * * *
     COUPLE DATA SET INFORMATION
     ---------------------------
Type:  CFRM (IXCLOFD)
    Primary Data Set:  SYS1.PFUNCT.CTTEST
      Volume Serial:  FDSPKP
 IOSB: 01C011B0
    +0000  FLA..... C0        FLB..... 80        FLC..... 20
     PR. 00        DVRID.... 01        FLD..... 44
    +0006  ASID..... 0006      PGAD..... FF6EA768  PKEY..... 00
     CO. 7F        OPT..... 94        OPT2..... 80
    +0010  UCB..... 00F0E9A8  CCWAD.... 01513F48  DSTAT.... 0C
     SS. 00        CSWRC.... 0001
    +001C  SRB..... 01C0121C  USE..... 7F56BD50  IOPID.... 00000000
     SC. 4007      SNS..... 0000
    +002C  IPIB..... 00000000  PCHN..... 00000000  ERP..... 00000000
     PC. 00000000  NRM..... FF6EA558
    +0040  ABN..... FF6E9F90  DIE..... FF6E9CB0  RST..... 0163ED98
     VS. 7F56BD98  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 7F583038
Diag047:  00000000 00 80110000 00
```

```
  Alternate Data Set:  SYS1.AFUNCT.CTTEST
       Volume Serial:  FDSPKA

 IOSB: 01C01248
    +0000  FLA...... C0        FLB...... 80        FLC...... 20
     PR. 00        DVRID.... 01        FLD...... 44
    +0006  ASID..... 0006      PGAD..... FF6EA768  PKEY..... 00
     CO. 7F        OPT...... 94        OPT2..... 80
    +0010  UCB...... 00F0EA28  CCWAD.... 01513E80  DSTAT.... 0C
     SS. 00        CSWRC.... 0001
    +001C  SRB...... 01C012B4  USE...... 7F56BEA8  IOPID.... 00000000
     SC. 4007      SNS...... 0000
    +002C  IPIB..... 00000000  PCHN..... 00000000  ERP...... 00000000
     PC. 00000000  NRM...... FF6EA558
    +0040  ABN...... FF6E9F90  DIE...... FF6E9CB0  RST...... 0163EEF0
     VS. 7F56BEF0  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 7F56BFC0 7F58304C
Diag047:  00000000 00 80150000 00
Type:  SFM (IXCAPFD)
    Primary Data Set:  XCF.XCJSFT99.SFMFDS01
       Volume Serial:  Y36WRK
 IOSB: 01C041D8
    +0000  FLA...... C0        FLB...... 80        FLC...... 20
     PR. 00        DVRID.... 01        FLD...... 44
    +0006  ASID..... 0006      PGAD..... FF6EA768  PKEY..... 00
     CO. 7F        OPT...... 94        OPT2..... 80
    +0010  UCB...... 00F21250  CCWAD.... 015490D0  DSTAT.... 0C
     SS. 00        CSWRC.... 0001
    +001C  SRB...... 01C04244  USE...... 7F57DD50  IOPID.... 00000000
     SC. 4007      SNS...... 0000
    +002C  IPIB..... 00000000  PCHN..... 00000000  ERP...... 00000000
     PC. 00000000  NRM...... FF6EA558
```

```
    +0040  ABN...... FF6E9F90  DIE...... FF6E9CB0  RST...... 0112CD98
     VS. 7F57DD98  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 7F57DE68 7F583010
Diag047:  00000000 00 80150000 00
Type:  SYSPLEX (IXCLKMD)
    Primary Data Set:  SYS1.ACOUPLE
       Volume Serial:  CPLPKA
 IOSB: 01DD90B0
    +0000  FLA...... C0        FLB...... 80        FLC...... 20
     PR. 00        DVRID.... 01        FLD...... 44
    +0006  ASID..... 0006      PGAD..... FF6EA768  PKEY..... 00
     CO. 7F        OPT...... 94        OPT2..... 80
    +0010  UCB...... 00F0E928  CCWAD.... 0095D4F0  DSTAT.... 0C
     SS. 00        CSWRC.... 0001
    +001C  SRB...... 01DD911C  USE...... 7FFE3570  IOPID.... 00000000
     SC. 4007      SNS...... 0000
    +002C  IPIB..... 00000000  PCHN..... 00000000  ERP...... 00000000
     PC. 00000000  NRM...... FF6EA558
    +0040  ABN...... FF6E9F90  DIE...... FF6E9CB0  RST...... 01EBB5B8
     VS. 7FFE35B8  DSID..... 00000000  LEVEL.... 01
    +0055  GPMSK.... 00        DCTI..... 0000      FMSK..... 00
     CK. 00        MDB...... 00        MDM...... 00
    +005C  RSV...... 00000000  CTC...... 00000400  SKM...... 00
     SK. 0000      SKCC..... 0000      SKH1..... 00
    +006A  SKH2..... 04        SKR...... 00
Diag008:  00000000 00000000 00000000 00000000 00000000 00000000
Diag009:  00000000 00000000 00000000 00000000 00000000
Diag047:  00000000 00 80110000 00

     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
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 0000000A
                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
```

```
                          * * * *  S I G N A L  S U M M A R Y  R E P O R T  * * * *


     XCF SIGNALLING DEFINITIONS FOR SYSTEM B7VBID86
     ----------------------------------------------
          Default Maxmsg:   3,000
       Default Retry Limit:      10
      Default Class Length:     956
Transport  MaxMsg    Class
   Class      (K)     Length             Assigned Groups
 ---------  -------   ------  ------------------------------------
 DEFAULT      3,000      956  UNDESIG
    Outbound     Path  Maxmsg   Retry  Transport
 Signalling Path  Type    (K)    Limit    Class
 ---------------- ----  -------  -----  ---------
 08E0             CTC     3,000     10  DEFAULT
 08E1             CTC     3,000     10  DEFAULT
 ...


Inbound     Path  Maxmsg   Retry
 Signalling Path  Type    (K)    Limit
 ---------------- ----  -------  -----
 0CE2             CTC     3,000     10
 0CE3             CTC     3,000     10
 ...

    XCF SIGNALLING CONNECTIVITY SUMMARY FOR SYSTEM B7VBID86
    -------------------------------------------------------
Summary of outbound connectivity from B7VBID86 to indicated systems:
```

```
 Target   System    Signalling      Most Recent
  System   Number   Connectivity  Connectivity Event         Time of Event
 -------- --------  ------------ --------------------  -------------------------
 B7VBID87 01000001      YES      Signals transferred   01/19/2009 17:37:50.479915

Summary of inbound connectivity to B7VBID86 from indicated systems:
  Source   System    Signalling      Most Recent
  System   Number   Connectivity  Connectivity Event         Time of Event
 -------- --------  ------------ --------------------  -------------------------
 B7VBID87 01000001      YES      Signals transferred   01/19/2009 17:37:50.479915


    XCF SIGNALLING PATH SUMMARY FOR SYSTEM B7VBID86
      ----------------------------------------------
 Summary of outbound paths from B7VBID86 to indicated systems:
  Target      Outbound      Path    Path
  System  Signalling Path   Type   Status        Status Time                 Path Status Information
 -------- ----------------  ----  -------- -------------------------- ---------------------------------
 B7VBID87 08E0              CTC   Idle     01/19/2009 17:37:48.219701 -
 B7VBID87 08E1              CTC   Idle     01/19/2009 17:37:48.219701 -
...

Summary of inbound paths to B7VBID86 from indicated systems:
 Source      Inbound       Path    Path
  System  Signalling Path   Type   Status        Status Time                 Path Status Information
 -------- ----------------  ----  -------- -------------------------- ---------------------------------
          0CE2              CTC   Inoper   01/19/2009 08:38:33.366466 Start request failed
          0CE3              CTC   Inoper   01/19/2009 08:38:33.366372 Start request failed
 ...


     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     Monitored
 -------- ------  --------  -------- ------------ ------------ ------------
 08E0     0CEF    B7VBID87  Idle           49,221       49,221       49,218
 08E1     0CEE    B7VBID87  Idle           90,056       90,056       90,055
    Outbound      Target     Path    Last Signal   Last Signal   Last Signal
     List Path     System    Status    Accepted      Completed     Monitored
 ---------------- --------  -------- ------------ ------------ ------------
 IXC1             B7VBID87  Idle           15,149       15,149       15,149
                   Target             Last InOrder #Pending Msgs  Last Pending
                   System               Msg Sent    Being Held     Msg Queued
                 _________           ____________ ____________ ____________
                  B7VBID87                  4,327            0            0
```

```
     XCF DELIVERY STATUS SUMMARY FOR SIGNALS INBOUND TO SYSTEM B7VBID86
       ---------------------------------------------------------------
Inbound  Source   Source     Path    Last Signal  # Read   #Messages
 CTC Path  CTC     System    Status    Completed   Active  In Delivery
 -------- ------  --------  -------- ------------ ------ ------------
 0CEE     08E1    B7VBID87  Working        55,580      4            5
  Inbound List    Source     Path    Last Signal  # Read   #Messages
       Path        System    Status    Completed   Active  In Delivery
 ---------------- --------  -------- ------------ ------ ------------
  IXC1             B7VBID87  Stalled        15,101      0            0
                    Source             Last InOrder #Ordered Msgs
                    System             Msg Received  Being Held
                  _________           _____________ ____________
                   B7VBID87                  5,420            0

     XCF DELIVERY STATUS SUMMARY FOR SIGNALS LOCAL TO SYSTEM B7VBID86
       -------------------------------------------------------------
 Transport   #Messages
   Class    In Delivery
 --------- ------------
      There is no information to report.

      XCF DELIVERY STATUS SUMMARY FOR MANAGED MESSAGES SENT BY SYSTEM B7VBID86
      -----------------------------------------------------------------------
      Broadcast, get response, and queued messages
                                 #Send  #Resp  Get  Msg
  Group    Source Member   #Targ   Pend   Pend  Rsp Status       Message ID        Message Anchor
Signal Token
 -------- ---------------- ------ ------ ------ --- ------ ---------------------- -----------------
-----------------
      There is no information to report.

      XCF DELIVERY STATUS SUMMARY FOR MEMBERS ON SYSTEM B7VBID86
      ---------------------------------------------------------
```

```
                        #MsgOut #MsgOut #MsgOut #MsgIn  #MsgIn  #XcfReq #XcfReq
 Group        Member      Notify  NotifyQ Incompl Delvry  DelvryQ Active  Queued    Member Token
-------- ---------------- ------- ------- ------- ------- ------- ------- ------- -----------------
     There is no information to report.


     XCF BUFFER USAGE SUMMARY FOR SIGNALS OUTBOUND FROM SYSTEM B7VBID86
     -----------------------------------------------------------------
 Target  Transport Class   Msglen   Buff Space    Buff Space     #No Buffer
 System    Class   Length  In Use   In Use (K)    Allowed (K)    Conditions
-------- --------- ------  ------  ------------  ------------- -------------
B7VBID87 DEFAULT      956     956              8         12,000             0

     XCF BUFFER USAGE SUMMARY FOR SIGNALS INBOUND TO SYSTEM B7VBID86
     --------------------------------------------------------------
 Source       Inbound     Path  Msglen  Buff Space  Buff Space   #No Buffer
 System  Signalling Path  Type  In Use  In Use (K)  Allowed (K)  Conditions
-------- ---------------- ----  ------  ----------- ----------- -------------
B7VBID87 0CEE             CTC      956          10       3,000             0
B7VBID87 IXC1             LIST   4,028           0       3,000             0
B7VBID91 0CEC             CTC    1,024           4       3,000             0
B7VBID91 0CED             CTC    1,024           0       3,000             0

     XCF BUFFER USAGE SUMMARY FOR SIGNALS LOCAL TO SYSTEM B7VBID86
     ------------------------------------------------------------
 Transport Class   Msglen  Buff Space  Buff Space   #No Buffer
   Class   Length  In Use  In Use (K)  Allowed (K)  Conditions
 --------- ------  ------  ----------- ----------- -------------
 DEFAULT      956     956           2       3,000             0
```

```
     XCF SUMMARY OF MESSAGES OUTBOUND FROM SYSTEM B7VBID86
     ----------------------------------------------------
                                         Target  Signal                      Path
Signal
  Group    Source Member    Target Member    System  Status  Signalling Path     Type    Signal#
Token
 -------- ---------------- ---------------- -------- ------  ----------------    ---- -------------
--------
 *XCF*    GROUP#NOTIFY     GROUP#NOTIFY     B7VBID87 Unknwn  08E0                CTC         49,222
000F5800
 *XCF*    GROUP#NOTIFY     GROUP#NOTIFY     B7VBID87 IOpend  08E0                CTC         49,222
000F5800
 *XCF*    TRANSPORT#LAYER  TRANSPORT#LAYER  B7VBID87 IOcomp  08E1                CTC         90,052
00108000
 *XCF*    TRANSPORT#LAYER  TRANSPORT#LAYER  B7VBID87 IOcomp  08E1                CTC         90,053
00035000
 *XCF*    TRANSPORT#LAYER  TRANSPORT#LAYER  B7VBID87 IOcomp  08E1                CTC         90,055
00046000
...


