z/OS Communications Server

SNA Diagnosis Volume 2: FFST Dumps and the VIT

Version 2 Release 1

GC27-3668-01

Note:
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About this document

This document is intended to help system programmers in a VTAM® environment diagnose problems with the VTAM program. Use the document to isolate and identify problems with your VTAM network and to collect appropriate documentation to resolve network problems.

The information in this document includes descriptions of support for both IPv4 and IPv6 networking protocols. Unless explicitly noted, descriptions of IP protocol support concern IPv4. IPv6 support is qualified within the text.

Who should read this document

System programmers should use this document to analyze a VTAM problem, classify the problem as a specific type, and provide information about the problem to an IBM® Support Center representative.

You should be familiar with the VTAM service aids and the procedures for reporting problems to an IBM Support Center representative.

How this document is organized

This document is organized into the following topics:

- Chapter 1, "Using FFST dumps," on page 1 describes dump procedures.
- Chapter 2, "Using the VTAM internal trace," on page 11 describes how to use the VTAM Internal Trace (VIT).
- Appendix A, "VTAM internal trace (VIT) record descriptions," on page 29 describes the VIT records.
- Appendix B, "Internal topology traces," on page 513 describes the internal topology traces.
- Appendix C, "First Failure Support Technology (FFST) probes," on page 535 describes the FFST™ probes that trigger dumps when an unusual condition occurs in VTAM.
- Appendix D, "Communications storage manager (CSM) FFST probes," on page 577 describes the CSM FFST probes that trigger dumps when an unusual condition occurs in CSM.
- Appendix E, "Architectural specifications," on page 579 lists documents that provide architectural specifications for the SNA protocol.
- Appendix F, "Accessibility," on page 581 describes accessibility features to help users with physical disabilities.
- "Notices" on page 583 contains notices and trademarks used in this document.
- "Bibliography" on page 593 contains descriptions of the documents in the z/OS® Communications Server library.

How to use this document

Use this document to isolate and identify problems with your VTAM network and to collect appropriate documentation to resolve network problems.

Determining whether a publication is current

As needed, IBM updates its publications with new and changed information. For a given publication, updates to the hardcopy and associated BookManager® softcopy are usually available at the same time. Sometimes, however, the updates to hardcopy and softcopy are available at different times. The following information describes how to determine if you are looking at the most current copy of a publication:

- At the end of a publication's order number there is a dash followed by two digits, often referred to as the dash level. A publication with a higher dash level is more current than one with a lower dash level. For example, in the publication order number GC28-1747-07, the dash level 07 means that the publication is more current than previous levels, such as 05 or 04.
- If a hardcopy publication and a softcopy publication have the same dash level, it is possible that the softcopy publication is more current than the hardcopy publication. Check the dates shown in the Summary of Changes. The softcopy publication might have a more recently dated Summary of Changes than the hardcopy publication.
- To compare softcopy publications, you can check the last 2 characters of the publication's file name (also called the book name). The higher the number, the more recent the publication. Also, next to the publication titles in the CD-ROM booklet and the readme files, there is an asterisk (*) that indicates whether a publication is new or changed.

How to contact IBM service

For immediate assistance, visit this website: http://www.software.ibm.com/network/commserver/support/

Most problems can be resolved at this website, where you can submit questions and problem reports electronically, and access a variety of diagnosis information.

For telephone assistance in problem diagnosis and resolution (in the United States or Puerto Rico), call the IBM Software Support Center anytime (1-800-IBM-SERV). You will receive a return call within 8 business hours (Monday – Friday, 8:00 a.m. – 5:00 p.m., local customer time).

Outside the United States or Puerto Rico, contact your local IBM representative or your authorized IBM supplier.

If you would like to provide feedback on this publication, see “Communicating your comments to IBM” on page 609.

Conventions and terminology that are used in this document

Commands in this book that can be used in both TSO and z/OS UNIX environments use the following conventions:

- When describing how to use the command in a TSO environment, the command is presented in uppercase (for example, NETSTAT).
- When describing how to use the command in a z/OS UNIX environment, the command is presented in bold lowercase (for example, **netstat**).
- When referring to the command in a general way in text, the command is presented with an initial capital letter (for example, Netstat).

All the exit routines described in this document are *installation-wide exit routines*. The installation-wide exit routines also called installation-wide exits, exit routines, and exits throughout this document.

The TPF logon manager, although included with VTAM, is an application program; therefore, the logon manager is documented separately from VTAM.

Samples used in this book might not be updated for each release. Evaluate a sample carefully before applying it to your system.

Note: In this information, you might see the following Shared Memory Communications over Remote Direct Memory Access (SMC-R) terminology:

- RDMA network interface card (RNIC), which is used to refer to the IBM 10GbE RoCE Express® feature.
- Shared RoCE environment, which means that the 10GbE RoCE Express feature operates on an IBM z13™ (z13) or later system, and that the feature can be used concurrently, or shared, by multiple operating system instances. The RoCE Express feature is considered to operate in a shared RoCE environment even if you use it with a single operating system instance.

For definitions of the terms and abbreviations that are used in this document, you can view the latest IBM terminology at the IBM Terminology website.

Clarification of notes

Information traditionally qualified as Notes is further qualified as follows:

Note Supplemental detail

Tip Offers shortcuts or alternative ways of performing an action; a hint

Guideline
Customary way to perform a procedure

Rule Something you must do; limitations on your actions

Restriction
Indicates certain conditions are not supported; limitations on a product or facility

Requirement
Dependencies, prerequisites

Result Indicates the outcome

Prerequisite and related information

z/OS Communications Server function is described in the z/OS Communications Server library. Descriptions of those documents are listed in “Bibliography” on page 593, in the back of this document.

Required information

Before using this product, you should be familiar with TCP/IP, VTAM, MVS™, and UNIX System Services.

Softcopy information

Softcopy publications are available in the following collection.

Titles	Order Number	Description
IBM System z Redbooks Collection	SK3T-7876	The IBM Redbooks® publications selected for this CD series are taken from the IBM Redbooks inventory of over 800 books. All the Redbooks publications that are of interest to the System z® platform professional are identified by their authors and are included in this collection. The System z subject areas range from e-business application development and enablement to hardware, networking, Linux, solutions, security, parallel sysplex, and many others. For more information about the Redbooks publications, see http://www-03.ibm.com/systems/z/os/zos/zfavorites/.

Other documents

This information explains how z/OS references information in other documents.

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 (SA23-2299). The Roadmap describes what level of documents are supplied with each release of z/OS Communications Server, and also describes each z/OS publication.

To find the complete z/OS library, visit the z/OS library in IBM Knowledge Center (www.ibm.com/support/knowledgecenter/SSLTBW/welcome).

Relevant RFCs are listed in an appendix of the IP documents. Architectural specifications for the SNA protocol are listed in an appendix of the SNA documents.

The following table lists documents that might be helpful to readers.

Title	Number
DNS and BIND, Fifth Edition, O'Reilly Media, 2006	ISBN 13: 978-0596100575
Routing in the Internet, Second Edition, Christian Huitema (Prentice Hall 1999)	ISBN 13: 978-0130226471
sendmail, Fourth Edition, Bryan Costales, Claus Assmann, George Jansen, and Gregory Shapiro, O'Reilly Media, 2007	ISBN 13: 978-0596510299
SNA Formats	GA27-3136
TCP/IP Illustrated, Volume 1: The Protocols, W. Richard Stevens, Addison-Wesley Professional, 1994	ISBN 13: 978-0201633467
TCP/IP Illustrated, Volume 2: The Implementation, Gary R. Wright and W. Richard Stevens, Addison-Wesley Professional, 1995	ISBN 13: 978-0201633542
TCP/IP Illustrated, Volume 3: TCP for Transactions, HTTP, NNTP, and the UNIX Domain Protocols, W. Richard Stevens, Addison-Wesley Professional, 1996	ISBN 13: 978-0201634952
TCP/IP Tutorial and Technical Overview	GG24-3376
Understanding LDAP	SG24-4986
z/OS Cryptographic Services System SSL Programming	*SC14-7495*
z/OS IBM Tivoli Directory Server Administration and Use for z/OS	*SC23-6788*

Title	Number
z/OS JES2 Initialization and Tuning Guide	*SA32-0991*
z/OS Problem Management	*SC23-6844*
z/OS MVS Diagnosis: Reference	*GA32-0904*
z/OS MVS Diagnosis: Tools and Service Aids	*GA32-0905*
z/OS MVS Using the Subsystem Interface	*SA38-0679*
z/OS V2R1 Program Directory	*GI11-9848*
z/OS UNIX System Services Command Reference	*SA23-2280*
z/OS UNIX System Services Planning	*GA32-0884*
z/OS UNIX System Services Programming: Assembler Callable Services Reference	*SA23-2281*
z/OS UNIX System Services User's Guide	*SA23-2279*
z/OS XL C/C++ Runtime Library Reference	*SC14-7314*
zEnterprise System and System z10 OSA-Express Customer's Guide and Reference	*SA22-7935*

Redbooks publications

The following Redbooks publications might help you as you implement z/OS Communications Server.

Title	Number
IBM z/OS V2R1 Communications Server TCP/IP Implementation, Volume 1: Base Functions, Connectivity, and Routing	SG24-8096
IBM z/OS V2R1 Communications Server TCP/IP Implementation, Volume 2: Standard Applications	SG24-8097
IBM z/OS V2R1 Communications Server TCP/IP Implementation, Volume 3: High Availability, Scalability, and Performance	SG24-8098
IBM z/OS V2R1 Communications Server TCP/IP Implementation, Volume 4: Security and Policy-Based Networking	SG24-8099
IBM Communication Controller Migration Guide	SG24-6298
IP Network Design Guide	SG24-2580
Managing OS/390 TCP/IP with SNMP	SG24-5866
Migrating Subarea Networks to an IP Infrastructure Using Enterprise Extender	SG24-5957
SecureWay Communications Server for OS/390 V2R8 TCP/IP: Guide to Enhancements	SG24-5631
SNA and TCP/IP Integration	SG24-5291
TCP/IP in a Sysplex	SG24-5235
TCP/IP Tutorial and Technical Overview	GG24-3376
Threadsafe Considerations for CICS	SG24-6351

Where to find related information on the Internet

z/OS

This site provides information about z/OS Communications Server release availability, migration information, downloads, and links to information about z/OS technology

http://www.ibm.com/systems/z/os/zos/

z/OS Internet Library

Use this site to view and download z/OS Communications Server documentation

www.ibm.com/systems/z/os/zos/bkserv/

IBM Communications Server product

The primary home page for information about z/OS Communications Server

http://www.software.ibm.com/network/commserver/

IBM Communications Server product support

Use this site to submit and track problems and search the z/OS Communications Server knowledge base for Technotes, FAQs, white papers, and other z/OS Communications Server information

http://www.software.ibm.com/network/commserver/support/

IBM Communications Server performance information

This site contains links to the most recent Communications Server performance reports.

http://www.ibm.com/support/docview.wss?uid=swg27005524

IBM Systems Center publications

Use this site to view and order Redbooks publications, Redpapers™, and Technotes

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

IBM Systems Center flashes

Search the Technical Sales Library for Techdocs (including Flashes, presentations, Technotes, FAQs, white papers, Customer Support Plans, and Skills Transfer information)

http://www.ibm.com/support/techdocs/atsmastr.nsf

Tivoli NetView for z/OS

Use this site to view and download product documentation about Tivoli® NetView® for z/OS

http://www.ibm.com/support/knowledgecenter/SSZJDU/welcome

RFCs

Search for and view Request for Comments documents in this section of the Internet Engineering Task Force website, with links to the RFC repository and the IETF Working Groups web page

http://www.ietf.org/rfc.html

Internet drafts

View Internet-Drafts, which are working documents of the Internet Engineering Task Force (IETF) and other groups, in this section of the Internet Engineering Task Force website

http://www.ietf.org/ID.html

Information about web addresses can also be found in information APAR II11334.