     XCF SUMMARY OF MESSAGES INBOUND TO SYSTEM B7VBID86
     -------------------------------------------------
                                         Source  Signal                      Path
Signal
  Group    Source Member    Target Member    System  Status  Signalling Path     Type    Signal#
Token
 -------- ---------------- ---------------- -------- ------  ----------------    ---- -------------
--------
 *XCF*    TRANSPORT#LAYER  TRANSPORT#LAYER  B7VBID91 Return  0CEC                CTC         18,060
00018000
 *XCF*    TRANSPORT#LAYER  TRANSPORT#LAYER  B7VBID91 Delvry  0CEC                CTC         18,060
00018000
 ...
     XCF SUMMARY OF MESSAGES LOCAL TO SYSTEM B7VBID86
     ------------------------------------------------
                                                 Signal
Signal
  Group    Source Member    Target Member            Status
Token
 -------- ---------------- ----------------         ------
--------
 SYSMCS   B7VBID86         B7VBID86                 Delvry
0002D000
 SYSMCS   B7VBID86         B7VBID86                 Avail
0002D000


     XCF SIGNALLING WORK REQUEST SUMMARY FOR SYSTEM B7VBID86
     ------------------------------------------------------
```

```
                                        System
           Work Request                  Name      Additional Work Request Data        Time Request
Initiated   Diag041
 ---------------------------------- -------- ----------------------------------
-------------------------- --------
      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, including any hardware diagnostics captured. See Log Seq#:.
- 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:

```
COMMAND===> COUPLE SIGNAL DETAIL GRPNAME(SYSIGW01)
```

```
               * * * *  S I G N A L  D E T A I L  R E P O R T  * * * *

     XCF SIGNALLING DEFINITIONS FOR SYSTEM B7VBID86
     ----------------------------------------------
           Default Maxmsg:   3,000
       Default Retry Limit:      10
      Default Class Length:     956
 Transport  MaxMsg    Class
   Class      (K)     Length             Assigned Groups
 ---------  -------   ------  -------------------------------------
 DEFAULT      3,000      956  UNDESIG
     Outbound     Path  Maxmsg   Retry  Transport
 Signalling Path  Type    (K)    Limit    Class
 ---------------- -----  -------  -----  ---------
 08E0             CTC     3,000     10  DEFAULT
 08E1             CTC     3,000     10  DEFAULT
 IXC1             STR     3,000     10  DEFAULT
...

     Inbound     Path  Maxmsg   Retry
 Signalling Path  Type    (K)    Limit
 ---------------- ----  -------  -----
 0CE2             CTC     3,000     10
 0CE3             CTC     3,000     10
 IXC1             STR     3,000     10  DEFAULT
...


     XCF SIGNALLING CONNECTIVITY DETAIL FOR SYSTEM B7VBID86
      ----------------------------------------------------
 Detail of outbound connectivity from B7VBID86 to indicated systems:
  Target   System    Signalling
  System   Number   Connectivity  Connectivity Event         Time of Event
 -------- --------  ------------ --------------------  -------------------------
 B7VBID87 01000001      YES      Initialized           01/19/2009 08:38:33.379171
                                 Gained connectivity   01/19/2009 08:38:33.379174
                                 Signals transferred   01/19/2009 17:37:50.479915

History of outbound connectivity events on B7VBID86:
                                      System               Outbound
    Time Event Recorded      System   Number          Connectivity Event            Diag043  Diag042
 ------------------------- -------- -------- ---------------------------------     -------- --------
       There is no information to report.

 Detail of inbound connectivity to B7VBID86 from indicated systems:
  Source   System    Signalling
```

```
  System   Number   Connectivity  Connectivity Event         Time of Event
 -------- --------  ------------ --------------------  -------------------------
 B7VBID87 01000001      YES      Initialized           01/19/2009 08:38:33.378149
                                 Gained connectivity   01/19/2009 08:38:33.378152
                                 Signals transferred   01/19/2009 17:37:50.479915

History of inbound connectivity events on B7VBID86:
                                      System              Inbound
    Time Event Recorded      System   Number          Connectivity Event            Diag043  Diag042
 ------------------------- -------- -------- --------------------------------      -------- --------
      There is no information to report.

Summary of Transport Class connectivity from B7VBID86 to indicated systems:
  Target  Transport #Oper     #No Path
  System    Class   Paths    Conditions
 -------- --------- ------  -------------
 B7VBID87 DEFAULT        3              0
```

```
      XCF SIGNALLING PATH DETAIL FOR SYSTEM B7VBID86
      ----------------------------------------------
 Signalling Path Definition for: CTC Device 08E0
                     System Name: B7VBID86
                       Direction: Outbound
                          Maxmsg:    3,000 K
                Transport Class:  DEFAULT
                     Retry Limit:       10
      Hardware
                       Unit Type: 3088 Model: 08
                     Device Type: 0000 Model: 00
                        Log Seq#: 01 [1]
      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 08:38:33.381004
     Last established at signal:             0
                                   Outbound   Inbound
                                   --------   --------
                     System Name: B7VBID86   B7VBID87
                   System Number: 03000003   01000001
                      Connection: Local      Estblshd
           Desired Signal format: SP510      SP510
                          Device: 08E0       0CEF

                          Status:          Idle
     Viable for signal transfer:           Yes
           Preallocated buffers:   Not enabled

                #Sent when idle:    59,038,782
                #Sent when busy:           230

    First signal in working set:    59,043,773
     Last signal in working set:    59,043,774
                     #Completed:             2
                        #Failed:             0
                        #Active:             0
                         #To do:             0

             #List full failures:            13
       #Structure full failures:             0

 Data is incomplete, some queued signals not in dump

                     Signal#      Status    Token
                  -------------   ------   --------
      There is no information to report.
```

[1] Log Seq# indicates whether any diagnostics were captured for the device in the hardware system log (iqyylog.log).
Log Seq# can one of the following values:

N/A
Diagnostic data capture is not supported by the device.

-
The device supports diagnostic data capture, but no data has been captured. In all likelihood, XCF did not find cause to request such data.