Note: Any pointers in this publication to websites are provided for convenience only and do not serve as an endorsement of these websites.

DNS websites

For more information about DNS, see the following USENET news groups and mailing addresses:

USENET news groups
comp.protocols.dns.bind

BIND mailing lists
https://lists.isc.org/mailman/listinfo

BIND Users

- Subscribe by sending mail to bind-users-request@isc.org.
- Submit questions or answers to this forum by sending mail to bind-users@isc.org.

BIND 9 Users (This list might not be maintained indefinitely.)

- Subscribe by sending mail to bind9-users-request@isc.org.
- Submit questions or answers to this forum by sending mail to bind9-users@isc.org.

The z/OS Basic Skills Information Center

The z/OS Basic Skills Information Center is a web-based information resource intended to help users learn the basic concepts of z/OS, the operating system that runs most of the IBM mainframe computers in use today. The Information Center is designed to introduce a new generation of Information Technology professionals to basic concepts and help them prepare for a career as a z/OS professional, such as a z/OS systems programmer.

Specifically, the z/OS Basic Skills Information Center is intended to achieve the following objectives:

- Provide basic education and information about z/OS without charge
- Shorten the time it takes for people to become productive on the mainframe
- Make it easier for new people to learn z/OS

To access the z/OS Basic Skills Information Center, open your web browser to the following website, which is available to all users (no login required):
http://www-01.ibm.com/support/knowledgecenter/zosbasics/com.ibm.zos.zbasics/homepage.html

Summary of changes

This document contains terminology, maintenance, and editorial changes, including changes to improve consistency and retrievability. Technical changes or additions to the text and illustrations are indicated by a vertical line to the left of the change.

Changes made in z/OS Version 2 Release 1, as updated February 2015

This document contains information previously presented in z/OS Communications Server: SNA Diagnosis Vol 2, FFST Dumps and the VIT, GC27-3668-00, which supported z/OS Version 2 Release 1.

Changed information

- Shared Memory Communications over RDMA adapter (RoCE) virtualization, see the following topics:
  - "CCR entry for a communication channel operation" on page 123
  - "CCR2 entry for communication channel operation (Part 2)" on page 124
  - "IOS2 entry for invoking a Peripheral Component Interconnect Express (PCIe) service (Part 2)" on page 272
  - "VHCR entry for invoking a RoCE VHCR operation (part 1)" on page 481
  - "VHC2 entry for invoking a RoCE VHCR operation (part 2)" on page 482
  - "VHC3 entry for invoking a RoCE VHCR operation (part 3)" on page 482
  - "VHC4 entry for invoking a RoCE VHCR operation (part 4)" on page 483
  - "VHC5 entry for invoking a RoCE VHCR operation (part 5)" on page 484

Changed information

- Shared Memory Communications over RDMA adapter (RoCE) virtualization, see "Trace options for the VIT" on page 12.

Summary of changes for z/OS Version 2 Release 1

For specifics on the enhancements for z/OS Version 2, Release 1, see the following publications:

- z/OS Summary of Message and Interface Changes
- z/OS Introduction and Release Guide
- z/OS Planning for Installation
- z/OS Migration

Chapter 1. Using FFST dumps

This topic covers the FFST dumps that you can use for problem determination for the VTAM program.

See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures for information about other dumps that can be used for problem determination of the VTAM program.

First Failure Support Technology (FFST) for VTAM

First Failure Support Technology™ is a licensed program that captures information about a potential problem when it occurs. See z/OS Information Roadmap to determine what document contains more information about FFST.

When a problem is detected, a software probe is triggered by VTAM. FFST then collects information about the problem and generates output to help solve the problem. Based on the options active for the probe, you get a dump and a generic alert. See "The generic alert" on page 5 for information about generic alerts. You also get the FFST **EPW** message group as shown in the "FFST console" on page 6.

FFST dumps

Each VTAM FFST probe can trip up to five times in 5 minutes before it is automatically turned off. Only one of the five dumps will be produced, limiting the number of dumps that you get if a recurring problem triggers a probe.

Depending on how the dump type was coded in the probe, you can get a full dump or an FFST minidump (partial dump). If the dump type is a full dump, only one full dump is created. If the dump type is a minidump, the FFST minidump is created as is a dump containing the last 4 MB of the VIT. For a listing of the dump type for each probe, see Appendix C, "First Failure Support Technology (FFST) probes," on page 535.

Dump data set

FFST saves the VTAM FFST minidump on a dynamically allocated sequential data set. The VTAM FFST full dump or the partial dump containing the last 4 MB of the VIT (obtained when an FFST minidump is triggered) is saved on SYS1.DUMPx data sets. You must specify the volume serial number and the UNIT identification information for this data set. Provide this information to FFST on a DD statement in the FFST installation procedure or in the FFST startup command list installed at system installation. A startup command list contains MVS commands to control FFST.

Full dump

If a full dump is created when an FFST probe is triggered, FFST uses the operating system SDUMP macroinstruction to provide a full dump of the address space where the potential problem occurred. A full dump includes selected MVS control blocks, CSA, ECSA subpools (227, 228, 231, and 241), and the PSA.

Formatting a full dump:
Use IPCS to view or print the full dump. If you try to use EPWDMPFM to format a full dump, message `EPW9561E NOT A VALID FFST DUMP` will be issued.

FFST minidump

If the probe is coded as a minidump, an FFST minidump is written to the output data set. See Figure 1 on page 3.

An FFST minidump contains general-purpose registers, and selected VTAM control blocks. When an FFST minidump is triggered, an additional dump providing the last 4 MB of the 64-bit common VIT table is also generated by using the system SDUMPX macroinstruction. If the VIT table is larger than 4 MB, the dump contains the VIT table header with the last 4 MB of the VIT.

The probe output data used for VTAM FFST minidumps are found in the data sets that were allocated when VTAM FFST was installed.

Formatting an FFST minidump:
Use the dump formatting CLIST, EPWDMPFM, to format your VTAM FFST minidump. EPWDMPFM formats your minidump and writes it to a data set that you can view online or print using the IEBPTPCH utility program. (FFST minidumps cannot be processed by the VTAM formatted dump tool.)

Sample FFST minidump:
See "Sample FFST minidump" for a sample VTAM FFST minidump. "Sample FFST minidump" was produced when VTAM session services CP-CP (SSC) entered an unexpected state on a contention-winner session.

```
SCUNO - FAILURE ON CONWINNER SESSION
11/09/92
_____________________________________________________________________________
EPW9521I DUMP DATA SET NAME = FFSTDS.MVS42247.VTAM.DMP00033
EPW9522I TITLE FROM DUMP = SCUNO - FAILURE ON CONWINNER SESSION
EPW9523I DATE FROM DUMP = 01/11/95, TIME FROM DUMP = 12:00:06
EPW9501I PRODUCT NAME: VTAM
EPW9502I IBM PROGRAM
EPW9503I COMPONENT/PROGRAM ID: 569511701, LEVEL:  301
EPW9504I TYPE OF FAILURE: INCORROUT
EPW9505I PROBE PRIMARY SYMPTOM STRING:
PIDS/569511701 LVLS/301 PCSS/ISTSCC09 RIDS/ISTSCUNO
EPW9507I REGISTER SECONDARY SYMPTOM STRING:
REGS/GR13 VALU/H068E6098 REGS/GR14 VALU/H868D40CA REGS/GR15 VALU/H00000000
REGS/GR00 VALU/H868D40CA REGS/GR01 VALU/H068E60E0 REGS/GR02 VALU/H068E6200
REGS/GR03 VALU/H0751C000 REGS/GR04 VALU/H86BC5A14 REGS/GR05 VALU/H062D1B88
REGS/GR06 VALU/H00C97EB0 REGS/GR07 VALU/H00C171F8 REGS/GR08 VALU/H068E6078
REGS/GR09 VALU/H00000442 REGS/GR10 VALU/H068D7B60 REGS/GR11 VALU/H00000001
REGS/GR12 VALU/H868D3CAA
0EPW9508I DATA COLLECTION WORK AREA:
0ASID(X'0012') ADDRESS(060B1000) KEY(00)
060B1000. 61004000 00000000 050060F8 01000002 |/. .......-8....|
060B1010. 068E6098 863A27A0 000054A0 06508ED8 |..-qf........&;Q|
060B1020. C5D7E6C4 E2E3E2D2 00000000 068E6020 |EPWDSTSK......-.|
060B1030. 60006200 8652136A 065204E0 00000001 |-...f......\....|
⋮
EPW9509I SPECIFIED DATA STRUCTURE TABLE:
ASID(X'0012') ADDRESS(06999BE8) KEY(00)
06999BE8.                   77001418 018000F8 |        .......8|
06999BF0. C9E2E3E2 C3C3C6E3 00F9F2F2 F5F64040 |ISTSCCFT.92256  |
06999C00. 0000125C 069711F8 EE0000CC C9D5C3D6 |...*.p.8....INCO|
06999C10. D9D9D6E4 E3404040 002803F8 00003401 |RROUT   ...8....|
⋮
EPW9509I DEFAULT DATA STRUCTURE TABLE:
ASID(X'0012') ADDRESS(063859E8) KEY(00)
063859E8.                   7700026C 014000F8 |        ...%..8.|
063859F0. C9E2E3D9 C1C3E9E9 E4F9F2F2 F5F64040 |ISTRACZZU92256..|
06385A00. 000001F4 00000000 EE000044 C9D5C3D6 |...4........INCO|
06385A10. D9D9D6E4 E3404040 002803F8 10001C00 |RROUT   ...8....|
⋮
```

Figure 1. Sample FFST minidump - part 1

```
EPW9510I AREA AROUND REGISTER 0 - 868D40CA:
ASID(X'0012') ADDRESS(068D3CCA) KEY(00)
068D3CCA.                       C8FA 1805140E |          H.....|
068D3CD0. 14E41F0E 55004004 47D0C046 58F0C906 |.U.... ..}{..0I.|
068D3CE0. 5810C902 41000080 89000018 16100A0D |..I.....i.......|
068D3CF0. 182D1838 1E391842 1F550E24 D207D000 |.....K.}.|
⋮
EPW9510I AREA AROUND REGISTER 15 - 00000000:
ASID(X'0012') ADDRESS(00000000) KEY(00) PREFIXED
00000000. 040C0000 8122F568 00000000 00000000 |....a.5.........|
00000010. 00FD3AC0 00000000 076C2000 826077B4 |...{.....%..b-..|
00000020. 070C1000 800198DE 070C6000 8639E0B2 |......q...-.f.\.|
00000030. 070C1000 8003D52A 070C0000 81E23422 |......N.....aS..|
⋮
VTAM COMMUNICATION VECTOR TABLE
EPW9520I DATA STRUCTURE DEFINED IN DEFAULT DST
ASID(X'0012') ADDRESS(00C171F8) KEY(00)
00C171F8.                   E5C5F4F3 40404040 |        VE43    |
00C17200. FFF901F4 05F6D000 00000000 0000FFD9 |.9.4.6}.......R.|
00C17210. 11280000 00000000 062FEE88 00000000 |..........h....|
00C17220. 00000000 00000000 00C17524 00000000 |.........A......|
⋮
```

Figure 2. Sample FFST minidump - part 2

```
SCDAT - SSC PROCESS DATA
ASID(X'0012') ADDRESS(062D1B88) KEY(00)
062D1B88.                   E2C3C4E3 00000000 |        SCDT....|
062D1B90. C0000088 06A37020 06A37138 06B259F8 |{..h.t...t.....8|
062D1BA0. 00041100 00000000 00000000 00000000 |................|
062D1BB0. 00000000 00000000 06543018 00000000 |................|
062D1BC0. 00000000 0751C000 00000000 06A37020 |......{......t..|
062D1BD0. 60C3D7E2 E5C3D4C7 40000000 00000000 |-CPSVCMG .......|
062D1BE0. 000C12C1 00000000 F6BE0000 00000000 |...A....6.......|
062D1BF0 LENGTH(1040)==>All bytes contain X'00'
RUPE - REQUEST UNIT PROCESSING ELEMENT
ASID(X'0012') ADDRESS(0751C000) KEY(00)
0751C000. 54136004 00000000 00000000 00000000 |..-.............|
0751C010. 00000000 00000000 00000000 FDC3D7E2 |............CPS|
0751C020. 00000000 D5C5E3C1 4BC1F8F1 D5404040 |....NETA.A81N   |
0751C030. 40404040 40404040 40404040 40000000 |              ...|
0751C040 LENGTH(16)==>All bytes contain X'00'
0751C050. 068E5E08 00000000 40060000 00004004 |..;..... ..... .|
0751C060. 00000000 00000000 00000000 86BC5A14 |............f.!.|
0751C070. 00000000 081C0002 00000000 00000000 |................|
0751C080 LENGTH(16)==>All bytes contain X'00'
0751C090. 00000000                          |....            |
IPS - INTER PROCESS SIGNAL
ASID(X'0012') ADDRESS(06BC5A14) KEY(00)
06BC5A14.          0440FDC3 D7E202D5 C5E3C14B |    . .CPS.NETA.|
06BC5A20. C1F8F1D5 40404040 40404040 00000000 |A81N        ....|
06BC5A30. 00090000 00000300 0005081C 00021400 |................|
06BC5A40 LENGTH(1040)==>All bytes contain X'00'
06BC5E50. 00000000 0000                     |......          |
ANDCB - ADJACENT NODE CONTROL BLOCK
0ASID(X'0012') ADDRESS(06A37020) KEY(00)
06A37020. C1D5C3C2 D5C5E3C1 4BC1F8F1 D5404040 |ANCBNETA.A81N   |
06A37030. 40404040 40000000 00000009 C3D7E2E5 |     .......CPSV|
06A37040. C3D4C740 00000000 00000000 00000000 |CMG ............|
06A37050 LENGTH(80)==>All bytes contain X'00'
06A370A0. 00000000 02000000 00000000 06B62138 |................|
06A370B0 LENGTH(16)==>All bytes contain X'00'
06A370C0. 0751BE20 E0000000 02000000 00000000 |....\...........|
06A370D0. 0751BEC0 00000000 00000000 80000000 |...{............|
06A370E0. 00000000 10F01002 02000000 0751C1E0 |.....0........A\|
06A370F0. 01000000 00000000 00000000 00000000 |................|
06A37100. 00000000 00000000 00000000 A0801010 |................|
06A37110. 00000000 00000000 06BB9608 00000000 |..........o.....|
06A37120. 00000000 00000000 00000000 00       |.............   |
```

Figure 3. Sample FFST minidump - part 3

The generic alert

A software generic alert is built from the symptom record and routed to the NetView program if installed. The generic alert contains:

- The date and time that the probe was triggered
- The system name from the CVTSNAME field
- The product name (VTAM)
- The component identification and release number of the product triggering the probe
- The hardware identification information:

  Machine type

  Serial number

  Model number

Plant code

- The dump data set and volume if a dump was taken
- The probe statement identifier
- The probe statement description
- The probe statement severity level

The symptom string

The primary symptom string contains the following data supplied by VTAM:

- PIDS/component ID: The VTAM component identifier
- LVLS/level: The VTAM specification for the product level
- PCSS/Probe ID: From the probe that was triggered
- PCSS/FULL or MINI: The type of dump taken
- RIDS: Module name from the probe that was triggered

FFST console

See Figure 4 for a sample console listing for FFST. In Figure 4 the FFST program console message group EPW shown informs you that a probe has been triggered and that data is being collected. The **EPW0404I** messages contain the primary symptom string for VTAM.

```
EPW0401I FFSTPROC: ERROR DETECTION INVOKED BY VTAM 287
EPW0406I DUMP DATASET IS: USER1.SP41D23.VTAM.DMP00002
EPW0407I FOUND ON VOLUME: CPDLB2
EPW0402I PRIMARY SYMPTOM STRING FOR VTAM FOLLOWS:
EPW0404I PIDS/569511701 LVLS/301 PCSS/ISTTSC01 PCSS/VR#HANG PCSS/MINI
EPW0404I RIDS/ISTTSCRI FLDS/TH4VRSSN VALU/H0000 FLDS/VRBSQRCV
EPW0404I VALU/H0000 FLDS/VRBDSTSA VALU/H00000000
EPW0701I END OF MESSAGE GROUP
F FFSTPROC,AP=FFST
EPW0610I FFSTPROC: DISPLAY FOR APPLID FFST FOLLOWS: 294
EPW0611I APPLID COUNTS    probe  DUMP SYMRC GENAL SYMST SUPDP
EPW0612I FFST   00002/00002  EN    EN   EN    EN    EN    EN
EPW0613I DUMPQUAL = USER1, DUMPVOL = CPDLB2
EPW0614I APPLID VENDOR
EPW0615I VTAM  IBM CORPORATION
EPW0701I END OF MESSAGE GROUP
```

Figure 4. Sample VTAM FFST console listing

Using the trap module

The IBM-supplied trap module (ISTRACZT) contains pretested probes that you can use to capture data in places where a probe has not been installed inside of VTAM.

Before you begin

You need to obtain the VTAM module name and offset in the VTAM module from IBM Service.

Procedure

Perform the following steps to install the trap program:

1. Add an instruction to check the ATCFFST field in the ISTATCVT control block. If ATCFFST is 0, VTAM FFST is not available.

2. Add an instruction to check the ATCRACZT field in the ISTATCVT control block. If ATCRACZT is 0, the trap module is not available.

---

3. Add an instruction to call the trap module.

```
BALR R14,R15 -------- 05EF
DC   X'0001' -------- 0001 (default)
```

A 2-byte field containing X'0001' or X'0002' follows the BALR instruction. A value of X'0001' issues the ISTRAC01 probe macro in VTAM with the SDUMP option. An index value of X'0002' issues the ISTRAC01 probe macroinstruction with the VTAM FFST minidump option. The ISTATCVT and the VIT are included in the minidump output along with the VTAM module list, which contains the five significant letters of a module name, its service level, and its address. Control is returned to VTAM at the address after the 2-byte index.

Results

You know that you are done when you execute the program and the trap is triggered, resulting in an SDUMP or FFST minidump (depending on the option chosen).

Notes:

1. The calling module must save GP register 7.
2. The module is reentrant.
3. AMODE is 24 or 31.
4. All registers except 7 are saved and restored.
5. The module is in LPALIB.
6. If you are trying to invoke the trap module outside of the VTAM environment, you must take the following steps:
   - Follow the list shown above.
   - Be in VTAM key (6).
   - Be authorized.

When to dump coupling facility structures

When using GR, MNPS, TSO/GR, TCP/IP Sysplexports, or TCP/IP Sysplex Wide Security Associations be sure to dump the coupling facility structures involved when documenting problems with those functions. See z/OS MVS System Commands for information about dumping a coupling facility structure.

Activating an APPC sense code trap

The IBM-supplied trap is placed in the VTAM APPC component. This trap contains a pretested probe that provides a full dump when a predetermined sense code is set. The sense code will trigger probe ISTRACZ3.

Before you begin

You need to determine the sense code to be trapped. Sense codes are listed in z/OS Communications Server: IP and SNA Codes.

Procedure

Perform the following steps to activate a trap:

1. Ensure that the FFST program is operational.

   _____

2. Ensure that the APPC VIT option is active.

   _____

3. Obtain the offset of the ATCASLIP field in the ATCVT. (This field is a fullword.)

   _____

4. If you are running an MVS guest on a VM system, using the CP TRACE STORE command, set ATCASLIP to the required sense code.

   _____

Results

You know that you are done when the FFST probe ISTRACZ3 is triggered.

Phantom First Failure Support Technology (PFFST) for VTAM or CSM

Phantom First Failure Support Technology (PFFST) captures information about a potential problem when it occurs if FFST is not installed or active. See z/OS Information Roadmap to determine what document contains more information about FFST.

See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures for information about other dumps that can be used for problem determination of the VTAM program or CSM.

When a problem is detected, a software probe is triggered by VTAM or CSM. If FFST is not installed or active, then PFFST collects information about the problem and generates output to help solve the problem.

Reporting a problem

Some of the probes that are triggered are not VTAM problems. Analyze the probe output to determine whether a VTAM problem exists before you contact an IBM Support Center representative. For more information about FFST probes, see Appendix C, “First Failure Support Technology (FFST) probes,” on page 535.

Some probes might be triggered by VTAM problems that have already been fixed. To determine whether a problem has already been solved, take the following steps:

1. Search the RETAIN® database for occurrences of the symptom string you receive when the probe is triggered. [Also search the Information System (I/S) database or the database used by your organization.]
2. If you find an APAR that applies, apply the fix.
3. If you do not find an APAR and you cannot fix the problem, report it.

   For non-VTAM problems, call your IBM branch office. For suspected VTAM problems, do either of the following steps:

   - Access IBMLink and search for a similar problem by using the symptom string. If no matches are found, report the problem to IBM by using the electronic technical report (ETR) option on IBMLink.

- Contact the IBM Software Support Center at 1-800-IBM-SERV.

If you call the IBM Support Center, the Center must verify that the documentation collected is adequate to fix the problem and that the problem is a VTAM problem.

If the problem is a VTAM problem, the IBM Support Center opens an APAR against VTAM and includes the symptom string generated by the probe as part of the APAR text.

If the problem is a hardware, network definition, or user definition error, the IBM Support Center representative creates an ASKQ item for VTAM. The ASKQ item includes the symptom string and the solution for the problem, and can be found in the problem determination database (PDDB).

Chapter 2. Using the VTAM internal trace

Most VTAM traces show the information flow between the VTAM program and other network components. However, the VTAM internal trace (VIT) provides a record of the sequence of events *within* VTAM. These internal events include the scheduling of processes (for example, POST, WAIT, and DISPATCH), the management of storage (for example, VTALLOC), and the flow of internal PIUs between VTAM components.

Together with the operator console listing and a dump, output from the VIT can help you reconstruct sequences of VTAM events and find internal VTAM problems more easily.

This topic includes the following information:

- "Activating the VIT"
- "Trace options for the VIT" on page 12
- "Internal and external trace recording for the VIT" on page 20
- "Recording SNAP traces" on page 22
- "Deactivating the VIT" on page 23
- "Extracting VIT information from a dump" on page 24
- "Using module names to isolate VTAM problems" on page 25

Activating the VIT

You must activate the VIT to record the trace data of the specific events.

You do not need to activate the trace data of the following events, because the data is always automatically recorded in the internal table:

- API
- CIO
- MSG
- NRM
- PIU
- PSS (You can deactivate this internal trace option to stop automatic recording)
- SMS (You can deactivate this internal trace option to stop automatic recording)
- SSCP

To activate the internal trace, do one of the following actions:

- If you have not started VTAM and you are starting VTAM and the VIT at the same time, use the TRACE start option and specify the following operands:
  - TYPE=VTAM
  - OPTION=*VIT_option*

    See "Trace options for the VIT" on page 12 for information about how to specify the OPTION operand to select VIT options.
  - MODE=*VIT_mode*

    See "Internal and external trace recording for the VIT" on page 20 for information about how to specify the OPTION operand to select VIT options.