nn
A two byte hexadecimal number returned by the channel program that XCF issued to request diagnostics. This
value is the sequence number corresponding to the hardware diagnostic log produced for the device.

```
      Path Monitor
                         Status:          Idle
       Path operational at time:    01/19/2009 17:37:48.219701
         Duration of inactivity:             0 Seconds
          Last signal monitored:        49,218
          Last signal completed:        49,221
           #Path start/restarts:             2
                    Retry count:             0
      Path Requests

   Time Request Initiated     Request                Reason                  CC                    Diag073
 --------------------------   -------   -----------------------------------   --
---------------------------------------------
 01/19/2009 08:38:33.358242   Start     Parmlib specification                 00   08180001 08012400 42000002 00000000
00000000
 01/19/2009 08:38:33.377593   Restart   Normal completion of start            00   08320220 -        -        -        -
      Path Request History

   Time Request Recorded      Request                 Reason                 Req#  Diag074  044  037  038  039  087
 --------------------------   -------   -----------------------------------   ----  -------- ---- ---  ---  ---  ---
      There is no information to report.
      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..... 0006      PGAD..... FF4888A8  PKEY..... 00        COD...... 7F        OPT...... 94
OPT2..... C0
     +0010  UCB...... 00F1E8C8  CCWAD.... 0C84D870  DSTAT.... 00        SSTAT.... 00        CSWRC.... 0000
     +001C  SRB...... 02738E74  USE...... 00000000  IOPID.... 00000000  SCHC..... 4029      SNS...... 0000
     +002C  IPIB..... 00000000  PCHN..... 00000000  ERP...... 00000000  PCI...... FF485640  NRM...... FF488EA8
     +0040  ABN...... FF488EA8  DIE...... FF47C7F0  RST...... 0C84D868  VST...... 00041868  DSID..... 027388A0
LEVEL.... 01
     +0055  GPMSK.... 00        DCTI..... 0000      FMSK..... 00        CKEY..... 08        MDB...... 00
MDM...... 00
     +0060  CTC...... 00000000  SKM...... 00        SKBB..... 0000      SKCC..... 0000      SKH1..... 00
SKH2..... 00
     +006B  SKR...... 00
  UCBPRFIX: 00F1E8C0
     -0008  LOCK..... 00000000  IOQ...... 02540F80
  UCBOB: 00F1E8C8
     +0000  JBNR..... 00        FL5...... 00        ID....... FF        STAT..... 88        CHAN..... 08E0
FL1...... 08
     +0007  FLB...... 00        NXUCB.... 00F1E918  WGT...... 00        NAME..... 8E0       TBYT1.... 10
TBYT2.... 01
     +0012  DVCLS.... 41        UNTYP.... 00        FLC...... 00        EXTP..... F1E8A0    CTCAL.... 00000000
CTCF1.... 00
     +001D  RV042.... 000000    CTCWA.... 00000000
  UCBCMXT: 00F1E8A0
     +0000  ETI...... 19        STI...... 00        FL6...... 00        ATI...... 48        SNSCT.... 01
FLP1..... 01
     +0006  STLI..... 00        FL7...... 40        IEXT..... 0228B250  CHPRM.... 00        SATI..... 00
     +000E  ASID..... 0006      WTOID.... 000000    DDT...... 00FD7D00  CLEXT.... 00000000  DCTOF.... 0000
CSFLG.... 00
  UCBXPX: 0228B250
     +0000  RSTEM.... 00        MIHKY.... 07        MIHTI.... 40        HOTIO.... 40        IOQF..... 02540F80
     +0008  IOQL..... 02540F80
            Subchannel-Identification:
     +000C   CSS id                       00
     +000D   Iid/SSid                     01
     +000E   Number                       0026
     +0010  PMCW1.... 2888      MBI...... 0000      LPM...... 80        LPUM..... 80        PIM...... 80
     +0018  CHPID.... 54000000  00000000            LEVEL.... 01        IOSF1.... 00        IOTKY.... 00
MIHFG.... 00
     +0024  LVMSK.... 00000001
   Actual UCB Common segment address 00F1E8C8
   Device is installation-static
....

 Signalling Path Definition for: Structure IXC1
                    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   B7VBID86        B7VBID86
                  --------  --------------  --------------
                  B7VBID87  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

            Transition Exit Monitor TOD:      11/09/2020 19:26:07.296349
                 Remote   Vectr  Latch
                 System   Index  Held?    #Transitions     #Signals     List#  SPB Addr  Dir     #RLM     Empty/Full
                 --------  -----  ------  --------------  -------------  -----  --------  ---  ----------  ----------
                 S5B           4      NO           4,742          4,741      9  021744A0  IN            2           0
                 S5B           5     YES               0          4,741      8  021764E0  OUT           1           0

            List Notification Vector Statistics

                 Sending                                  #Reads       #List Empty
                 System   List# SPB Addr  Observer     Attempted      Failures
                --------- ----- --------  ---------  -------------  -------------
                 S5B          9 021744A0  ListTranX          4,742              0
                                          I/O Comp               0              0
                                          Flushing               0              0
                 Target                                   #Writes      #List Full
                 System   List# SPB Addr  Observer     Attempted      Failures
                --------- ----- --------  ---------  -------------  -------------
                There is no information to report.      Signal Transfer

                      Inbound List Transition:          01/19/2009 17:37:40.878427
                  Sending   Vectr
                   System   Index  Active   #Transitions   List#  Diag043  Diag084
                   --------  -----  ------  --------------  -----  -------- --------
                   B7VBID87      3      NO            2568      9  024BD0E0 7EF6D570
      Path Monitor
                Structure Status: Working
                  Pathout Status: Working
                   Pathin Status: Working
      Path Requests

 Dir    Time Request Initiated   Request               Reason                CC                   Diag073
 ---  -------------------------- ------- ----------------------------------- --
----------------------------------------
 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

 Dir   Time Request Recorded      Request                  Reason                    Req#  Diag074  044  037  038  039
087
 ---  -------------------------  -------     -----------------------------------   ----  -------- ---- ---  ---  ---
---
      There is no information to report.
      Diagnostics
                         Diag030: 7EF6C768 00000014 00000000 00000000 00000001
                         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
                       Diag042: 7EF6C768
                       Diag084: 7EF6D590
      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      Estblshd
         Desired Signal format: SP510      SP510
                       Diag083: 0001       0001
                       Diag085: 01/19/2009 14:38:43.383935 03000003 00000000
                       Diag086: 03000003 00030001 01000001 00010001
                                00000000 01400000 00010001 00000006
```

```
Signal Transfer
                        Status:          Idle
     Viable for signal transfer:           Yes
           Preallocated buffers:   Not enabled

                #Sent when idle:    59,038,782
                #Sent when busy:           230

    First signal in working set:    59,043,773
     Last signal in working set:    59,043,774
                     #Completed:             2
                        #Failed:             0
                        #Active:             0
                         #To do:             0

            #List full failures:            13
       #Structure full failures:             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

   Time Request Recorded      Request                 Reason                 Req#  Diag074  044  037  038  039  087
 --------------------------   -------   -----------------------------------   ----  -------- ---- ---  ---  ---  ---
      There is no information to report.
      Diagnostics
                        Diag030: 02378A90 00000005 00000000 00000001 00000001
                        Diag031: 00000004 00000000 A0400000 00040000
                        Diag032: 01

 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
                  Connect Token: IXCLO015 7F139100 00030001
             Connect Version ID: 00030001
                     List limit:        0
                        Diag042: 7EF6C768
                        Diag084: 7EF6D5A0
      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 14:38:43.381254
```

```
     Last established at signal:             1
                                Outbound   Inbound
                                --------   --------
                   System Name: B7VBID87   B7VBID86
                 System Number: 01000001   03000003
                    Connection: Estblshd   Local
         Desired Signal format: SP510      SP510
                       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   08180001 08710000 4A000008 00000000
00000000
 01/19/2009 14:38:43.376275   Restart   Start converted to restart            00   08180001 087E1C20 5A400009 00000000
00000000
      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
                                                                                                                  Signal
  Source Memtoken    TOD When MSGO Requested      Queue Time      Transfer Time        TOD When Arrived         Token
 -----------------  --------------------------  ---------------  ---------------  --------------------------  --------
 01000001 00000008  -                           -                -                01/19/2009 17:37:01.072607  00044800
 01000001 00000008  -                           -                -                01/19/2009 17:37:01.072678  000B3000
 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 signaling 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     Monitored
 -------- ------  --------  -------- ------------- ------------- -------------
 08E0     0CEF    B7VBID87  Idle            49,221        49,221        49,218
 08E1     0CEE    B7VBID87  Idle            90,056        90,056        90,055
     Outbound      Target     Path    Last Signal   Last Signal   Last Signal
     List Path     System    Status    Accepted      Completed     Monitored
 ---------------- --------  -------- ------------- ------------- -------------
 IXC1             B7VBID87  Idle            15,149        15,149        15,149
                   Target             Last InOrder #Pending Msgs  Last Pending
                   System               Msg Sent    Being Held     Msg Queued
                  --------           ------------- ------------- -------------
                  B7VBID87                  4,327             0             0

     XCF DELIVERY STATUS SUMMARY FOR SIGNALS INBOUND TO SYSTEM B7VBID86
      ------------------------------------------------------------------
0Inbound  Source   Source     Path    Last Signal  # Read   #Messages
 CTC Path  CTC     System    Status    Completed   Active  In Delivery
 -------- ------  --------  -------- ------------- ------ -------------
 0CEE     08E1    B7VBID87  Working         55,580      4             0
   Inbound List    Source     Path    Last Signal  # Read   #Messages
       Path        System    Status    Completed   Active  In Delivery
 ---------------- --------  -------- ------------- ------ -------------
 IXC1             B7VBID87  Stalled         15,101      0             0
                   Source             Last InOrder #Ordered Msgs
                   System             Msg Received  Being Held
                  --------           ------------- -------------
                  B7VBID87                  5,420             0

      XCF DELIVERY STATUS SUMMARY FOR SIGNALS LOCAL TO SYSTEM B7VBID86
      ----------------------------------------------------------------
 Transport   #Messages
   Class    In Delivery
 --------- -------------
      There is no information to report.

      XCF DELIVERY STATUS SUMMARY FOR MANAGED MESSAGES SENT BY SYSTEM B7VBID86
      ------------------------------------------------------------------------
      Broadcast, get response, and queued messages
                                  #Send  #Resp  Get  Msg
```

```
 Group    Source Member   #Targ   Pend   Pend  Rsp Status       Message ID        Message Anchor     Signal Token
-------- ---------------- ------ ------ ------ --- ------ ---------------------- ----------------- -----------------
     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
 Source Memtoken    TOD When MSGO Requested      Queue Time      Transfer Time        TOD When Arrived       Diag043
----------------  -------------------------  --------------  --------------  -------------------------  --------
01000001 00030002  01/19/2009 08:38:43.944234  00:00:00.000010  00:00:00.000057  01/19/2009 08:38:43.944302  0272A390
02000001 00030003  01/19/2009 08:38:43.942389  00:00:00.000002  00:00:00.000051  01/19/2009 08:38:43.942442  02729390

   Detail of buffer sizes used by group:  SYSIGW01 member: IGWCLM01B7VBID86 memtoken: 03000001 00030004
0Size   Buffer   Signals for     Signals for
 Index  Length  Other Systems    Local System
 -----  ------  --------------  --------------
     0     956               2               0


     XCF BUFFER USAGE SUMMARY FOR SIGNALS OUTBOUND FROM SYSTEM B7VBID86
     ------------------------------------------------------------------
 Target  Transport Class   Msglen   Buff Space    Buff Space     #No Buffer
 System    Class   Length  In Use   In Use (K)    Allowed (K)    Conditions
-------- --------- ------  ------  ------------  ------------- -------------
B7VBID87 DEFAULT      956     956              8         12,000             0

    XCF BUFFER USAGE SUMMARY FOR SIGNALS INBOUND TO SYSTEM B7VBID86
     --------------------------------------------------------------
 Source       Inbound     Path  Msglen  Buff Space  Buff Space   #No Buffer
 System  Signalling Path  Type  In Use  In Use (K)  Allowed (K)  Conditions
-------- ---------------- ----  ------  ----------  ----------- -------------
B7VBID87 0CEE             CTC      956          10       3,000             0
B7VBID87 IXC1             LIST   4,028           0       3,000             0
B7VBID91 0CEC             CTC    1,024           4       3,000             0
B7VBID91 0CED             CTC    1,024           0       3,000             0
```

```
     XCF BUFFER USAGE SUMMARY FOR SIGNALS LOCAL TO SYSTEM B7VBID86
     ------------------------------------------------------------
 Transport Class   Msglen  Buff Space  Buff Space   #No Buffer
   Class   Length  In Use  In Use (K)  Allowed (K)  Conditions
--------- ------  ------  ----------  ----------- -------------
 DEFAULT      956     956           2       3,000             0

     XCF DETAIL OF MESSAGES FOR SYSTEM B7VBID86
     ------------------------------------------
     There is no information to report.

     XCF SIGNALLING WORK REQUEST SUMMARY FOR SYSTEM B7VBID86
     ------------------------------------------------------
                                 System
           Work Request           Name      Additional Work Request Data        Time Request Initiated   Diag041
 ---------------------------------- -------- ----------------------------------  ------------------------- --------
     There is no information to report.

     ACCOUNTING AND MEASUREMENT AREA HEADER FOR SYSTEM B7VBID86
     ---------------------------------------------------------
    +0000  TLEN..... 000026A4  #PTH..... 0000003C  LPTH..... 00001C20  OPTH..... 00000040  #MPE..... 00000000
    +0014  LMPE..... 00000000  OMPE..... 00001C60  #SYS..... 00000003  LSYS..... 000000E4  OSYS..... 00001C60
    +0028  #SD...... 00000032  LSD...... 00000960  OSD...... 00001D44  RSV...... 00000000  00000000  00000000

     ACCOUNTING AND MEASUREMENT SYSTEM ENTRIES FOR SYSTEM B7VBID86
     ------------------------------------------------------------
    +0000  TYP...... 04        RSV...... 00        LEN...... 004C      NME...... B7VBID87  DIR...... 40
    +000D  RSV...... 000000    PTH...... 00000003  BSY...... 00000000  NOP...... 00000000  MXB...... 00002EE0
    ...

     ACCOUNTING AND MEASUREMENT PATH ENTRIES FOR SYSTEM B7VBID86
     -----------------------------------------------------------
    +0000  TYPE..... 01        RSV...... 00        LENT..... 0078      NAME..... B7VBID86  DEV...... 0CED
DIR...... 80
    +0011  RSV...... 000000    ONME.....           ODEV.....           STAT..... 40        RSV...... 000000
    +0024  MRET..... 0000000A  #RET..... 00000000  #RST..... 00000005  MXMS..... 00000BB8  #SIG..... 00008BD5

     ACCOUNTING AND MEASUREMENT SRCDST ENTRIES FOR SYSTEM B7VBID86
     -------------------------------------------------------------
    +0000  TYPE..... 08        RSV...... 00        LENT..... 0030      GRP...... SYSXCF    MEM...... B7VBID87
    +001C  SCNT..... 00000033  RCNT..... 0000004C  MGRS..... 00000001  SNAM..... B7VBID87
    ...

     ACCOUNTING AND MEASUREMENT MSG PENDING ENTRIES FOR SYSTEM B7VBID86
     ------------------------------------------------------------------
     There is no information to report.
 IXC80305I SIGNAL DETAIL report encountered one or more validity check warnings.
 IXC80308I Run COUPLE SIGNAL EXCEPTION report.
 IXC80307I SIGNAL DETAIL report encountered one or more storage access failures, reported data may be incomplete.

                          * * * *  END OF COUPLE (CROSS-SYSTEM COUPLING FACILITY) REPORT  * * * *
```

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.

```
       * * * *  S Y S P L E X  D E T A I L  R E P O R T  * * * *
                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
                 Sysplex failure management status: ACTIVE
          Started sysplex failure management policy: WCNTEST
                           TOD when policy activated: 09/15/2009 12:36:19.033968
                      TOD when policy last updated: 09/15/2009 12:31:15.787810
 Sysplex Failure Management Specifications for Current Policy
 ---------------------------------------------------------------------------------------
 CONNFAIL(NO)
 SYSTEM(*)
   WEIGHT(10) PROMPT
   CFSTRHANGTIME(NO)
 SYSTEM(B7VB0032)
   WEIGHT(10) PROMPT
   CFSTRHANGTIME(45)
 There are no sysplex failure management requests outstanding.
 System Status Detection partitioning protocol connection status:
   B7VB0032 could not connect to any systems: BCPII SERVICES NOT AVAILABLE

                STATUS FOR EACH SYSTEM
                ----------------------

 System ID: 01000002    System Name: B7VB0031
     SYSTEM MONITOR STATUS
     ---------------------
       XCF level: 0105010B
   System status: Active         Time of status: 09/15/2009 12:27:51.257552
          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: 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
   -----------------------

Grp Name   Member Name        Memtoken      Interval     Current Status            Event TOD            Event Type
Diag028
-------- ---------------- ----------------- --------- -------------------- ------------------------- --------------
--------
SYSGRS   SY1              01000004 00020001    18,000 Normal               08/05/2009 15:46:36.147981 Last Good Stat
0001D018
SYSIOS01 SY1              01000002 000E0001       200 Normal               08/05/2009 15:46:36.147981 Last Good Stat
0001D090
SYSIOSPX SY1              01000002 000F0001       200 Normal               08/05/2009 15:46:36.147981 Last Good Stat
0001D108
SYSJES   SY1              01000002 00100001    30,000 Normal               08/05/2009 15:46:33.001506 Last Good Stat
0001D180
GROUP1   MEMBER1          01000002 001B0001       800 Confirmed SUM        08/05/2009 15:45:38.464720 Confirmed Sum
0001D450
```

```
Members(s) being monitored:     10
```

```
 System ID: 02000003    System Name: B7VB0032
     SYSTEM MONITOR STATUS
     ---------------------
       XCF level: 0105010B
   System status: Being Removed  Time of status: 09/15/2009 12:29:33.459515
          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
     -----------------------------
                    Primary Reason /      Wait                    SPRE
   Request Type     Other Reason(s)       Code    Retain  C/Q  Address
   ------------  ---------------------  --------  ------  ---  --------
   Initiate      Connector termination  001880A2    Yes    C   00019018

    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
```

```
     * * * *  S Y S P L E X  E X C E P T I O N  R E P O R T  * * * *

                  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 PRSMPOLICY PARMLIB member: N/A

 BLS18100I ASID(X'0006') DSPNAME(IXCAP1DS) 00 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* 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* 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 59 on page 779

Table 59. Summary of XESDATA keywords

Keyword	Report Displays	See topic
CACHE	Information about outstanding cache requests for this system.	"XESDATA CACHE DETAIL report" on page 780
CONNECTION	Information about connectors to structures in the coupling facility	"XESDATA CONNECTION DETAIL report" on page 782
FACILITY	Information about the coupling facilities and coupling facility structures known to the system.	"XESDATA FACILITY DETAIL report" on page 784
LIST	Information about outstanding list requests for this system.	None
LOCK	Information about outstanding lock requests for this system.	"XESDATA LOCK DETAIL report" on page 788
LOCKMGR	Information about lock resources managed globally by the system.	"XESDATA LOCKMGR DETAIL report" on page 790
LOCKRESOURCE	Information about the local lock resources owned or requested by the system.	"XESDATA LOCKRESOURCE DETAIL report" on page 792
TRACE	Information about SYSXES component traces for all connectors whose data is including in the dump.	"XESDATA TRACE DETAIL report" on page 795
XESSTACK	Information about Cross System Extended Services execution flow. This report contains diagnostic information for IBM Service personnel.	None

Remember:

1. For IPCS information before z/OS V2R1, see the corresponding release documentation in the z/OS Internet library (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary).

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
```

```
   *****  XESDATA (CROSS-SYSTEM EXTENDED SERVICES) REPORT  *****

Options list:

   Report(s)..............  CACHE

   Level(s) of detail.....  DETAIL

   Filter(s) in use.......  NONE


Sysplex name..............  PLEX1

System name...............  B7VB0027


Facility name.............  LF01

   Structure name.........  DITCACHE02

      ASID................  X'0021'

         Connection name..  IXCLO0390001
```

```
   ***** CACHE DETAIL REPORT *****

     DETAIL OF CACHE STRUCTURES
     --------------------------

   Connection Name.......................  IXCLO0390001
     ConToken............................  IXCLO039 7FFD8038 00010003
     Connection Identifier...............  01
     Connect Data........................  0853C9D8 8726B018
     ASID................................  X'0021'
     Jobname.............................  MAINASID
     Structure Name......................  DITCACHE02
     Structure ID:  Primary...0001      Secondary...0001
     Facility Name: Primary...LF01      Secondary...LF02
     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
     ----------------------------
        Request.........................  Read_Data
        Request ID......................  00000000 00000000
        Request mode....................  AsyncToken
        Request Operation...............  03 (ASync)
        Request token...................  7FFD8038 000E47B5 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: 38808000  Shell Request Flags: C000
        Async token: 7FFD8038 000E47B5 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.............. 00000084 00000003 0000000E 004D7E88
   Requestor Asid................ X'0021'
   Requestor ASCB address........ 00F98A00
   Requestor TCB address......... 004D7E88
   Requestor RB address.......... 004D60F0
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: 01D46200    Scte address: 00000000
Request Status: 09 (Precomplete)
Request Flags: F0808000  Shell Request Flags: 4000
Async token: 7FFD8038 000E479B 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.............. 00000084 00000003 00000010 004D7A60
   Requestor Asid................ X'0021'
   Requestor ASCB address........ 00F98A00
   Requestor TCB address......... 004D7A60
   Requestor RB address.......... 004D79D8
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: F0808000  Shell Request Flags: 0000
Async token: 7FFD8038 000E4755 000E49D0 01B65200
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.............. 00000084 00000003 0000000F 004D7CF0
   Requestor Asid................ X'0021'
   Requestor ASCB address........ 00F98A00
   Requestor TCB address......... 004D7CF0
   Requestor RB address.......... 004D7C68
This request has completed.
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 000E47AD 000E4A27 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 ID....................... 00000000 00000000
Request mode..................... SyncSuspend
Request Operation................ 03 (ASync)
Requestor is suspended........... Yes
   Requestor TToken.............. 00000084 00000003 00000013 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: 8000
         Async token: 7FFD8038 000E47A0 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 XESDATA (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#SYS3
       MON address............. 7FFD1468
       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.................. 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_02500000
     Connect Trace Buffer Size ........... 4095 K
```

```
  Structure and Facility Information:
     Structure Name...................... CACHE01
     Structure Type...................... Cache
     Structure Logical Version........... C4CB0ABC C97FA120
     Structure Disposition............... Delete
        Structure ID..................... 0003
        Structure Physical Version....... C4CB0ABC C97FA120
        Facility Name.................... LF01
        Facility ID...................... 00000001
        Facility CFLevel................. 16
  Structure Specific Information:
     Event Exit Address.................. 0AE61F90
     Complete Exit Address............... 00FDBD42
     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: 0049C0E8 00000003
  Diag001: 02357B90 Diag002: 7F509A00 Diag003: 02134718
  Diag586: 00000000
Connect Name................... SIGPATH_02000003
   Connection Function......... NOT SPECIFIED
   ConToken.................... IXCLO014 7EEB1900 00020001
   Connection Identifier....... 02
   Connection Version.......... 00020001
   Connection Disposition...... Delete
   Connection Status........... Active
   ASID........................ X'0006'
   Job name.................... XCFAS
   TCB address................. 004F9238
   Address Space STOKEN........ 00000018 00000001
   Connect Data................ 7EE47768 00000000
   Connect Level............... 00000000 00000000
```

```
     Operational CF Level........ 00000010
     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.......  C4CB08D4 8B5E884C
          Facility Name....................  LF01
          Facility ID......................  00000001
          Facility CFLevel.................  16
     Structure Specific Information:
        Event Exit Address.................  FF5E71A8
        Complete Exit Address..............  FF506100
        List Transition Exit Address.......  FF50D938
        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
     Diag001: 027AD960 Diag002: 7EEB1900 Diag003: 027F62F8
     Diag586: 00000000
     SIGNAL ACTIVITY ON THE SYSTEM
     ----------------------------
IXL0017I No information to display in report.
IXL0015I No exceptional conditions were found by the CONNECTION DETAIL report.
  *****  END OF XESDATA (CROSS-SYSTEM EXTENDED SERVICES) REPORT  *****
```

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)
      Diag177............................ 44000000
```

```
      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........... 03FF
      Maximum Signalling-Segment Index. 7                (decimal)
      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 dump ser remote... 0                 (decimal)
       Delayed for sys-mgd process... 0                 (decimal)
       Delayed for dup req failure... 0                 (decimal)
    Number of Requests Serial Delay.. 0                 (decimal)
    Number of Requests Completed..... 0                 (decimal)
    Number of Requests Held.......... 0                 (decimal)
    Number of Requests Duplex Held... 0                 (decimal)
    Time of Most Recent IFCC......... None recorded
    Diag026.......................... 00000707
    Diag027.......................... 00000004
    MFID............................. 00000001
      Diag032........................ 0236C300
      SCLE Address................... 025721F8
      Diag039........................ 02455000
      Diag186........................ 02744300
      Diag187........................ 000021B8
      Diag188........................ 00000000
      Diag189........................ C9780000
      Diag152........................ 41EDF198 00001EE6
      Diag028........................

0236C390  C3C6C3C3  14000405  07172006  09350000  | CFCC............ |
   +0010  00000000  00000000  00000000  00000000  | ................ |
   +0020  18000500  E2C9D4C4  C5E5F0F0  F1C9C2D4  | ....SIMDEV001IBM |
   +0030  C5D5D5C4  F0F1F0F0  F0F0F0F0  F0F00000  | ENND0100000000.. |

     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. 7                (decimal)
      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 dump ser remote... 0                  (decimal)
      Delayed for sys-mgd process... 0                  (decimal)
      Delayed for dup req failure... 0                  (decimal)
   Number of Requests Serial Delay.. 0                  (decimal)
   Number of Requests Completed..... 0                  (decimal)
   Number of Requests Held.......... 0                  (decimal)
   Number of Requests Duplex Held... 0                  (decimal)
   Time of Most Recent IFCC......... None recorded
   Diag026.......................... 00000707
   Diag027.......................... 00000004
   MFID............................. 00000001
     Diag032........................ 0236C300
     SCLE Address................... 025721F8
     Diag039........................ 02455000
     Diag186........................ 02744300
     Diag187........................ 000021B8
     Diag188........................ 00000000
     Diag189........................ C9780000
     Diag152........................ 41EDF198 00001EE6
     Diag028........................

0236C390  C3C6C3C3  14000405  07172006  09350000  | CFCC............ |
   +0010  00000000  00000000  00000000  00000000  | ................ |
   +0020  18000500  E2C9D4C4  C5E5F0F0  F1C9C2D4  | ....SIMDEV001IBM |
   +0030  C5D5D5C4  F0F1F0F0  F0F0F0F0  F0F00000  | ENND0100000000.. |

    Remote Facility Information:

        RFAT address ................. 025141A8
        Max RFAT entries ............. 0004
        Number of CFIBs .............. 0001
```

```
     Remote Facility Name.......... A
          Coupling Facility.......... SIMDEV.IBM.EN.SES100000000
            Partition................ 00
            CPCID.................... 00
          SYID....................... BF4600B8 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 D1531875
          Receiver paths installed
            Path   Channel type      Degraded   Latency
            F0     CFP H                N/A    xxxxxxxx
          Sender paths installed
            Path   Channel type      Degraded   Latency
            E3     CFP F                N/A    xxxxxxx
          Signal vector token ...... 41EDFF08 00001EE4
```

```
    Remote Facility Name.......... LF02
       Coupling Facility.......... SIMDEV.IBM.EN.ND0200000000
         Partition................ 00
         CPCID.................... 00
       SYID....................... BF4600B7 6BB54990
          Receiver paths installed
            Path   Channel type      Degraded   Latency
            F0     CIB 12X-1FB3         Yes    xxxxxxxx
            F1     CL5 10Gb-RoCE        No     xxxxxxxx
          Sender paths installed
            Path   Channel type      Degraded   Latency
            E3     CFP F                N/A    xxxxxxxx
          Signal vector token ...... 66B81B98 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:

PATH       PHYSICAL            LOGICAL   CHANNEL TYPE   CAID  PORT   LATENCY
80 / xxxx  ONLINE - DEGRADED   ONLINE    CL5 10Gb-RoCE  xxxx  xx    xxxxxxxx
C0 / xxxx  ONLINE              OFFLINE   ICP            N/A   N/A     N/A
```

```
 Path Type Information:

    Paths installed.............. C0  80
    Path type.................... CFP CFP
Subchannel Information:

Subchannel ID................... 0060
   Device Number................. CF00
   Active........................ No
   Operational................... Yes
   Pending Deallocation.......... No
   Diag029....................... 02744100
   Diag030....................... 00000000
   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............. BF4600B9 38768C12
    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:

  OpCode Acronym   Size   ReqCount ConvReqCount  Avg Svc Time
 ------------------------------------------------------------
   0301    ALST    0- 0          0           0            34
   0303    RLSC    0- 0          0           0            66
   0303    RLSC    1- 1          0           0            41
   0306    ALSU    0- 0          0           0             7
   0307    DLSU    0- 0          0           0             3
   030A    RLTE    0- 0          2           0             3
   030B    WLTE    0- 0          5           0             4
   0320    SGLMV   0- 0        326           0            10
   0321    RGLMV   0- 0        319           0             6
   0322    SLLMV   0- 0       2676           0             1
   0323    RLLMV   0- 0       2586           0             1
   0328    CLTE    0- 0          0           0            56
   03B1    WLCC    1- 1          0           0             7
```

XESDATA LOCK DETAIL report

This report (Figure 85 on page 789) 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
```

```
  *****  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...............  B7VB0027


Facility name.............  LF01

   Structure name.........  LIST8

      ASID................  X'0026'

         Connection name..  S1IS

   ***** LOCK DETAIL REPORT *****

     DETAIL OF LOCK STRUCTURES
     -------------------------

   Connection Name.........................  S1IS
     ConToken..............................  IXCLO00B 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 85. Example: XESDATA LOCK DETAIL report (part 1 of 2)

```
         Local Data Space 11 Name: 00011IXL Alet: 01010043 Stoken: 80007B00 0000152
         Local Data Space 12 Name: 00012IXL Alet: 01010044 Stoken: 80007D00 0000153
         Local Data Space 13 Name: 00013IXL Alet: 01010045 Stoken: 80007E00 0000154
         Local Data Space 14 Name: 00014IXL Alet: 01010046 Stoken: 80006E00 0000155
         Local Data Space 15 Name: 00015IXL Alet: 01010047 Stoken: 80006F00 0000156
         Local Data Space 16 Name: 00016IXL Alet: 01010048 Stoken: 80007F00 0000157
         Global Data Space   Name: 00017IXL Alet: 01010049 Stoken: 80008000 0000158


      Lock Activity on the System
      ---------------------------
         Request OpCode................... 0320 (SGLMV)
         Request Operation................ 03 (ASync)
         Request Lock Token............... 00124020 01010041
         Connector Ttoken................. 00000098 00000005 00000003 004E6E88
         This request is associated with a local resource

         Data for First of Two:

         Arwe address: 01E11200    Scte address: 00000000
         Request Status: 04 (Ready)
         Request Flags: 00808000  Shell Request Flags: 0000
         Async token: 7F54B900 000B9A32 000B9FB1 01E11200
         Duplex chain   next: 028B4200  prev: 00000000
         Duplex Scte addr: 00000000  Duplex triple buffer: 00000000
         Duplex operations count: 00000000  FirstOfThree address: 00000000

         Data for Second of Two:

         Arwe address: 028B4200    Scte address: 00000000
         Request Status: 04 (Ready)
         Request Flags: 00008000  Shell Request Flags: 0000
         Async token: 7F54B900 000B9A32 000B9FA2 028B4200
         Duplex chain   next: 00000000  prev: 01E11200
         Duplex Scte addr: 00000000  Duplex triple buffer: 00000000
         Duplex operations count: 00000000  FirstOfThree address: 00000000


      Number of requests..................... 1
         Number of Simplex Requests.......... 0
         Number of First of One Requests..... 0
         Number of First of Two Requests..... 1
         Number of Second of Two elements.... 1
         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........ 2

      Requests passing filters.......... 1

      Request elements passing filters.. 2

  No exceptional conditions were found by the LOCK DETAIL report.

    *****  END OF XESDATA (CROSS-SYSTEM EXTENDED SERVICES) REPORT  *****
```

Figure 86. Example: XESDATA LOCK DETAIL report (part 2 of 2)

XESDATA LOCKMGR DETAIL report

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
        Escalatees........... 00000000  00000000  00000000  00000000
                              00000000  00000000  00000000  00000000
        ResponderSilb@....... 00000000
        ResponseData......... 00000000  00000000  00000000  00000000
        HowBecameGM.......... 80000000
        GmStartTod........... 00000000  00000000
        GmReadyTod........... 00000000  00000000
        StartDeescTod........ 00000000  00000000
        RequestCount......... 00000000
        MgdResourceCount..... 00000000
        NgmDueToPendDeesc.... 00000000
        InterimDeescalatees.. 00000000  00000000  00000000  00000000
                              00000000  00000000  00000000  00000000
        DeescOnceAlready..... 00000000  00000000  00000000  00000000
                              00000000  00000000  00000000  00000000
        DeferFwd............. 00000000
        DeferBwd............. 00000000
        DeferGrabFwd......... 00000000
        DeferGrabBwd......... 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           |
   +0010  40404040  40404040  40404040  40404040  |                  |
   +0020  40404040  40404040  40404040  40404040  |                  |
   +0030  40404040  40404040  40404040  40404040  |                  |
         Resource Name Length.............. 00000040
         Hash Value........................ 00000001
         Resource Contention Exit Work Area:
   +0000  00000001  00000000  00000000  00000000  00000000  00000000  00000000  00000000
         Resource is managed by the Contention exit
            Diag114: 00035028   Diag115: 000351F8   Diag116: 80100000
            Diag117: 00000002   Diag118: 00036028   Diag119: 00000000 00000000
          Resource Request Queue
          ----------------------
             Requestor ConName.............. XEJSEN10_1
             Requestor Contoken............. IXCLO00A 7F545900 00020001
             Requestor Connection Id........ 02
             Status......................... Held
             Held State..................... Exclusive
             Held User Data:
   +0000  00000000  00000000  00000000  00000000  | ................ |
   +0010  00000000  00000000  00000000  00000000  | ................ |
   +0020  00000000  00000000  00000000  00000000  | ................ |
   +0030  00000000  00000000  00000000  00000000  | ................ |
             Request Contention Exit Work Area:
   +0000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
             Diag120: 00036028  Diag121: 000361F8  Diag122: 00000000  Diag123: 00000000

             Requestor ConName.............. XEJSEN10_2
             Requestor Contoken............. IXCLO00A 7F545900 00010001
             Requestor Connection Id........ 01
             Status......................... Held
             Held State..................... Exclusive
```

```
          Held User Data:
+0000  00000000  00000000  00000000  00000000  | ................ |
+0010  00000000  00000000  00000000  00000000  | ................ |
+0020  00000000  00000000  00000000  00000000  | ................ |
+0030  00000000  00000000  00000000  00000000  | ................ |
          Request Contention Exit Work Area:
+0000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
          Diag120: 000361F8  Diag121: 00000000  Diag122: 00000000  Diag123: 00000000
```

```
   Lock Structure Entry Resource Information
   -----------------------------------------
      Resource Name:
+0000  D9D5C1D4  C5F24040  40404040  40404040  | RNAME2           |
+0010  40404040  40404040  40404040  40404040  |                  |
+0020  40404040  40404040  40404040  40404040  |                  |
+0030  40404040  40404040  40404040  40404040  |                  |
      Resource Name Length.............. 00000040
      Hash Value........................ 00000001
      Resource Contention Exit Work Area:
+0000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
      Resource is not managed by the Contention exit
         Diag114: 000351F8   Diag115: 00000000   Diag116: 00000000
         Diag117: 00000001   Diag118: 000363C8   Diag119: 00000000 00000000

       Resource Request Queue
       ----------------------
          Requestor ConName.............. XEJSEN10_1
          Requestor Contoken............. IXCLO00A 7F545900 00020001
          Requestor Connection Id........ 02
          Status......................... Held
          Held State..................... Exclusive
          Held User Data:
+0000  00000000  00000000  00000000  00000000  | ................ |
+0010  00000000  00000000  00000000  00000000  | ................ |
+0020  00000000  00000000  00000000  00000000  | ................ |
+0030  00000000  00000000  00000000  00000000  | ................ |
          Request Contention Exit Work Area:
+0000  00000000  00000000  00000000  00000000  00000000  00000000  00000000  00000000
          Diag120: 000363C8  Diag121: 00000000  Diag122: 00000000  Diag123: 00000000
```

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
      ConToken............................ IXCLO00A 7F545900 00020001
      Connection Identifier............... 02
      ASID................................ X'0028'
      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: 00000IXL Alet: 01020038 Stoken: 80006100 000000C3
         Local Data Space 01 Name: 00001IXL Alet: 01010039 Stoken: 80006200 000000C4
         Local Data Space 02 Name: 00002IXL Alet: 0101003A Stoken: 80006000 000000C5
         Local Data Space 03 Name: 00003IXL Alet: 0101003B Stoken: 80006500 000000C6
         Local Data Space 04 Name: 00004IXL Alet: 0101003C Stoken: 80006600 000000C7
         Local Data Space 05 Name: 00005IXL Alet: 0101003D Stoken: 80006700 000000C8
         Local Data Space 06 Name: 00006IXL Alet: 0101003E Stoken: 80006800 000000C9
         Local Data Space 07 Name: 00007IXL Alet: 0101003F Stoken: 80006900 000000CA
         Local Data Space 08 Name: 00008IXL Alet: 01010040 Stoken: 80006A00 000000CB
         Local Data Space 09 Name: 00009IXL Alet: 01010041 Stoken: 80006B00 000000CC
         Local Data Space 10 Name: 00010IXL Alet: 01010042 Stoken: 80006C00 000000CD
         Local Data Space 11 Name: 00011IXL Alet: 01010043 Stoken: 80006D00 000000CE
         Local Data Space 12 Name: 00012IXL Alet: 01010044 Stoken: 80006E00 000000CF
```

```
      Local Data Space 13 Name: 00013IXL Alet: 01010045 Stoken: 80006F00 000000D0
      Local Data Space 14 Name: 00014IXL Alet: 01010046 Stoken: 80007000 000000D1
      Local Data Space 15 Name: 00015IXL Alet: 01010047 Stoken: 80007100 000000D2
      Local Data Space 16 Name: 00016IXL Alet: 01010048 Stoken: 80007200 000000D3

   Diag056: 0000000F Diag057: 00013010 Diag058: 00000000
   Diag019: 00113010 Diag022: 02414288

      Local Data Space 01 Name: 00001IXL Alet: 01010039 Stoken: 80006200 000000C4
      Diag059: 00013010 Diag060: 00000000 Diag061: 00000000
      Diag062: 00000000 Diag063: 00123028

      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.................. 00123028
           LTE#................. 00000000
           Excl#................ 00000002
           Shr#................. 00000000
           GlobalInfo1.......... C0
           GlobalSSID........... 02
           GlobalInfo2.......... 00
           EscPendInfoSiwb@..... 00000000
           RedriveToken......... 00000000  00000000
           InflightRequestCount. 00000000
           DeescRespToken....... 00000000
           EnabledDwe@.......... 00000000
           LatchInfo............ 010C2A00
```

```
            Diag063: 00123028 Diag077: 00113010 Diag078: 00123028
            Diag079: 00000000 Diag080: 00000000 Diag081: 00000000
            Diag082: 00000000 Diag083: C0020000 Diag084: 00000000 00000000
            Diag193: 010C2A00 00000000 Diag023: 00000000 00000000
            Diag096: 0000     Diag162: 00000000 Diag098: 00

      Accepted Resource Requests
      --------------------------
         Resource Name:
   +0000  D9D5C1D4  C5F14040  40404040  40404040  | RNAME1           |
   +0010  40404040  40404040  40404040  40404040  |                  |
   +0020  40404040  40404040  40404040  40404040  |                  |
   +0030  40404040  40404040  40404040  40404040  |                  |
         Resource Name Length........... 00000040
         Hash Value..................... 00000001
         Resource Status................ Held

         RNA Information
         ---------------
           ID................... RNA
           GrantTod............. 00000000  00000000
           RnaFwd............... 00123260
           ResourceStatus....... 00000000
           DWE@................. 00000000
           SignalToken.......... 00000000  00000000
           Chase#............... 00
           ReqHashval........... 00000001
           ReqState............. 00
           ReqUdata............. 00000000  00000000  00000000  00000000
                                 00000000  00000000  00000000  00000000
                                 00000000  00000000  00000000  00000000
                                 00000000  00000000  00000000  00000000
           ReqRdata............. 00000000  00000000  00000000  00000000
                                 00000000  00000000  00000000  00000000
                                 00000000  00000000  00000000  00000000
                                 00000000  00000000  00000000  00000000
           ReqLeid.............. 00000000  00000000  00000000
           ReqLockData.......... 00000000  00000000
           ReqMode.............. 00
           ReqEvent............. 00
           ReqRdataFlags........ 00
           ReqRdataConid........ 00
           ReqEntryCount........ 00000000
           ReqMiscFlags......... 00000000
           ReqRnameLen.......... 00000040
           HeldState............ 02
           HeldUdata............ 00000000  00000000  00000000  00000000
                                 00000000  00000000  00000000  00000000
                                 00000000  00000000  00000000  00000000
                                 00000000  00000000  00000000  00000000
           HeldRdata............ 00000000  00000000  00000000  00000000
                                 00000000  00000000  00000000  00000000
                                 00000000  00000000  00000000  00000000
                                 00000000  00000000  00000000  00000000
```