- If you have already started VTAM, use the MODIFY TRACE command and specify the following operands:
  - TYPE=VTAM
  - OPTION=*VIT_option*

    See "Trace options for the VIT" for information about how to specify the OPTION operand to select VIT options.
  - MODE=*VIT_mode*

    See "Internal and external trace recording for the VIT" on page 20 for information about how to specify the OPTION operand to select VIT options.

If you want to use VIT to record 32, 64, 96, or 128 bytes of user-generated information in an SNAP trace, see "Recording SNAP traces" on page 22.

Note:

1. To prevent the VIT table from being overwritten, VTAM disables the internal VIT when it issues SDUMP and when an FFST probe is tripped.
2. The minimum trace table size is 4 megabytes. Because the eight trace option default values are always running, the table might wrap many times.
3. CIDCTL FIND macro invocations that are invoked during the process of sending or receiving data are not traced with CDHF or CDNF trace entries unless they result in a nonzero return code.

Trace options for the VIT

You can specify the OPTION operand in the TRACE start option or in the MODIFY TRACE command. Deactivate the VIT before you attempt to change an option; otherwise, the options that are currently in effect will remain in effect. See "Deactivating the VIT" on page 23 for more information about deactivating the VIT.

Table 1 describes the options that you can specify on the OPTION operand. Select one or more of these options to indicate the VTAM functions you want to trace.

Table 1. Trace options of the OPTION operand

Option	Description
API option (for application programming interfaces)	This option helps you determine whether an application program is causing a problem. API entries are written for RPL macros, RPL exit routines, user exit routines, and user posts. Trace data for this option is always automatically recorded in the internal table.
APIOPTS option	This option is a collection of multiple VIT options that includes all the individual VIT options required to diagnose potential application program problems. Specifying the APIOPTS option is equivalent to specifying all the following VIT options: API, MSG, NRM, PIU, PSS, SMS, and SSCP.
APPC	This option helps you determine whether an LU 6.2 application is causing a problem. LU 6.2 entries are written for APPCCMD macro invocations, user posts, and exit scheduling by LU 6.2 code, calls to a security manager for security processing, and message unit transmissions between LU 6.2 components.

Table 1. Trace options of the OPTION operand (continued)

Option	Description
APPCOPTS option	This option is a collection of multiple VIT options that includes all the individual VIT options required to diagnose potential LU 6.2 application program problems. Specifying the APPCOPTS option is equivalent to specifying all the following VIT options: API, APPC, MSG, NRM, PIU, PSS, SMS, and SSCP.
CFS option (for coupling facility interfaces)	This option helps you determine problems with the VTAM interface with the MVS coupling facility. CFS entries are written when VTAM issues MVS macros to request services related to the coupling facility.
CIA option (for channel input and output auxiliary)	This option helps you isolate problems related to channel I/O CIA entries. This option presents the remaining trace records from the CIO option.
CIO option (for channel input and output)	This option helps you isolate problems related to channel I/O. CIO entries are written for attentions, error recovery, interruptions, HALT I/O SVC, and START I/O SVC.
CMIP option (for Common Management Information Protocol Services)	Setting the CMIP option enables the following traces: • Calls from CMIP application programs to the management information base (MIB) application programming interface (API) • Calls to the read-queue exit of the CMIP application program • Topology updates from VTAM resources You can use the CMIP option to help you determine whether there is a problem in VTAM or in a CMIP application program.
CPCPOPTS option	This option is a collection of multiple VIT options that includes all the individual VIT options required to diagnose potential CP-CP session problems. Specifying the CPCPOPTS option is equivalent to specifying all the following VIT options: API, APPC, MSG, NRM, PIU, PSS, SMS, and SSCP.
CSM option (for communications storage manager events)	This option traces the parameter list information that flows across the CSM interface and key internal events (such as pool expansion and contraction) for functions that manipulate buffer states. You can trace and analyze the usage history of a buffer. You can also use the CSM trace when VTAM is not operational. An external trace is generated using the VTAM GTF event ID to write trace records directly to GTF in the same format as those recorded using VIT.
CSMOPTS option	This option is a collection of multiple VIT options that includes all the individual VIT options required to diagnose potential communications storage manager (CSM) problems. Specifying the CSMOPTS option is equivalent to specifying all the following VIT options: API, APPC, CIO, CSM, MSG, NRM, PIU, PSS, SMS, SSCP, and XBUF.
DLUROPTS option	This option is a collection of multiple VIT options that includes all the individual VIT options required to diagnose dependent LU requester (DLUR) problems. Specifying the DLUROPTS option is equivalent to specifying all the following VIT options: API, APPC, HPR, MSG, NRM, PIU, PSS, SMS, and SSCP.

Table 1. Trace options of the OPTION operand (continued)

Option	Description
EEOPTS option	This option is a collection of multiple VIT options that includes all the individual VIT options required to diagnose Enterprise Extender (EE) problems. Specifying the EEOPTS option is equivalent to specifying all the following VIT options: CIA, CIO, HPR, MSG, NRM, PIU, PSS, SMS, SSCP, and TCP.
ESC option (for execution sequence control)	This option helps you track, in detail, the flow of requests for a given process.
HPDTOPTS option	This option is a collection of multiple VIT options that includes all the individual VIT options required to diagnose high-performance data transfer (HPDT) problems. Specifying the HPDTOPTS option is equivalent to specifying all the following VIT options: CIA, CIO, HPR, MSG, PIU, PSS, SMS, and SSCP.
HPR option (for High-Performance Routing)	This option helps you isolate problems related to High-Performance Routing.
HPROPTS option	This option is a collection of multiple VIT options that includes all the individual VIT options required to diagnose High-Performance Routing (HPR) problems. Specifying the HPROPTS option is equivalent to specifying all the following VIT options: API, APPC, CIA, CIO, HPR, MSG, NRM, PIU, PSS, SMS, and SSCP.
LCS option (for local area network (LAN) channel stations)	This option helps you isolate problems that occur when an IBM 3172 Interconnect Nways Controller is activating, deactivating, or transferring data. The LCS option enables tracing of data that VTAM receives from an IBM 3172 Interconnect Nways Controller at four levels: LCSX (channel), LCSP (port or adapter), LCSS (SAP), and LCSL (line).
LCSOPTS options	This option is a collection of multiple VIT options that includes all of the individual VIT options required to diagnose LAN channel station (LCS) problems. Specifying the LCSOPTS option is equivalent to specifying all the following VIT options: CIO, LCS, MSG, NRM, PIU, PSS, SMS, and SSCP.
LOCK option (for locking and unlocking)	This option helps you determine when VTAM modules obtain and release locks.
MSG option (for messages)	Specify this option to accomplish the following tasks: • Correlate other VIT entries with the console messages, even if you lose the console sheet. MSG entries are written for all messages to the VTAM operator. • Match the console log to a surge of activity shown in the VIT. OPER entries are written for all VTAM commands issued at an operator console. Trace data for this option is always automatically recorded in the internal table.

Table 1. Trace options of the OPTION operand (continued)

Option	Description
NRM option (for network resource management)	This option helps you follow the services of the network resource management component. These services include the assignment of, references to, and the deletion of certain VTAM resources such as node names, network addresses, and control blocks. NRM entries are written for SRT macros issued by VTAM modules. Trace data for this option is always automatically recorded in the internal table. CIDCTL FIND macro invocations used during the process of sending or receiving data are not traced with CDHF or CDNF trace entries unless they result in a nonzero return code.
PIU option (for path information unit flows)	This option, like the I/O and buffer contents traces, helps you isolate problems to hardware, to the NCP, or to VTAM. Unlike I/O and buffer contents traces, this option causes PIU entries to be written for all PIUs that flow internal and external to VTAM. Trace data for this option is always automatically recorded in the internal table.
PSS option (for process scheduling services)	This option helps you track the flow of requests through VTAM. PSS entries are written for the VTAM macros that invoke and control PSS, scheduling, and dispatching VTAM routines.
QDIOOPTS options	This option is a collection of multiple VIT options that includes all of the individual VIT options required to diagnose queued direct I/O (QDIO) problems. Specifying the QDIOOPTS option is equivalent to specifying all the following VIT options: CIA, CIO, HPR, MSG, NRM, PIU, PSS, SMS, and SSCP.
SMS option (for storage management services)	This option helps you isolate problems caused by storage shortages. When you specify this option with the SSCP or PSS trace option, it can also help you isolate internal VTAM problems. SMS entries are written when SMS macros are used to request or free fixed-length or variable-length buffers. SMS entries are also written when VTAM expands or attempts to expand a buffer pool.
SSCP option (for system services control point request scheduling and response posting)	This option helps you isolate a VTAM problem to a specific VTAM component or module. SSCP entries are written for the request/response units (RUs) sent between VTAM components. This option also records information for the APPN CP. Trace data for this option is always automatically recorded in the internal table.
STDOPTS option	This option is a collection of multiple VIT options that includes all of the individual VIT options required to diagnose problems related to high CPU, session services, storage, Open/Close ACB, and DLCs such as multipath channel (MPC) and channel-to-channel (CTC). Specifying the STDOPTS option is equivalent to specifying all the following VIT options: API, CIO, MSG, NRM, PIU, PSS, SMS, and SSCP.
TCP option (for use with Enterprise Extender)	This option is used for recording activity related to Enterprise Extender. The trace options record IP address management and timer activity.

Table 1. Trace options of the OPTION operand (continued)

Option	Description
TCPOPTS option	This option is a collection of multiple VIT options that includes all of the individual VIT options required to diagnose problems related to TCP/IP. Specifying the TCPOPTS option is equivalent to specifying all the following VIT options: CIA, CIO, MSG, NRM, PIU, PSS, SMS, SSCP, and TCP.
VCNS option (for VCNS application programming interfaces)	This option helps you determine whether a VCNS application is causing a problem. VCNS entries are written for VCNSCMD macro invocations, user posts, exit scheduling by VCNS code, and work element transmissions between VCNS components.
XBUF option (for applications that use the extended buffer list for sending and receiving data)	This option traces the contents of the extended buffer list (XBUFLST). Records are produced to trace these contents from the application-supplied extended buffer list and the internal buffer list that VTAM uses to carry the extended buffer list information. These records store relevant information contained with the extended buffer list, particularly information about CSM usage by VTAM.
XCF option (for VTAM use of the cross-system coupling facility)	Specify this option to track VTAM use of the XCF (cross-system coupling facility) MVS macro interface. Each VTAM use of an XCF macro has a VIT entry.
XCFOPTS option	This option is a collection of multiple VIT options that includes all of the individual VIT options required to diagnose cross-system coupling facility (XCF) problems. Specifying the XCFOPTS option is equivalent to specifying all the following VIT options: CIA, CIO, HPR, MSG, NRM, PIU, PSS, SMS, SSCP, and XCF.

The VIT always traces the exception conditions listed in Table 2 and all the default VIT options listed under "Activating the VIT" on page 11.

Table 2. Exception conditions always traced by the VIT

Option	Exception conditions traced
APPC	• ACA and ACI entries when following commands are issued: – SEND ERROR – DEALLOC ABNDxxxx – REJECT • ACRC and ACSN entries • Other entries with nonzero return codes (except RPL6RCSC)
CFS	Entries with nonzero return codes
CIO	INOP entry

Table 2. Exception conditions always traced by the VIT (continued)

Option	Exception conditions traced
CMIP option	The following entries, when they have nonzero return codes: • MCO1 and MCO2 • MDEL • MDIS • MQRQ • MQRS • MREG • RQE
LCS	LCSL, LCSP, LCSS, and LCSX entries with nonzero reason codes
NRM	CDHF or CDNF entries with nonzero return codes
SMS	Entries with nonzero return codes and EXPN entries if a buffer pool expansion fails
SSCP	CPI, CPO, and CP2
(No option)	All SNAP entries and some exception entries[1].

Note:

1. The **** (FFST and PFFST), ABND, BUFF, COPY, CMER, CME2, INOP, LOST, MMG, and MM2 trace records are not activated by specific VIT options. They are activated as a result of exception conditions.

Table 3 on page 18 and Table 4 on page 19 list the VIT options and the records that they create. For more information, see the list of notes after Table 4 on page 19.

Table 3. VIT options and the records they create (API - LOCK)

VIT options	API	APPC	CFS	CIA	CIO	CMIP	CSM	ESC	HPR	LCS	LOCK
VIT records								ESC		LCSx	
	AIx	ACAx	CFAx	CCR	ADE	MCO1	ASNx		ARB		LKEX
	IOx	ACIx	CFCx	CDSQ	ATT	MCO2	CHGx		ARBB		LKSH
	RE	ACPx	CFDx	C64Q	ERPx	MDEL	CNTP		ARBR		ULKA
	UEx	ACRx	CFEx	DEVx	HIOx	MDIS	CPYx		ARPx		UNLK
	UP	ACSN	CFFC	DRBx	INTx	MQRQ	EXPP		ARQx		
		ACUx	CFLx	ENFx	PCIT	MQRS	FIXx		ARSx		
		MUx	CFNF	GCEL	PCIX	MREG	FRBx		DAPT		
		RACR	CFPx	GCEx	RDVX	MRGx	GTBx		DRPx		
		REML	CFRB	HCRx	RIOx	RQE	PAGx		HCLK		
		REMQ	CFTx	IDx	SIOx				HPRx		
		USx	CFUS	IOSx					HPRT		
		UVx	CFVC	IUTx					NLPx		
			MNPS	LNKx					ONLP		
				LSNx					OOSx		
				MPDx					RCM		
				ODPx					RCV		
				ODTx					REML		
				PCID					RSCx		
				PKx					RTP		
				PLOQ					RTPx		
				P64Q					RTSx		
				QAPL					RVM		
				QDIP					RXMT		
				QSRx							
				RCPI							
				RCPO							
				RPLx							
				RPST							
				RSLK							
				SBAx							
				SIGA							
				SLSx							
				TOKx							
				VHCR							
				XIDx							

Table 4. VIT options and the records they create (MSG - XCF)

VIT options	MSG	NRM	PIU	PSS	SMS	SSCP	TCP	VCNS	XBUF	XCF
VIT records	MSGx OPEx QRYL TRNx	BSPx BSSx BSXx CDHx CDNx NIPx PROx RCEx SRTx	DCOx DSCx NRSx PIUx RDSx TSNS	ATSK BTSK DSP DTSK ETSK EXIT IRBx POST QUEx RESM SCHD SRBx VPST VRSM VWAI WAIT XPST	AREL CONT EXPN FBLx FRES GBLx GETS ORMG POOF QREx RAPx RELS REQx VTAL VTFR	AFSM ALSx AP A2 CCx CIx COx CPI CPO CP2 CPPx CPRx CPWx CRx CSx DBx DLTx ENR GNAx HLSx LDLx MT SPTx TGMx TGVx TOPx TPN2 TPTx TREx TRMx TRRx	IPAD IPGN IPG2 IPG3 IPOG IPO2 IPTC IPTM	CNA CNPx CNRx NSD VCCx VCDQ	XBAx XBIx	XCC2 XCFC XCFJ XCFL XCFM XCFR XCFS XCFX XCJ2 XCL2 XCM2 XCR2 XCS2

Note:

1. The **** (FFST and PFFST), ABND, BUFF, COPY, CMER, CME2, INOP, LOST, MMG, and MM2 trace records are not activated by specific VIT options. They are activated as a result of exception conditions.
2.
   - For CIO record types ATT, ERP, HIO, INT, SIO, with suffix I, X, or T, and INOP, the events are also captured in the NCB (pointed to by NCBCIOMV). The NCB trace table is mapped by NCBCIOAR.
   - For CIA record types INOP, RCPx, RPLx and RPST, the events are also captured in the RUNCB (pointed to by NCBCIOMV).
   - For CIA record type PCIR, the events are also captured in the SRNCB (pointed to by NCBCIOMV).
3. OON and OOX can be generated when the module trace is running.
4. For the IRBx and the SRBx records to be recorded, both the PSS trace option and the PSSTRACE start options must be specified.
5. For APPC record types REMQ and ACSN, the events are also captured in the ISTRAB.
6. Some trace records are generated only when a subtrace is active. These trace records are the HPR option record types ARBB, ARBR, the CIA option record types QAPL, QDIP, QSRx, RSLK, and the SSCP option record types HLSx,

TGVx, TRMx, and TRRx. For more information about subtraces, see z/OS Communications Server: SNA Operation.

Table 5 lists the VIT group options and the individual VIT options that are equivalent for each group option.

Table 5. VIT group options

VIT group option	Equivalent to this set of individual VIT options
APIOPTS	API, MSG, NRM, PIU, PSS, SMS, SSCP
APPCOPTS	API, APPC, MSG, NRM, PIU, PSS, SMS, SSCP
CPCPOPTS	API, APPC, MSG, NRM, PIU, PSS, SMS, SSCP
CSMOPTS	API, APPC, CIO, CSM, MSG, NRM, PIU, PSS, SMS, SSCP, XBUF
DLUROPTS	API, APPC, HPR, MSG, NRM, PIU, PSS, SMS, SSCP
EEOPTS	CIA, CIO, HPR, MSG, NRM, PIU, PSS, SMS, SSCP, TCP
HPDTOPTS	CIA, CIO, HPR, MSG, PIU, PSS, SMS, SSCP
HPROPTS	API, APPC, CIA, CIO, HPR, MSG, NRM, PIU, PSS, SMS, SSCP
LCSOPTS	CIO, LCS, MSG, NRM, PIU, PSS, SMS, SSCP
QDIOOPTS	CIA, CIO, HPR, MSG, NRM, PIU, PSS, SMS, SSCP
STDOPTS	API, CIO, MSG, NRM, PIU, PSS, SMS, SSCP
TCPOPTS	CIA, CIO, MSG, NRM, PIU, PSS, SMS, SSCP, TCP
XCFOPTS	CIA, CIO, HPR, MSG, NRM, PIU, PSS, SMS, SSCP, XCF

Internal and external trace recording for the VIT

VTAM can write the VIT trace data to an internal table or to an external device, such as a disk or tape.

You can use the MODE operand to choose internal or external trace recording. The MODE operand is available in both the TRACE start option and the MODIFY TRACE command.

- "Recording traces in an internal 64-bit common table"
- "Recording traces in an external file" on page 21

You can record data externally and internally at the same time. If it is necessary, you can have different sets of trace options active for each mode.

The default trace options (API, CIO, MSG, NRM, PIU, PSS, SMS, and SSCP) are always recorded internally; however, PSS and SMS can be turned off.

Recording traces in an internal 64-bit common table

To record traces in an internal 64-bit common (HCOMMON) table, which is allocated and initialized in 64-bit common storage, specify the following operands:

MODE=INT
Specifies that record traces should be recorded in an internal table. The default value of MODE is INT.

Note: You can set this operand either in the MODIFY TRACE command or as a TRACE start option.

SIZE Specifies the number of megabytes (4M - 2048M) in storage to be allocated

for the internal trace table. If you omit this option, the default value is 4. If there is not enough storage available for the number of megabytes specified, you will receive a message indicating that internal trace activation failed.

You can change the size of the internal trace table by issuing a MODIFY TRACE command with a new SIZE operand. However, if you change the table size while the VIT is running, the current internal trace table is freed, and VTAM starts a new one. The trace information in the current table will be lost.

Example

Figure 5 shows an example of VIT records written with MODE=INT and printed in dump output. Six of the eight default trace options (API, CIO, MSG, NRM, PIU, and SSCP) are always active.

```
E2C3C8C4 14202810 06308E88 00C17248  8652D180 00000000 C9D5E3D4 00000000  *  SCHD.......h.A..f.J.....INTM....  *
E2D9C2C4 14000000 06308E88 80000000  00000000 00000000 007FF158 00800000  *  SRBD.......h.............."1.....  *
E2D9C2E7 14000000 06308E88 00000000  00000000 00EBDE80 00EBDE80 824C4B82  *  SRBX.......h.................b<.b  *
C9D9C2C4 14000000 06308E88 80000000  00C17248 007DDB18 007FF158 00800000  *  IRBD.......h.....A...'..."1.....  *
D9C5D8E2 14170000 06308E88 06324810  81C23E1A 00010000 06300DA0 00000000  *  REQS.......h....aB..............  *
C4E2D740 1400A810 06308E88 00C17248  00000000 00000000 C9D5E3D4 06324810  *  DSP ..y....h.A..........INTM....  *
C3C3C900 14588000 06324A20 00000000  8652D13A 00000000 58588000 00000000  *  CCI.......+.....f.J.............  *
D8E4C558 14482410 06308E88 00C17908  824EAA8C 0651C928 E3E2E6E4 06324810  *  QUE........h.A..b+....I.TSWU....  *
C5E7C9E3 14000010 06308E88 00C17248  8652CF74 80000000 C9D5E3D4 06324810  *  EXIT.......h.A..f.......INTM....  *
D9C5D3E2 14170000 06308E88 06324810  81C23E92 00000000 06300DA0 00000000  *  RELS.......h....aB.k............  *
C4E2D740 14582410 06308E88 00C17908  0651C928 0651C928 E3E2E6E4 0631D810  *  DSP .......h.A....I...I.TSWU..Q.  *
D8E4C558 14482810 06308E88 00C17248  86615658 0651C928 C9D5E3D4 0631D810  *  QUE........h.A..f/....I.INTM..Q.  *
C5E7C9E3 14000010 06308E88 00C17908  86615708 80000000 E3E2E6E4 0631D810  *  EXIT.......h.A..f/......TSWU..Q.  *
D9C5D8E2 14170000 06308E88 06324810  81C23E1A 00010000 06300DA0 00000000  *  REQS.......h....aB..............  *
C4E2D740 14582810 06308E88 00C17248  0651C928 0651C928 C9D5E3D4 06324810  *  DSP .......h.A....I...I.INTM....  *
C5E7C9E3 14000010 06308E88 00C17248  8652CF74 80000000 C9D5E3D4 06324810  *  EXIT.......h.A..f.......INTM....  *
```

Figure 5. Unformatted VIT records in dump output (MODE=INT)

The start of the internal trace table is the header. (The header is not included in the this example.) The header contains the following status information:

Byte (hex)
Contents

00–03 Eyecatcher (C'VITH')

04–0F Reserved

10–17 Control area

18–1F Reserved

20-27 Present wraparound time stamp

28-2F Last wraparound time stamp

30-37 Address of the most recent entry in the table

38-3F Address of the last entry in the table

See “Extracting VIT information from a dump” on page 24 for the information about how to analyze dumps.

Recording traces in an external file

To record traces in an external file, specify MODE=EXT in the MODIFY TRACE command or as a TRACE start option.

Note: When you specify MODE=EXT, information for the default options is still written to the internal trace table.

Use external mode when you must collect large amounts of trace data, to lessen the chance of wraparound and lost data. However, unless you are using a tape, the trace data can still fill the external DASD or data file and begin overwriting itself if you do not ensure that the external trace file is large enough.

VTAM allocates from common storage area (CSA) the number of 8-K VIT buffers specified on the command or start option. The default value is 2. VTAM now accumulates the VIT records in one of these buffers. When a process has insufficient room in the current buffer, the process writes the entire 8-K buffer to an external trace file using the generalized trace facility (GTF). After the buffer has been written, the process tries again to put its VIT records into the current buffer. If another process finds that there is no current buffer (because of another process writing it to GTF), the process tries to use one of the preallocated buffers. If no other buffers are available, either because they are all in the process of being written to GTF or because BFRNUM=0 was specified, VTAM writes the individual records to the external trace file.