```
            HeldLeid.............. 00000000  00000000  00000000
            HeldLockData......... 00000000  00000000
            HeldRdataInfo........ 00
            RdvToken.............. 00000000  00000000
            RdvFootprints........ 0000
            EnabledDwe@.......... 00000000
            RequestorTtokenInfo:
              Ttoken.............. 00000000  00000000  00000000  00000000
              AssbPtr............. 00000000
              Flags............... 00
              StcbPtr............. 7F556108
```

```
          Resource Ownership Information
           ------------------------------
              Held State.................. Exclusive
              Held User Data:
     +0000  00000000  00000000  00000000  00000000  | ................ |
     +0010  00000000  00000000  00000000  00000000  | ................ |
     +0020  00000000  00000000  00000000  00000000  | ................ |
     +0030  00000000  00000000  00000000  00000000  | ................ |
              Held Lock Data:
     +0000  00000000  00000000                      | ........         |
              Diag090: 00123028 Diag091: 00123260

           Resource Name:
     +0000  D9D5C1D4  C5F24040  40404040  40404040  | RNAME2           |
     +0010  40404040  40404040  40404040  40404040  |                  |
     +0020  40404040  40404040  40404040  40404040  |                  |
     +0030  40404040  40404040  40404040  40404040  |                  |
           Resource Name Length........... 00000040
           Hash Value..................... 00000001
           Resource Status................ Held

           RNA Information
           ---------------
             ID.................... RNA
             GrantTod.............. 00000000  00000000
             RnaFwd................ 00000000
             ResourceStatus........ 00000000
             DWE@.................. 00124028
             SignalToken........... C1911047  8B1CCF80
             Chase#................ 00
             ReqHashval............ 00000001
             ReqState.............. 02
             ReqUdata.............. 00000000  00000000  00000000  00000000
                                   00000000  00000000  00000000  00000000
                                   00000000  00000000  00000000  00000000
                                   00000000  00000000  00000000  00000000
             ReqRdata.............. 00000000  00000000  00000000  00000000
                                   00000000  00000000  00000000  00000000
                                   00000000  00000000  00000000  00000000
                                   00000000  00000000  00000000  00000000
             ReqLeid............... 00000000  00000000  00000000
             ReqLockData.......... 00000000  00000000
             ReqMode............... 02
             ReqEvent.............. 01
             ReqRdataFlags........ 40
             ReqRdataConid........ 00
             ReqEntryCount........ 00000000
             ReqMiscFlags......... 00000000
             ReqRnameLen.......... 00000040
             HeldState............. 02
             HeldUdata............. 00000000  00000000  00000000  00000000
                                   00000000  00000000  00000000  00000000
                                   00000000  00000000  00000000  00000000
                                   00000000  00000000  00000000  00000000
             HeldRdata............. 00000000  00000000  00000000  00000000
                                   00000000  00000000  00000000  00000000
                                   00000000  00000000  00000000  00000000
                                   00000000  00000000  00000000  00000000
             HeldLeid.............. 00000000  00000000  00000000
             HeldLockData......... 00000000  00000000
             HeldRdataInfo........ 00
             RdvToken.............. 00000000  00000000
             RdvFootprints........ 0000
             EnabledDwe@.......... 00000000
             RequestorTtokenInfo:
               Ttoken.............. 00000000  00000000  00000000  00000000
               AssbPtr............. 00000000
               Flags............... 00
               StcbPtr............. 7F556108
```

```
           Resource Ownership Information
          ------------------------------
              Held State.................. Exclusive
              Held User Data:
     +0000  00000000  00000000  00000000  00000000  | ................ |
     +0010  00000000  00000000  00000000  00000000  | ................ |
     +0020  00000000  00000000  00000000  00000000  | ................ |
     +0030  00000000  00000000  00000000  00000000  | ................ |
              Held Lock Data:
```

```
     +0000  00000000  00000000                      | ........        |
               Diag090: 00123260 Diag091: 00000000

 IXL0015I No exceptional conditions were found by the LOCKRESOURCE DETAIL report.
```

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..  LCKHANG5CONN1
   Structure name.........  IXCTL_SIGNAL03
      ASID................  X'0006'
         Connection name..  SIGPATH_02000012
```

```
Global Component Trace Information:
       Current Trace Buffer.................. Global
       Current Options....................... Lockmgr
                                              Connect
                                              Signal
                                              Request
                                              Recovery
                                              Hwlayer
                                              Config
                                              Vector


   ***** TRACE DETAIL REPORT *****
```

```
 COMPONENT TRACE FULL FORMAT
 COMP(SYSXES)  SUBNAME((GLOBAL))
 OPTIONS((ENTRY1((********,7FF6A500,**,**))))
 **** 04/09/2014

 SYSNAME   MNEMONIC  ENTRY ID    TIME STAMP     DESCRIPTION
 -------   --------  --------  ---------------  -------------

 B7VB0032  HWLAYER   09100007  16:40:35.232378  Completion of a simplex
command
    D3C6F0F1  40404040  00000001  00740000  | LF01    ........ |
    C9E7C3D3  D6F0F1F4  7FF6A500  00020004  | IXCLO014"6v..... |
    00000000  06010301  00000000  00000000  | ................ |
    7FF6A500  000001F2  00000262  028F5400  | "6v....2........ |
    00000000  00000000  00000000  00000000  | ................ |
    00000000  00000000  00000000  00000000  | ................ |
    00000000  C8C000A0  140E0E00  000A1000  | ....H{.......... |
    140E0A00  0BDE65F8  00002384  00000001  | .......8...d.... |
    00000000  00FB2658  A81FF152  00000000  | ........y.1..... |
    00000000  0001                          | ......           |

. . .
```

```
 COMPONENT TRACE FULL FORMAT
 COMP(SYSXES)  SUBNAME(('IXCTL_SIGNAL03'.ASID(0006).'SIGPATH_02000012'))
 OPTIONS((ENTRY1((********,7FF6A500,**,**))))
 **** 04/09/2014

 SYSNAME   MNEMONIC  ENTRY ID    TIME STAMP     DESCRIPTION
 -------   --------  --------  ---------------  -------------

 B7VB0032  CONNECT   02010003  16:37:53.810222  IXCASR Complete

    C9E7C3D3  D6F0F1F4  7FF6A500  00000000  | IXCLO014"6v..... |
    0000000C  00001044  070C1000  FF591AE4  | ..............U |
    00000000  00000000  00000000  00000000  | ................ |
    00000000  00000000  00000000  00000000  | ................ |
    00000000  00000000  00000000  00000000  | ................ |
    00000000  00000000  00000000  00000000  | ................ |
    00000000  00000000  00000000  00000000  | ................ |
    00000000  00000000  00000000  00000000  | ................ |
    00000000  00000000  00000000  00000000  | ................ |
    00000000  0002                          | ......           |

. . .
```

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 60 on page 797 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 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 60. Summary: Reports Generated by the STRDATA Subcommand of IPCS

Report Name	STRDATA Subcommand Keywords
ALL STRUCTURES ALLDATA DETAIL REPORT	ALLDATA DETAIL
ALL STRUCTURES ALLDATA SUMMARY REPORT	ALLDATA SUMMARY
ASSOCIATED REQUEST BLOCK REPORT **Note:** Same report for DETAIL and SUMMARY	• ARB • ALLDATA
CACHE STRUCTURE DETAIL REPORT **Note:** No STRDATA ALL STRUCTURES DETAIL REPORT	STRNAME((cache structure name)) DETAIL
CACHE STRUCTURE SUMMARY REPORT **Note:** No STRDATA ALL STRUCTURES SUMMARY REPORT	STRNAME((cache structure name)) SUMMARY
CASTOUT CLASS DETAIL REPORT	COCLASS(xx) DETAIL
CASTOUT CLASS ENTRY POSITION DETAIL REPORT	• COCLASS(xx) ENTRYPOS(yy) DETAIL • ALLDATA DETAIL
CASTOUT CLASS ENTRY POSITION SUMMARY REPORT	• COCLASS(xx) ENTRYPOS(yy) SUMMARY • ALLDATA SUMMARY
CASTOUT CLASS SUMMARY REPORT	COCLASS(xx) SUMMARY
ENTRYID DETAIL REPORT	ENTRYID(xx) DETAIL
ENTRYID SUMMARY REPORT	ENTRYID(xx) SUMMARY
ENTRYNAME DETAIL REPORT	ENTRYNAME(xx) DETAIL
ENTRYNAME SUMMARY REPORT	ENTRYNAME(xx) SUMMARY
EVENT MONITOR CONTROLS DETAIL REPORT	EMCONTROLS(xx) DETAIL
EVENT MONITOR CONTROLS SUMMARY REPORT	EMCONTROLS(xx) SUMMARY
EVENT QUEUE CONTROLS DETAIL SUMMARY REPORT	EVENTQS(xx) DETAIL
EVENT QUEUE CONTROLS SUMMARY REPORT	EVENTQS(xx) SUMMARY
LIST NUMBER DETAIL REPORT	LISTNUM(xx) DETAIL
LIST NUMBER ENTRYKEY ENTRY POSITION DETAIL REPORT	• LISTNUM(xx) ENTRYPOS(yy) ENTRYKEY(nn) DETAIL • ALLDATA DETAIL
LIST NUMBER ENTRYKEY ENTRY POSITION SUMMARY REPORT	• LISTNUM(xx) ENTRYPOS(yy) ENTRYKEY(nn) SUMMARY • ALLDATA DETAIL
LIST NUMBER ENTRY POSITION DETAIL REPORT	• LISTNUM(xx) ENTRYPOS(yy) DETAIL • ALLDATA DETAIL
LIST NUMBER ENTRY POSITION SUMMARY REPORT	• LISTNUM(xx) ENTRYPOS(yy) SUMMARY • ALLDATA SUMMARY
LIST NUMBER SUMMARY REPORT	LISTNUM(xx) SUMMARY
LIST STRUCTURE DETAIL REPORT **Note:** No STRDATA ALL STRUCTURES DETAIL REPORT	STRNAME((name of list structure)) DETAIL

Table 60. Summary: Reports Generated by the STRDATA Subcommand of IPCS (continued)	
Report Name	**STRDATA Subcommand Keywords**
LIST STRUCTURE SUMMARY REPORT **Note:** No STRDATA ALL STRUCTURES SUMMARY REPORT	STRNAME((list structure name)) SUMMARY
LOCK ENTRIES REPORT **Note:** Same report for DETAIL and SUMMARY	• LOCKENTRIES(xx) • ALLDATA
STORAGE CLASS DETAIL REPORT	STGCLASS(xx) DETAIL
STORAGE CLASS ENTRY POSITION DETAIL REPORT	• STGCLASS(xx) ENTRYPOS(yy) DETAIL • ALLDATA DETAIL
STORAGE CLASS ENTRY POSITION SUMMARY REPORT	• STGCLASS(xx) ENTRYPOS(yy) SUMMARY • ALLDATA SUMMARY
STORAGE CLASS SUMMARY REPORT	STGCLASS(xx) SUMMARY
STRDATA ALL STRUCTURES DETAIL REPORT **Note:** With all DETAIL specifications except: • LIST STRUCTURE DETAIL REPORT • CACHE STRUCTURE DETAIL REPORT	DETAIL
STRDATA ALL STRUCTURES SUMMARY REPORT **Note:** With all SUMMARY specifications except: • LIST STRUCTURE SUMMARY REPORT • CACHE STRUCTURE SUMMARY REPORT	SUMMARY
USER CONTROLS REPORT **Note:** Same report for DETAIL and SUMMARY	• USERCNTLS • ALLDATA