Avoid using BFRNUM=0 because writing to the external trace file involves large system overhead. Also, allot enough 8K buffers to prevent individual records from being written to the external trace file. Depending on the situation, VTAM might write the 8K buffers to the external trace file out of order.

The external trace file contains the same information as the internal trace table, except it does not contain the first-line header record and the BUFF VIT record. The BUFF VIT record is the first VIT record in the 8K buffer. This record contains the buffer sequence number, which you can use to determine whether the 8K buffers were all written in the correct sequence.

The external trace file is produced by GTF, and the default file name is SYS1.TRACE. You can print the internal trace data with IPCS or TAP. If you use IPCS to print the data, specify the GTFTRACE option, and set USR(FE1). See "Formatting and printing trace records" in z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures for information about using TAP and IPCS to print output.

Recording SNAP traces

You can use the VIT to record 32, 64, 96, or 128 bytes of user-generated information in an SNAP trace. An SNAP trace places additional information into a VTAM module that might be useful when you are resolving a VTAM problem. The VIT traces the specified bytes and enters the data as an SNAP trace entry in the internal trace table or in the external trace file.

You do not specify the SNAP trace as an option of the MODIFY command. Instead, follow these steps to write your code:

1. Verify that the pointer to the ATCVT (ATCLCPTR) is not 0. ATCLCPTR is at low-storage location X'408'.
2. Verify that ATCRACTR is not 0.
3. Call the internal trace recording routine (ISTRACTR) in a VTAM module. Field ATCRACTR in the ATCVT points to the trace recording routine. For the hex offset, see z/OS Communications Server: SNA Data Areas Volume 1.

Note: You cannot record SNAP during the early stages of VTAM initialization, nor can you record them during the late stages of termination.

The SNAP trace requires the following information in registers 1, 14, and 15 on entry to the trace routine:

Register 1
Points to the 32, 64, 96, or 128 bytes to be recorded.

Register 14
Points to a 2–byte input flag field containing:

- hex 141C for a 32-byte SNAP entry
- hex 142C for a 64-byte SNAP entry
- hex 143C for a 96-byte SNAP entry
- hex 144C for a 128-byte SNAP entry

These flags tell the trace recording routine to record an SNAP trace.

Two bytes past the address in register 14
The address to be returned to after recording an SNAP trace.

Register 15
Points to the SNAP trace recording routine (ISTRACTR).

When the trace recording routine returns control to the calling module, the contents of registers 6 and 7 are unpredictable. The contents of the other registers are not changed.

The SNAP trace record is unformatted. You should format the first 4 bytes of the SNAP record for a 1- to 4-character EBCDIC record identifier (for example, C"ABCD").

Guidelines:

1. The 1- to 4-character EBCDIC record identifier should not match any existing VIT record identifier.
2. For the VIT snap entry to be used by the VIT analysis tool, the VIT entry name must be the first 2 to 4 characters of the VIT entry.

Deactivating the VIT

To deactivate specific VIT options, use the corresponding commands that are listed in Table 6.

Table 6. Deactivating the VIT

To deactivate these user-selected options:	**Specify:**
Specific options	MODIFY NOTRACE,TYPE=VTAM,OPTION=*options*
VIT group options	MODIFY NOTRACE,TYPE=VTAM,OPTION=*group_option* All the individual VIT options encompassed by each group option specified by the *group_option* value are deactivated. Internal tracing continues for the default options that cannot be deactivated. Tracing also continues for exception records. For example, issuing a MODIFY NOTRACE,TYPE=VTAM,OPTION=EEOPTS command results in the deactivation of these options: CIA, CIO, HPR, MSG, NRM, PIU, PSS, SSCP, SMS, and TCP. But CIO, MSG, NRM, PIU, and SSCP option data continues to be traced internally (PSS and SMS option data is not traced internally).

Table 6. Deactivating the VIT (continued)

To deactivate these user-selected options:	Specify:
Subtrace options	MODIFY NOTRACE,TYPE=VTAM,SUBTRACE=*subtrace_option*, OPTION=*vit_option* or MODIFY NOTRACE,TYPE=VTAM,SUBTRACE=*subtrace_option*, OPTION=(..,*vit_option*,..) The subtrace option specified by the *subtrace_option* value is deactivated. The option specified by the *vit_option* value must relate to the *subtrace_option* value in one of the following ways: • If you specify SUBTRACE=ARBP, the *vit_option* value must be HPR or one of the group options that include HPR as an individual option equivalent: DLUROPTS, EEOPTS, HPDTOPTS, HPROPTS, QDIOOPTS, or XCFOPTS. • If you specify SUBTRACE=DIO, the *vit_option* value must be CIA or one of the group options that include CIA as an individual option equivalent: EEOPTS, HPDTOPTS, HPROPTS, QDIOOPTS, TCPOPTS, or XCFOPTS. • If you specify SUBTRACE=TGVC or SUBTRACE=TREE, the *vit_option* value must be SSCP or one of the group options (all of which include SSCP as an individual option equivalent): APIOPTS, APPCOPTS, CPCPOPTS, CSMOPTS, DLUROPTS, EEOPTS, HPDTOPTS, HPROPTS, LCSOPTS, QDIOOPTS, STDOPTS, TCPOPTS, or XCFOPTS.
Internal only	• MODIFY NOTRACE,TYPE=VTAM,OPTION=END or MODIFY NOTRACE,TYPE=VTAM,OPTION=END,MODE=INT The internal trace table is reallocated to 4 megabytes for the default options. • MODIFY NOTRACE,TYPE=VTAM,OPTION=ALL,MODE=INT The existing internal trace table is used for the default options. • MODIFY NOTRACE,TYPE=VTAM,MODE=INT External tracing record is stopped.
External only	• MODIFY NOTRACE,TYPE=VTAM,OPTION=END,MODE=EXT or MODIFY NOTRACE,TYPE=VTAM,OPTION=ALL,MODE=EXT • MODIFY NOTRACE,TYPE=VTAM,MODE=EXT External trace recording is stopped and all 8 K buffers are freed.
Both internal and external	• MODIFY NOTRACE,TYPE=VTAM,OPTION=ALL The existing internal trace table is used for the default options.
Notes: 1. Exceptions and default options continue to be recorded internally. 2. If you attempt to stop the VIT using MODIFY NOTRACE, OPTION=END, and the VIT does not stop, specify MODIFY NOTRACE,OPTION=FORCE to stop the VIT.	

Extracting VIT information from a dump

Use one of the following methods to analyze dumps.

- Use the dump analysis tools for the VIT:

  VITAL
  Extracts an internal VIT from a dump for use with the VIT analysis tool.

  VTBASIC
  Displays the VIT table.

  VTVIT
  Displays the VIT options that were in effect at the time of the dump and whether the trace was running internally, externally, or both.

See “Using VTAM dump analysis tools” in z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures for more information about the VTAM dump analysis tools.

- Use this procedure:
  1. Examine the internal trace table by taking a dump of VTAM with the appropriate storage area.
  2. Find the internal trace table in the dump by first locating the ATCVT.
     - If low-storage location X'408' is available in the dump, the pointer to the ATCVT (ATCLCPTR) is at this low-storage location.
     - If low-storage location X'408' is not available in the dump, use the pointer in the MVS CVT control block extension (CVTATCVT) to find the VTAM control block AVT. Location hex 00 in the AVT points to the ATCVT.
  3. In the ATCVT, field ATCITTBL contains a 64-bit pointer to the trace table. ATCITTBL is located at offset X'8'. The internal trace table contains a 64-byte header followed by 32-byte trace records.

Using module names to isolate VTAM problems

Many VIT records include the associated module names in EBCDIC, without the IST prefix. For some types of trace records, the sixth letter is also omitted. For example, TSSR is the name of the VIT records for module ISTTSCSR.

You can also determine module names from the ISSR field in some VIT records. If you have a dump, you can find the address in the VTAM module list.

The following names are exceptions to the naming convention:

CPSS Session Services for CP-CP Sessions PAB

DIIO Disk I/O PAB

DSME
Directory services management exit PAB

DSVC Directory Services PAB

LUSS Session Services for LU-LU Sessions PAB

MSTI MST Multiple Domain Server Router PAB

MSTR MST Multiple Domain Server Router PAB

TRS Topology Routing Services PAB

XPRT Transaction Program PAB

VTAM component IDs are listed in Table 7.

Table 7. VTAM component IDs

ID	Acronym	Component name
@@		All or multiple components
AC	CONFIG	Activation
AD	APUNS	Adjacent PU network services
AI	API	Application programming interface
AM	ADDR-MGT	Address management

Table 7. VTAM component IDs (continued)

ID	Acronym	Component name
AP	PSS	Process scheduling services
AS	APPC-SVC	APPC services
AT	APPNTGMT	APPN transmission group management
BS	BFSS	Boundary function session services
CD	CDRM	Cross domain resource manager
CF	CFS	Coupling facility services
CI	OCI	Operator command interface
CM	CMIP	Common Management Information Protocol
CN	CNS	Common network services
CO	COPR	Control operator
CP	SSCP	System services control program functions
CS	CONFGSVC	Configuration services
DE	CONFIG	Deactivation
DL	DLUS	Dependent LU server
DP	DATACOMP	Data compression
DR	DS	Directory services
DS	DSS	Data space services
EN	ENVIRO	VTAM environment
EV	ERVR-MGR	Explicit route virtual route (ER/VR) manager
FD	FMT-DMP	Formatted dump
FS	CFS	Coupling facility services
FU	FUNCTION	SSCP functions
GN	SYSGEN	System generation
HS	HS	Half-session
IE	IEF	Inline exit facility
IM	INT-MAP	Internal mappings
IN	INIT/TRM	VTAM initialization/ termination
IP	SNAIP	IP network access
IT	VIT	VTAM internal trace
IX	INT-MAC	Internal macroinstructions
LL	LLC	Logical link control
LM	TPFLOGON	Transaction processing facility (TPF) logon manager
LR	DLR	Dump/Load/Restart
LS	LSA	Link services architecture

Table 7. VTAM component IDs (continued)

ID	Acronym	Component name
LU	LUS	Logical unit services
MA	MAINT-SV	Maintenance services
MG	MGMTSVC	Maintenance services
MS	MGS	Messages
MT	MST	Management services transport
NA	NAM	Network address management
ND	NLDM	Network logical data manager
NO	NOS	Network operator services
NR	NRM	Network resource management
NS	LNS	LU network services
OC	O/C	Open/Close ACB
OI	OSI-RPI	VTAM OSI RPI
OR	SMS	Storage management services
PS	PS	Presentation services
PU	PUNS	Physical unit services
PV	PVI	Primitive VTAM interface
RA	TRACE	Trace services
RM	LRM	LU resources manager
RV	RVM	MNPS recovery manager
SA	SYS-ATTC	System attach
SC	SSC	Session services CP-CP
SD	SYSDEF	System definition
SL	SSL	Session services LU-LU
SR	SMC-R	Shared Memory Communication over RDMA
SS	SSCPSS	Session services
TA	TACMIP	Topology Agent
TB	TSC-BSC	TSC Binary Synchronous Communication
TC	TCP-DLC	Data Link Control for TCP
TD	TSC-DLC	TSC-DLC
TL	TSC-LAN	Token Ring Local Area Network
TO	TSO/VTAM	TSO/VTAM
TR	TRS	Topology routing services
TS	TSC	Transmission subsystem
TX	TSX-X25	X.25
US	USS	Unformatted session services

Table 7. VTAM component IDs (continued)

ID	Acronym	Component name
VI	VIO	VSAM I/O
VX	VSAMMACS	VSAM user macroinstructions
XP	TPS	Transaction program services
62	APPC	APPC LU6.2

Appendix A. VTAM internal trace (VIT) record descriptions

This appendix contains the VTAM internal trace (VIT) record descriptions. The entries are listed alphabetically by entry name.

For more information about VIT options, see "Trace options for the VIT" on page 12.

**** Entry for SDUMP taken for CSDUMP request

Entry: **** (CSDUMP)

VIT option:
None (Generated by VTAM)

Event: ISTRACSW disabled VIT to issue SDUMPX request for CSDUMP command.

VIT processing module:
ISTRACTR (SNAP trace recording routine)

Control is returned to:
ISTRACSW

The **** (CSDUMP) trace record is written when VTAM disables the VTAM internal trace (VIT) to take dump for CSDUMP request.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
****				SDUMP TAKEN FOR CSDUMP REQ																											

Byte (hex)
Contents

00–03 Record ID: C"****"

04–1F SDUMP TAKEN FOR CSDUMP REQ

**** Entry for VTAM CSDUMP trigger

Entry: **** (CSDUMP)

VIT option:
None

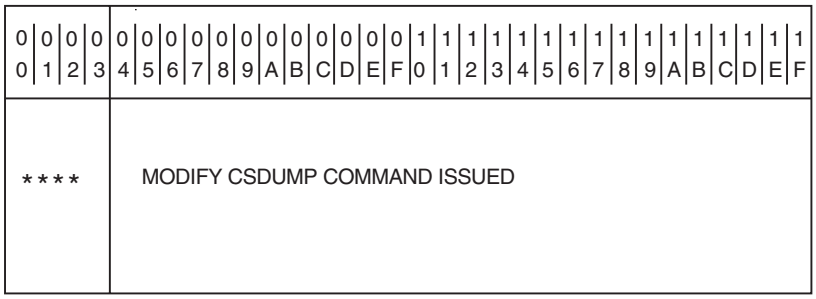
Event: CSDUMP trigger set by one of the following items:

- Modify CSDUMP command message, sense, or default dump trigger.
- CSDUMP start option message or sense trigger.

VIT processing module:
ISTRACSW

Control is returned to:
Caller of ISTRACSW

These trace records are issued when a CSDUMP triggers a dump.



00 01 02 03	04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
****	MODIFY CSDUMP COMMAND ISSUED

Byte (hex)
Contents

00–03 Record ID: C"****"

04 Blank

05-0B Triggers:
- DEFAULT - Default CSDUMP
- MSG - Message trigger CSDUMP
- SENSE - Sense trigger CSDUMP

0C-1F CSDUMP INVOKED

**** Entry for VTAM CSDUMP trigger (continuation)

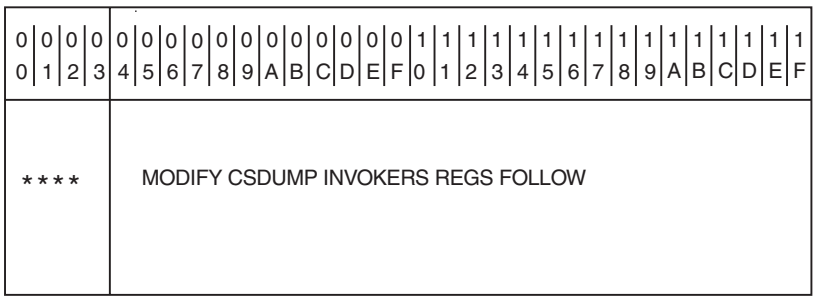
Entry: **** (CSDUMP)

VIT option:
None

Event: Continuation

These records are a continuation of the CSDUMP trace record. These records display the General register content.

Start record:



00 01 02 03	04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
****	MODIFY CSDUMP INVOKERS REGS FOLLOW

Byte (hex)
Contents

00–03 Record ID: C"****"

04 Blank

05-1F CSDUMP INVOKERS REGS FOLLOW

First register group record:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
****				R14				R0				R1				R2				R3				R4				R5			

Byte (hex)
Contents

00–03 Record ID: C"****"

04–07 Contents of register R14

08–0B Contents of register R0

0C–0F Contents of register R1

10–13 Contents of register R2

14–17 Contents of register R3

18–1B Contents of register R4

1C–1F Contents of register R5

Second register group record:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
****				R6				R7				R8				R9				R10				R11				R12			

Byte (hex)
Contents

00–03 Record ID: C"****"

04–07 Contents of register R6

08–0B Contents of register R7

0C–0F Contents of register R8

10–13 Contents of register R9

14–17 Contents of register R10

18–1B Contents of register R11

1C–1F Contents of register R12

End record:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
****				END CSDUMP INVOKERS REGS																											

Byte (hex)
Contents

00–03 Record ID: C"****"

04 Blank

05-1F END CSDUMP INVOKERS REGS

**** Entry for VTAM ISTORFBA DUMP

Entry: ** (ISTORFBA)**

VIT option:
None (Generated by VTAM)

Event: ISTORFBA detected the available buffer count in the BPCB or PXB is incorrect. The registers are included in the VIT and a dump is taken.

VIT processing module:
ISTRACTR (SNAP Trace recording routine)

Control is returned to:
ISTORFBA

These trace records are issued with SNAP trace entries when ISTORFBA detects the available buffer count in the BPCB or PXB incorrect.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
****				ISTORFBA DUMP INVOKED																											

Byte (hex)
Contents

00–03 Record ID: C"****"

04–1F ISTORFBA DUMP invoked

**** Entry for VTAM ISTORFBA DUMP (continuation)

Entry: ** (ISTORFBA)**

VIT option:
None (Generated by VTAM)

Event: Continuation

These records are a continuation of the ISTORFBA DUMP trace record. These records display the General register content.

Start record:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
****	ISTORFBA REGS FOLLOW																														

Byte (hex)
Contents

00–03 Record ID: C"****"

04–1F Start delimiter

First register group record:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
****	R14							R0				R1				R2				R3				R4				R5			

Byte (hex)
Contents

00–03 Record ID: C"****"

04–07 Contents of register R14

08–0B Contents of register R0

0C–0F Contents of register R1

10–13 Contents of register R2 Save area register 13

14–17 Contents of register R3

18–1B Contents of register R4

1C–1F Contents of register R5

Second register group record:

00 01 02 03	04 05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
****	R6	R7	R8	R9	R10	R11	R12

Byte (hex)
Contents

00–03 Record ID: C"****"

04–07 Contents of register R6

08–0B Contents of register R7

0C–0F Contents of register R8

10–13 Contents of register R9 BPCB or PXB pointer with wrong available buffer count

14–17 Contents of register R10

18–1B Contents of register R11

1C–1F Contents of register R12

End record:

00 01 02 03	04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
****	END ISTORFBA REGS

Byte (hex)
Contents

00–03 Record ID: C"****"

04–1F End delimiter

**** Entry for VTAM FFST

Entry: ** (FFST)**

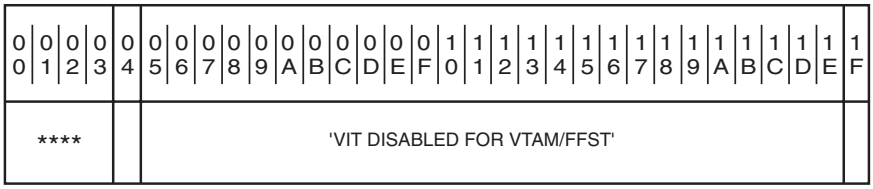
VIT option:
None (Generated by VTAM)

Event: VTAM probe triggered

VIT processing module:
ISTRACTR (SNAP trace recording routine)

Control is returned to:
ISTRACZE

The **** (FFST) trace record is written when VTAM disables the VTAM internal trace (VIT) to collect information for a probe that has been triggered. This entry is not associated with any VIT options but is recorded when an unusual condition triggers a probe instruction.



Byte (hex)
Contents

00–03 Record ID: C"****"

04 Blank

05–1E C"VIT DISABLED FOR VTAM/FFST"

1F Blank

**** Entry for VTAM Phantom FFST

Entry: **** (Phantom FFST)**

VIT option:
None

Event: FFST IPROBE trip in programming product

VIT processing module:

- VTAM — ISTRAZPF
- CSM — IVTSMZPF

Control is returned to:
Module that issued the IPROBE macro.

These trace records are issued when an IPROBE is tripped, and First Failure Support Technology (FFST) is not active.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
****	PFFST INVOKED FOR probe name																														

Byte (hex)
Contents

00–03 Record ID: C"****"

04–1F Probe name in first record identifies what product. For example:

- ISTxxxxx is for VTAM
- IVTxxxxx is for CSM

**** Entry for VTAM Phantom FFST (continuation)

Entry: **** (Phantom FFST)

VIT option:
None

Event: Continuation

These records are a continuation of the PFFST trace record. These records display the General register content of the module that attempted the IPROBE (general registers R14, R0 through R12, followed by a delimiter record).

Start record:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
****	PFFST INVOKER REGS FOLLOW																														

Byte (hex)
Contents

00–03 Record ID: C"****"

04–1F Start delimiter

First register group record:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
****				R14				R0				R1				R2				R3				R4				R5			

Byte (hex)
Contents

00–03 Record ID: C"****"

04–07 Contents of register R14

08–0B Contents of register R0

0C–0F Contents of register R1

10–13 Contents of register R2

14–17 Contents of register R3

18–1B Contents of register R4

1C–1F Contents of register R5

Second register group record:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
****				R6				R7				R8				R9				R10				R11				R12			

Byte (hex)
Contents

00–03 Record ID: C"****"

04–07 Contents of register R6

08–0B Contents of register R7

0C–0F Contents of register R8

10–13 Contents of register R9

14–17 Contents of register R10

18–1B Contents of register R11

1C–1F Contents of register R12

End record:

00 01 02 03	04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
****	END PFFST INVOKERS REGS

Byte (hex)
Contents

00–03 Record ID: C"****"

04–1F End delimiter

ATCPFSAV, located in the ATCVT control block, contains the callers Register 13. This pointer field can be located in the PFFST dump.

ABND entry for abend SNAP routine

Entry: ABND

VIT option:
None (Generated by SNAP routine)

Event: Abend

VIT processing module:
ISTRACTR (SNAP trace recording routine)

Control is returned to:
VTAM abend recovery routine (many possible)

This trace record is written when an abend occurs in a VTAM module. This entry is not associated with any VIT options but is recorded as an exception condition when an abend occurs.

00 01 02 03	04 05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B 1C 1D 1E 1F
ABND	ABEND CODE	PST ADDRESS OR 0	RPH ADDRESS OR 0	SDWA ADDRESS OR 0	SDWA FLAGS OR 0	ABEND PSW OR 0

Byte (hex)
Contents

00–03 Record ID: C"ABND"

04–07 Abend completion code

08–0B PST address or 0

0C–0F Request parameter header (RPH) address or 0

10–13 SDWA address or 0

14–17 SDWA flags or 0

18–1F Abend PSW or 0

ACA1 or ACI1 entry for LU 6.2 authorized IO or LU 6.2 TPIO (Part 1)

Entry: ACA1 or ACI1

VIT option:
APPC

Event: LU 6.2 authorized IO or LU 6.2 TPIO (Part 1)

VIT processing module:
ISTRACAC

Control is returned to:
ISTAICAR

The ACA1 trace record shows LU 6.2 requests under the authorized path or LU 6.2 requests not under the authorized path but issued by programs running under an authorized key. The ACI1 trace record shows LU 6.2 requests running under a normal path.