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  B7VBID86  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
      Structure Encrypted.............. Yes
      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
      Data Element Count............... 63
      Maximum Entry Count.............. 5165
      Entry Count...................... 32
      Maximum EMC Count................ 7882
      EMC Count........................ 6
      Sublist Notification Delay....... 5000
      List Notification Delay.......... 15000
      Key Range Notification Delay..... 0
      List Set Cursor.................. 0000
      Execution Time Accumulator....... 00000000 00008C7F
      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..lN......... |
      User Structure Controls:
   +0000  D7D3C5E7  F1404040  C4E4D7C1  D3D3D6E6  | PLEX1   DUPALLOW |
   +0010  C5C4F0F2  40404040  00010000  00008000  | ED02    ........ |
      Extended User Structure Controls:
   +0000  C4C4DB59  93D5B21A  00000000  00000000  | DD..lN......... |
```

```
         +0010  00000000  00000000  00000000  00000000  | ................ |
            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)
                01  02  03  04  05  06  07  08
                --  --  --  --  --  --  --  --
                00  00  00  00  00  00  00  00
                00  00  00  00  00  00  00  00
                00  00  00  00  00  00  00  00
                00  00  00  00  00  00  00  00
             SYSTEMS(32)
                ---01---  ---02---  ---03---  ---04---
                --------  --------  --------  --------
                00000000  00000000  00000000  00000000
                00000000  00000000  00000000  00000000
                00000000  00000000  00000000  00000000
                00000000  00000000  00000000  00000000
                00000000  00000000  00000000  00000000
                00000000  00000000  00000000  00000000
                00000000  00000000  00000000  00000000
                00000000  00000000  00000000  00000000
             COPYLEVEL                00000010
             CREATED_TOD              C4C4DB59  AC400917
             COMPLETED_TOD            00000000  00000000
             FAILED_TOD               00000000  00000000
             RECOVERED_TOD            00000000  00000000
             CPI                      00
             COMPLETED_PHASES(16)     00000000  00000000  00000000  00000000
             COMPLETING_COPYID(16)    00000000  00000000  00000000  00000000
             CFLEVEL                  00000010
             CREATING_SYSTEM          02000012
             SLOT#                    02
             SEQUENCE#                000012
             AUTOVERSION              00000000  00000000
         Remote Structure Information
         ----------------------------
         Structure Id......................... 0001
         SYID................................. C4C4A2A7 CBDB6720
         Coupling Facility.................... SIMDEV.IBM.EN.CF0100000000
            Partition......................... 00
            CPCID............................. 00
            Structure Authority:
         +0000  C4C4DC1B  6AC53119  01000011  00000000  | DD...E.......... |
            Assigned Users:
               Connection IDs:
                  01 02 03 04 05 06

      **** LIST NUMBER ENTRY POSITION DETAIL REPORT ****
         List Number.......................... 0
         List Number Status................... Complete
            List Controls:
               List Entry Count Limit......... 5165
               List Entry Count............... 6
               List Element Count............. 24
               List Entry Add Tally........... 700
               Key Range Entry Add Tally...... 30
               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 Notification Delay........ On
               Key Range Notification Delay... On
               List Key For Key Assignment:
         +0000  00000000  00000000  00000000  00000000  | ................ |
               Maximum List Key For Key Assignment:
         +0000  00000000  00000000  00000000  00000000  | ................ |
               List KeyRange Start Value:
         +0000  00000000  00000000  00000000  00000000  | ................ |
               List KeyRange End Value:
         +0000  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  | ................ |
              List Description:
         +0000  00000000  00000000  00000000  00000000  | ................ |
         +0010  00000000  00000000  00000000  00000000  | ................ |


List Monitor Table:
    Connection ID  Monitoring   Monitor Type  Notification  Notification Type  Vector Index
     -------------  ----------   ------------  ------------  ----------------   ------------
          01            Yes        Not-Empty       Yes           Every            00000014
          02            Yes        Not-Full        Yes           N/A              00000014
          03            Yes        Not-Empty       Yes           First            00000003
          04            Yes        Not-Empty       No            First            00000004
          05            No            -            No            -                00000000
          06            Yes        Not-Full        No            N/A              00000006
          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   Notification Type  Vector Index
   -------------  ----------  ------------   ----------------   ------------
       01            Yes          Yes            Every          00000009
       02            Yes          No             First          00000009
       03            Yes          Yes            First          00000005
       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

           No information for entry position 0 is available
```

```
      **** 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 87 on page 802 will be included in the STRDATA detail report.

```
          Target EMC Count.................. 3317
          Maximum EMC Count................. 3317
          EMC Count......................... 5
```

Figure 87. 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
- 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:
           Structure Encrypted.............. Yes
           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............. 10 M
         Target Entry to Element Ratio..... 1:2
         Target Directory Entry Count...... 1012
         Target Data Element Count......... 2002
         Castout Class Cursor.............. 0000
         WWCO Queue Count.................. 0
         Unchanged with Reg Interest Count. 450
         Free Directory Entry Count........ 562
         Free Data Area Element Count...... 1952
         Execution Time Accumulator........ 00000000 0003877F
         Allocation Time................... 09/10/2009 11:25:17
         Structure Authority:
      +0000  C4C4B174  CCF0A092  01000011  00000000  | DD...0.k........ |
         User Structure Controls:
      +0000  D7D3C5E7  F1404040  C3C1C3C8  C5F0F240  | PLEX1   CACHE02  |
      +0010  40404040  40404040  00010000  00008000  |         ........ |
         Extended User Structure Controls:
      +0000  C4C4B174  CCF0A092  00000000  00000000  | DD...0.k........ |
      +0010  00000000  00000000  00000000  00000000  | ................ |
         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)
             01  02  03  04  05  06  07  08
             --  --  --  --  --  --  --  --
             00  00  00  00  00  00  00  00
             00  00  00  00  00  00  00  00
             00  00  00  00  00  00  00  00
             00  00  00  00  00  00  00  00
           SYSTEMS(32)
             ---01---  ---02---  ---03---  ---04---
             --------  --------  --------  --------
             00000000  00000000  00000000  00000000
             00000000  00000000  00000000  00000000
             00000000  00000000  00000000  00000000
             00000000  00000000  00000000  00000000
             00000000  00000000  00000000  00000000
             00000000  00000000  00000000  00000000
             00000000  00000000  00000000  00000000
             00000000  00000000  00000000  00000000
          COPYLEVEL                00000010
          CREATED_TOD              C4C4B174  D9F6538E
          COMPLETED_TOD            00000000  00000000
          FAILED_TOD               00000000  00000000
          RECOVERED_TOD            00000000  00000000
          CPI                      00
          COMPLETED_PHASES(16)     00000000  00000000  00000000  00000000
          COMPLETING_COPYID(16)    00000000  00000000  00000000  00000000
          CFLEVEL                  00000010
          CREATING_SYSTEM          01000011
          SLOT#                    01
          SEQUENCE#                000011
          AUTOVERSION              00000000  00000000
      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........ 5900
               Read Miss Assign Suppressed.... 0
               Read Miss Name Assigned........ 100
               Read Miss Target StgCl Full.... 0
               Write Hit Unchanged Data....... 1440
               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.... 1440
               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.. 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
            Class Type........................... Storage
            Class................................ 2
            Class Status......................... Complete
               Class Control Information:
               Read Hit....................... 0
               Read Miss Directory Hit........ 5900
               Read Miss Assign Suppressed.... 0
               Read Miss Name Assigned........ 100
               Read Miss Target StgCl Full.... 0
               Write Hit Unchanged Data....... 1500
               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.... 1500
               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.. 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:
               PLEX1  B7VBID86  09/10/2009 11:39:32
....
```

Chapter 28. Virtual Lookaside Facility (VLF)

This topic contains diagnosis information for the virtual lookaside facility (VLF) component and data lookaside facility (DLF) subcomponent of VLF.

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
```

See *z/OS MVS System Commands* for more information about the DISPLAY and DUMP commands.

Formatting VLF dump data

Use the IPCS VLFDATA subcommand to produce diagnostic reports about VLF. *z/OS MVS IPCS Commands* gives the syntax of the VLFDATA subcommand and *z/OS MVS IPCS User's Guide* explains how to use the VLFDATA option of the IPCS dialog.

The dump may also contain component trace data for VLF. See Component trace in *z/OS MVS Diagnosis: Tools and Service Aids* 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 61 on page 805.

Table 61. Summary: VLFDATA keywords

Keyword	Report Displays:	See topic:
CLASS	Information about a VLF class.	“VLFDATA CLASS subcommand output” on page 816
EXCEPTION	Information about any inconsistencies found in the VLF data.	“VLFDATA EXCEPTION subcommand output” on page 808
STATS	Statistics on VLF activity	“VLFDATA STATS subcommand output” on page 810
STORAGE	Information about storage management of VLF data spaces sysplex.	“VLFDATA STORAGE subcommand output” on page 813
SUMMARY	Information about classes specified in the COFVLFxx parmlib member.	“VLFDATA SUMMARY subcommand output” on page 806
USER	Information relating to the non-VLF address space associated with the active task that was using a VLF function when VLF recovery received control.	“VLFDATA USER subcommand output” on page 808

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
```

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```
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
  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 : IKJEXEC
CLASS TYPE   : PDS
CLASS STATE  : Class is defined.

DATA SPACES OWNED
  Control data space                          : CIKJEXEC
  Object data space                           : DIKJEXEC

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 COFVLFxx 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 COFVLFxx parmlib member.
- A named collection of data as specified with the EMAJ keyword in a COFVLFxx 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.
- **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.

```
        *** ***    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 Exception Report                       *
 *                                                                  *
 ********************************************************************

Inconsistencies found in VLF data for user associated with ASID X'000E'


USER:
COF11000I Report may be incomplete due to unavailable data.

USER:
COF11000I Report may be incomplete due to unavailable data.

********************************************************************
Inconsistencies found in VLF data for user associated with ASID X'0012'


USER:
COF11000I Report may be incomplete due to unavailable data.

USER:
COF11000I Report may be incomplete due to unavailable data.

 .
 .
 .
```

Figure 88. Example: VLFDATA EXCEPTION subcommand output

VLFDATA USER subcommand output

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.

```
*** ***    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 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 89. Example: VLFDATA USER subcommand output

The following information appears in the report:

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 orderP

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.

```
************************* TOP OF DATA ******************************
  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


VLFNOTE 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 90. Example: VLFDATA STATS subcommand output (part 1 of 2)

```
Statistics for class CLASS1
        Class state: Class is not defined but was previously defined.
        Number of successful defines                  1
        MAXVIRT value                               256
        Actual size of obtained data space            0
        Number of majors known to VLF               N/A
        Number of eligible majors                    14
        Number of active IDENTIFYs                    0

        Create statistics:
          Largest object create attempted          2030
          Number of successful creates                5
          Creates for ineligible majors               0
          No pending create                           2
          Major not in search order                   1

        Retrieve statistics:
          Number of successful retrieves              5
          Object may be the correct one               1
          Target area was too small                   1
          May be correct, area too small              0
          Object not found                            2

        Identify statistics:
          Total number of identifies                  2
          Duplicate identify requests                 0
          Unsuccessful identifies                     0
          Current identifies                          2
          Maximum active identifies                   2
          Maximum search order length                 4
        .
        .
        .
```

Figure 91. Example: VLFDATA STATS subcommand output (part 2 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.

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.
- **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:                           2143014912
    Total available area:                             2143014912


    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 92. Example: VLFDATA STORAGE subcommand output (part 1 of 1)

```
      Pool 2
        Cell size:                     1024
        Primary count:                  200
        Secondary count:                100
        Number of extents:                1
        Cells in use:                    20

      Pool 3
        Cell size:                       32
        Primary count:                  256
        Secondary count:                128
        Number of extents:                1
        Cells in use:                    20


    Object control:

      Pool 1
        Cell size:                       40
        Primary count:                  307
        Secondary count:                204
        Number of extents:                1
        Cells in use:                    35

    Messages:
    No errors detected


    Class: IKJEXEC

    Messages:
    COF11000I Report may be incomplete due to unavailable data.


*** ***    END OF VLF DATA    *** ***
```

Figure 93. Example: VLFDATA STORAGE subcommand output (part 2 of 2)

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.

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'MIN0'

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 806.

- 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.)
- **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** (he 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 62. Summary: DLFDATA keywords

Keyword	Report Displays	See topic:
CLASS	Information about a DLF class.	"DLFDATA CLASS subcommand output" on page 819
EXCEPTION	Information about any inconsistencies found in the DLF data.	"DLFDATA EXCEPTION subcommand output" on page 823
STATS	Statistics on DLF activity	"DLFDATA STATS subcommand output" on page 825
STORAGE	Information about storage management of DLF data spaces sysplex.	"DLFDATA STORAGE subcommand output" on page 823
SUMMARY	Information about each class known to DLF.	"DLFDATA SUMMARY subcommand output" on page 819
USER	Information about an address space associated with the active task that was using DLF at the time of the error.	"DLFDATA USER subcommand output" on page 822

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
```

```
  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 Summary Report                    *
  *                                                          *
  ************************************************************
  Class: COFGSDO

    Class state: Class is defined.

    Maximum expanded:                   524288
    Current expanded:                        0
    Current largest object:                256


  *** ***    END OF DLFDATA    *** ***
```

Figure 94. 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.

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.

```
  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 Class 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

Shared objects in the class:                          Connects
      C'SHARED 1MB RETAINED OBJECT CONNSPMR'                  18

    Total number of objects found :          1

  *** ***    END OF DLFDATA    *** ***
```

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.

```
  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 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.
- **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.

```
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 User Report                      *
*                                                               *
*****************************************************************

                    CONNECTIONS FOR ASID: X'000E'

    No Connects Found For This ASID


*****************************************************************

                    CONNECTIONS FOR ASID: X'000F'

    No Connects Found For This ASID


*****************************************************************

    No Objects Found

*** ***    END OF DLFDATA    *** ***
```

Figure 95. Example: DLFDATA USER subcommand output

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.

```
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 Exception Report                    *
*                                                               *
*****************************************************************

Error Information:
  Class related to the error:      COFGSDO
  ASID related to the error:       X'000E'
  Retry was allowed:               Yes
  Total entries into recovery:     001
  Recursive entries into recovery: 001

  Module control flow:
    COFMSDN1

    COFMEST2

  Trace information:    Return code:                   0000002C
    Reason code:                   0000D009
    Footprints:                    E0000000 00000000


    Control data space storage management messages:
    No errors detected
    COF11101I Errors detected in DLF data at address 0292AB88
              ASID(X'000F') reason 10400000 00000000.
    10: 0292AF30
    +0000  FFFFFFFD 00000000                  | ........         |


*** ***    END OF DLFDATA    *** ***
```

Figure 96. Example: DLFDATA EXCEPTION subcommand output

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.

```
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 97. 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.
- **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.

DLFDATA STATS 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.

```
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 Statistics Report                    *
*                                                               *
*****************************************************************

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 98. 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 COFDLFxx 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.

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)

This SUMMARY report also generates the following:

- Global storage map
- Global subpool usage summary
- Local storage map

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- 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 the subpool in which a particular address resides, 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
Exclude all lines from the data set.

F 'SP/K' ALL
Find only the lines with the sortable data.

DELETE ALL X
Discard all the other lines.

SORT *x y*
Sort the remaining lines of data. Specify values for *x* and *y*, as follows:

By ADDRESS:
x=115, *y*=122

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), extended SQA, or restricted use common service area (RUCSA) and extended RUCSA. 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 63. Summary: Control blocks in VERBEXIT VSMDATA OWNCOMM subcommand output

Control Block	Mapping Name
Address space control block (ASCB)	ASCB
Address space secondary block (ASSB)	ASSB
Common area user block (CAUB)	IGVCAUB
Getmained queue element (GQE)	IGVGQE
GQE Queue Anchor Table (GQAT)	IGVGQAT
VSM address space block (VAB)	IGVVAB

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 DUMP FORMAT ROUTINE
     THE FOLLOWING KEYWORDS ARE IN EFFECT:
             OWNCOMM
             SUMMARY

******************************** GRAND TOTALS **********************************
                          Total
Description               Length   SQA    CSA    ESQA     ECSA     CAUB
------------------------ -------- ------ ------ -------- -------- --------

Total SYSTEM-owned        0015ADD8 007AB0 014770 0011FD98 0001EE20 01B31378

Total for active ASIDS    00295558 0148F0 044EC0 000E4EF0 00156EB8 ********

Total for "Owner Gone"    000147D0 0012C8 00F230 000004A8 00003E30 ********

Total for "No Detail"     00000000 000000 000000 00000000 00000000 ********
                          -------- ------ ------ -------- --------
Grand Total               00404B00 01D668 068860 00205130 00179B08
********************************************************************************
                             Total
  ASID Job Name ID       St Length   SQA    CSA    ESQA     ECSA     CAUB
  ---- -------- -------- -- -------- ------ ------ -------- -------- --------
  0000 *SYSTEM* ........ Ac 0015ADD8 007AB0 014770 0011FD98 0001EE20 01B31378
  0001 *MASTER* ........ Ac 001A79B8 010108 017348 000C5C20 000BA948 01B31418
  0002 PCAUTH   ........ Ac 00000438 000000 000000 00000438 00000000 01C09010
  0003 RASP     ........ Ac 00000CE8 000000 000000 00000CE8 00000000 01C09058
  0004 TRACE    ........ Ac 000000A8 000000 000000 000000A8 00000000 01C090A0
  0005 XCFAS    ........ Ac 000100B8 000030 000000 00010088 00000000 01C090E8
  0006 GRS      ........ Ac 000011A0 001030 000000 00000170 00000000 01C09130
  0009 DUMPSRV  ........ Ac 0000D0E8 000030 000000 0000BE80 00001238 01C09208
  000A CONSOLE  ........ Ac 00008468 0020F8 0006B8 00000270 00005A48 01C09250
  000B CATALOG  ........ OG 00012470 0002C8 00F230 00000468 00002B10 01C09298
  000C ALLOCAS  ........ Ac 00000080 000000 000000 00000038 00000048 01C092E0
  000D SMF      ........ Ac 00000FA0 0008A0 000000 000003F0 00000310 01C09328
  000E LLA      ........ OG 00000010 000000 000000 00000010 00000000 01C093B8
  000F INIT     STC00003 Ac 00000438 000000 000000 00000118 00000320 01C095B0
  000F BLSJPRMI ........ OG 00002320 001000 000000 00000000 00001320 01C09400
  000F COPYMIG  JOB00011 OG 00000030 000000 000000 00000030 00000000 01C09718
  0010 VLF      ........ Ac 000004B8 000100 000000 00000158 00000260 01C09448
  0011 TCAS     STC00009 Ac 000011D8 000180 000270 00000320 00000AC8 01C09490
  0012 VTAM     STC00006 Ac 00089990 000180 005460 000003A0 00084010 01C094D8
  0013 IOSAS    ........ Ac 00000048 000030 000000 00000018 00000000 01C09370
  0014 JES2     ........ Ac 00035B58 000630 027D30 00000BA8 0000CC50 01C09520
  0015 CATALOG  ........ Ac 00000A20 000148 000040 000002A8 000005F0 01C09568
  0016 INIT     STC00008 Ac 000003B8 000000 000000 00000098 00000320 01C09640
  0017 INIT     STC00007 Ac 000003B8 000000 000000 00000098 00000320 01C09688
  0018 TSOUSER  TSU00010 Ac 00002CD0 000218 000080 00000098 000029A0 01C096D0
  0041 INIT     STC00004 Ac 000003B8 000000 000000 00000098 00000320 01C095F8
 END OF VIRTUAL STORAGE MANAGEMENT DUMP FORMAT ROUTINE
```

Figure 99. 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, ESQA, RUCSA and ERUCSA 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, ESQA, RUCSA and ERUCSA storage in bytes that address spaces were using when the system wrote the dump.

Total for "Owner Gone"
The amount of CSA, ECSA, SQA, ESQA, RUCSA and ERUCSA 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, ESQA, RUCSA and ERUCSA storage obtained by jobs and address spaces before the system programmer started the common 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, ESQA, RUCSA or ERUCSA storage.

Jobname
The name of the job that holds the reported area of CSA, ECSA, SQA, ESQA, RUCSA or ERUCSA 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, ESQA, RUCSA or ERUCSA 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, ESQA, RUCSA or ERUCSA storage (in bytes) held by the reported job. The system displays this amount in hexadecimal.

CSA, ECSA, SQA, ESQA, RUCSA, ERUCSA
The total number of bytes of storage held in CSA, ECSA, SQA, ESQA, RUCSA and ERUCSA. RUCSA and ERUCSA only appear in the output if RUCSA storage was defined.

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 (www.ibm.com/servers/resourcelink/svc00100.nsf/pages/zosInternetLibrary).

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 99 on page 830. The system assumes the following defaults:

```
ALL
SORTBY(ASIDADDR)
CONTENTS(YES)
```

```
    VIRTUAL STORAGE MANAGEMENT DUMP FORMAT ROUTINE
    THE FOLLOWING KEYWORDS ARE IN EFFECT:
            OWNCOMM
            DETAIL
            ALL
            SORTBY(ASIDADDR)
            CONTENTS(YES)

                                                          Date     Time
 ASID Job Name ID       St T Address  Length   Ret Addr MM/DD/YY HH:MM:SS CAUB     GQE
 ---- -------- -------- -- - -------- -------- -------- -------- -------- -------- --------
 0000 *SYSTEM* ........ Ac C 00C50F40 000020C0 8003D132   Not Available   01B31378 01B351A8
  Data ------> 00000000 00000000 00000000 00000000  *.................*
 0000 *SYSTEM* ........ Ac C 00C53C00 00010400 8003D132   Not Available   01B31378 01B35160
  Data ------> 00000000 00000000 00000000 00000000  *.................*
 0000 *SYSTEM* ........ Ac C 00C64F70 00002090 8003D132   Not Available   01B31378 01B35148
  Data ------> 00000000 00000000 00000000 00000000  *.................*
 0000 *SYSTEM* ........ Ac C 00C67DE0 000000A8 8003D132   Not Available   01B31378 01B35130
  Data ------> C4E2E540 00C67DFC 00C67E14 00C67E38  *DSV .F'..F=..F=.*
 0000 *SYSTEM* ........ Ac C 00C67E88 00000178 8003D132   Not Available   01B31378 01B350E8
  Data ------> E2C4E6F1 00000000 00000000 A5B218EF  *SDW1........v...*
 0000 *SYSTEM* ........ Ac S 00EFD000 00000020 FFFFFFFE   Not Available   01B31378 01B36828
  Data ------> 00C42300 00C42D00 00C43700 00C44100  *.D...D...D...D..*
 0001 *MASTER* ........ Ac C 00C20968 00000698 80E40048 05/15/92 14:02:44 01B31418 01BF53B8
  Data ------> 00000000 00070FB0 000715A0 80FD1760  *................-*
 0001 *MASTER* ........ Ac C 00C24B18 000004E8 81E21616 05/15/92 14:02:37 01B31418 01A571C0
  Data ------> 710004E8 00C24BE0 00C24BE0 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 **********************************
                          Total
 Description              Length   SQA    CSA    ESQA     ECSA     CAUB
 ------------------------ -------- ------ ------ -------- -------- --------
 Total SYSTEM-owned       0015ADD8 007AB0 014770 0011FD98 0001EE20 01B31378
 Total for active ASIDS   00295558 0148F0 044EC0 000E4EF0 00156EB8 ********
 Total for "Owner Gone"   000147D0 0012C8 00F230 000004A8 00003E30 ********
 Total for "No Detail"    00000000 000000 000000 00000000 00000000 ********
                          -------- ------ ------ -------- --------
 Grand Total              00404B00 01D668 068860 00205130 00179B08
*******************************************************************************

END OF VIRTUAL STORAGE MANAGEMENT DUMP FORMAT ROUTINE
```

Figure 100. 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, ESQA, RUCSA and ERUCSA 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, ESQA, RUCSA and ERUCSA 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 CSA, ECSA, SQA, ESQA, RUCSA or ERUCSA 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.

R
Indicates that the obtained storage is in RUCSA or ERUCSA.

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 100 on page 832.

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.

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