00 01 02 03	04	05	06	07	08 09 0A 0B	0C	0D	0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
ACA1 OR ACI1	ID	EXTDS	OPT1	OPT6	RPL ADDRESS	CNTRL	QUAL	BUFL	RPL AREA	APPCCMD FLAGS OR 0	USR FLD, CID, CONVID, OR 0	SENSE DATA OR 0

Byte (hex)
Contents

00–03 Record ID:
- C"ACA1" for authorized path
- C"ACI1" for normal path

04 ID is the primary address space ID (ASID). This field is 0 if the ID is greater than X'FF'.

05 Exit definition (RPLEXTDS)

06 Option code byte 1 (RPLOPT1)

07 Option code byte 6 (RPLOPT6)

Contains the RPLXBFL flag (bit 5) that indicates whether the application is requesting HPDT services.

08–0B RPL address

0C APPCCMD CONTROL operand value:

- **X'10'** ALLOC
- **X'11'** PREALLOC
- **X'12'** SENDFMH5
- **X'20'** RESETRCV
- **X'30'** DEALLOC
- **X'31'** DEALLOCQ
- **X'40'** OPRCNTL
- **X'50'** PREPRCV
- **X'60'** RCVFMH5
- **X'70'** RECEIVE
- **X'71'** RCVEXPD
- **X'80'** REJECT
- **X'90'** SEND
- **X'91'** SENDEXPD
- **X'92'** SENDRCV
- **X'A0'** SETSESS
- **X'B0'** TESTSTAT

0D APPCCMD QUALIFY operand value:

- **X'00'** NULL
- **X'01'** ABNDPROG
- **X'02'** ABNDSERV
- **X'03'** ABNDTIME
- **X'04'** ABNDUSER
- **X'05'** ANY
- **X'06'** CNOS
- **X'07'** CONFIRM
- **X'08'** CONFRMD
- **X'09'** DATA
- **X'0A'** DATACON
- **X'0B'** DATAFLU
- **X'0C'** DEFINE
- **X'0D'** DISPLAY
- **X'0E'** ERROR
- **X'0F'** FLUSH

X'10' RQSEND

X'11' SPEC

X'12' ACTSESS

X'13' DACTSESS

X'14' ALLOCD

X'15' IMMED

X'16' CONWIN

X'17' SESSION

X'18' CONV

X'19' SUSPEND

X'1A' RESUME

X'1B' RESTORE

X'1C' SYNCBEG

X'1D' SYNCEND

X'1E' CONVGRP

X'1F' WHENFREE

X'20' IANY

X'21' ISPEC

X'22' ALL

X'23' IALL

X'24' QUEUE

X'25' DATAQUE

0E–0F User buffer length (RPLBUFL) for receive RPL or 0

10–13 Address of SEND data or RECEIVE buffer

If HPDT services are requested, the RPL area contains the extended buffer list area. The contents are recorded in the XBA1, XBA2, and XBA3 entries.

14–17 APPCCMD flags (RPL6FLGS) or 0

18–1B User field for LU 6.2 commands when CONTROL equals ALLOC, PREALLOC, or RCVFMH5. CID for LU 6.2 commands when CONTROL equals OPRCNTL, and QUALIFY equals either ACTSESS or DACTSESS. 0 for LU 6.2 commands for which one of the following conditions is true:

- CONTROL equals OPRCNTL, and QUALIFY equals either CNOS, DEFINE, or DISPLAY.
- CONTROL equals RECEIVE or RCVDEXPD, and QUALIFY equals ANY or IANY.
- CONTROL equals REJECT, and QUALIFY equals SESSION or CONVGRP.
- CONTROL equals SETSESS, and QUALIFY equals RESUME.

Conversation ID for all other LU 6.2 commands

1C–1F Sense data (RPL6SNSO) or 0

ACA2 or ACI2 entry for LU 6.2 authorized IO or LU 6.2 TPIO (Part 2)

Entry: ACA2 or ACI2

VIT option:
APPC

Event: LU 6.2 authorized IO or LU 6.2 TPIO (Part 2)

VIT processing module:
ISTRACAC

The ACA2 trace record is a continuation of ACA1. The ACI2 trace record is a continuation of ACI1.

00 01 02 03	04 05 06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B 1C 1D 1E 1F
ACA2 OR ACI2	RETURN ADDRESS	SEE DESCRIPTION	LOCAL LU NAME, 0, OR BLANKS	PARTNER LU NAME, 0, OR BLANKS

Byte (hex)
Contents

00–03 Record ID:

- C"ACA2" for continuation of ACA1
- C"ACI2" for continuation of ACI1

04–07 Address of the issuer of the APPCCMD macroinstruction

08–0F

- When CONTROL=ALLOC, PREALLOC, or REJECT, and QUALIFY=CONVGRP, then 08–0B is the conversion group ID (CGID), and 0C–0F is 0.
- When CONTROL equals ALLOC or PREALLOC (except when QUALIFY equals CONVGRP) or when CONTROL equals OPRCNTL, and QUALIFY equals either CNOS, DEFINE, or DISPLAY, then 08–0F is the mode name for LU 6.2 commands.
- When CONTROL equals SETSESS or when CONTROL equals REJECT, and QUALIFY equals SESSION, then 08–0F is the session instance identifier for LU 6.2 commands.

10–17 Local logical unit name for LU 6.2 commands when CONTROL equals ALLOC or PREALLOC or when CONTROL equals OPRCNTL, and QUALIFY equals either CNOS, DEFINE, DISPLAY, or RESTORE. Otherwise, this field contains blanks or 0.

18–1F Partner logical unit name for LU 6.2 commands when CONTROL equals ALLOC or PREALLOC or when CONTROL equals OPRCNTL, and QUALIFY equals either CNOS, DEFINE, DISPLAY or RESTORE. Otherwise, this field contains blanks or 0.

ACA3 or ACI3 entry for LU 6.2 authorized IO or LU 6.2 TPIO (Part 3)

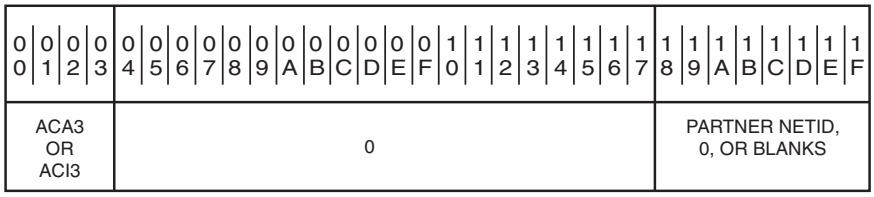
Entry: ACA3 or ACI3

VIT option:
APPC

Event: LU 6.2 authorized IO or LU 6.2 TPIO (Part 3)

VIT processing module:
ISTRACAC

The ACA3 trace record is a continuation of ACA2. The ACI3 trace record is a continuation of ACI2.



Byte (hex)
Contents

00–03 Record ID:
- C"ACA3" for continuation of ACA2
- C"ACI3" for continuation of ACI2

04–17 0

18–1F Partner network identifier for the LU 6.2 commands when CONTROL equals ALLOC or PREALLOC (except for QUALIFY=CONVGRP) or when CONTROL equals OPRCNTL, and QUALIFY equals either CNOS, DEFINE, DISPLAY, or RESTORE. Otherwise, this field contains blanks or 0.

ACP1 or ACR1 entry for LU 6.2 user post or RPL exit (Part 1)

Entry: ACP1 or ACR1

VIT option:
APPC

Event: LU 6.2 user post or RPL exit (Part 1)

VIT processing module:
ISTRACAC

Control is returned to:
ISTAICPT and ISTAPCSX for ACP1

ISTAPCSX and ISTAICRX for ACR1

The ACP1 trace record is written when an ECB is posted. The ACR1 trace record is written when an RPL exit is dispatched. These records signal that the APPCCMD macro has completed execution and show the data returned to the user application program.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ACP1 OR ACR1				ID		RTUN		RTNCD		FDB2		RPL ADDRESS				CNTRL		QUAL		OPT6		0		RCPRI		RCSEC		APPCCMD FLAGS				CONV ID OR 0				SENSE DATA OR 0			

Byte (hex)
Contents

00–03 Record ID:

- C"ACP1" for ECB posting
- C"ACR1" for RPL exit dispatching

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 APPCCMD returned indicators (RPL6RTUN)

Bit	Meaning
1...	FMH5 received indicator
.1..	LOGON received indicator
..1.	SIGNAL received indicator

06 VTAM return code (RPLRTNCD)

07 VTAM feedback code (RPLFDB2)

08–0B RPL address

0C APPCCMD CONTROL operand value:

X'10'	ALLOC
X'11'	PREALLOC
X'12'	SENDFMH5
X'20'	RESETRCV
X'30'	DEALLOC
X'31'	DEALLOCQ
X'40'	OPRCNTL
X'50'	PREPRCV
X'60'	RCVFMH5
X'70'	RECEIVE
X'71'	RCVEXPD
X'80'	REJECT
X'90'	SEND
X'91'	SENDEXPD

X'92' SENDRCV

X'A0' SETSESS

X'B0' TESTSTAT

0D APPCCMD QUALIFY operand value:

X'00' NULL

X'01' ABNDPROG

X'02' ABNDSERV

X'03' ABNDTIME

X'04' ABNDUSER

X'05' ANY

X'06' CNOS

X'07' CONFIRM

X'08' CONFRMD

X'09' DATA

X'0A' DATACON

X'0B' DATAFLU

X'0C' DEFINE

X'0D' DISPLAY

X'0E' ERROR

X'0F' FLUSH

X'10' RQSEND

X'11' SPEC

X'12' ACTSESS

X'13' DACTSESS

X'14' ALLOCD

X'15' IMMED

X'16' CONWIN

X'17' SESSION

X'18' CONV

X'19' SUSPEND

X'1A' RESUME

X'1B' RESTORE

X'1C' SYNCBEG

X'1D' SYNCEND

X'1E' CONVGRP

X'1F' WHENFREE

X'20' IANY

X'21' ISPEC

X'22' ALL

X'23' IALL

X'24' QUEUE

X'25' DATAQUE

0E Option code byte 6 (RPLOPT6)

Contains the RPLXBFL flag (bit 5), which indicates whether the application is requesting HPDT services.

0F 0

10–11 LU 6.2 primary return code, RCPRI (RPL6RCPR field in the RPL extension). For more information about RCPRI return codes, see z/OS Communications Server: SNA Programmer's LU 6.2 Reference.

12–13 LU 6.2 secondary return code, RCSEC (RPL6RCSC field in the RPL extension). For more information about RCSEC return codes, see z/OS Communications Server: SNA Programmer's LU 6.2 Reference.

14–17 APPCCMD flags (RPL6FLGS)

18–1B Conversation ID or 0

1C–1F Sense data returned (RPL6SNSI) or 0

ACP2 or ACR2 entry for LU 6.2 user post or RPL exit (Part 2)

Entry: ACP2 or ACR2

VIT option:
APPC

Event: LU 6.2 user post or RPL exit (Part 2)

VIT processing module:
ISTRACAC

The ACP2 trace record is a continuation of the ACP1 trace record. The ACR2 trace record is a continuation of the ACR1 trace record.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ACP2 OR ACR2				ECB ADDRESS OR EXIT ADDRESS				RPL6 ADDRESS				CNTRL	RPLEXTDS	RCV IN OR 0		RPL AREA				RPL RECORD LENGTH				CGID				CNVFSM	RTRFSM	ERRFSM	SRTRFS

Byte (hex)
Contents

00–03 Record ID:

- C"ACP2" for continuation of ACP1

- C"ACR2" for continuation of ACR1

04–07 ECB address for ACP2. RPL exit address for ACR2

08–0B RPL6 address

0C APPCCMD CONTROL operand value:

Bit	Meaning
X'10'	ALLOC
X'11'	PREALLOC
X'12'	SENDFMH5
X'20'	RESETRCV
X'30'	DEALLOC
X'31'	DEALLOCQ
X'40'	OPRCNTL
X'50'	PREPRCV
X'60'	RCVFMH5
X'70'	RECEIVE
X'71'	RCVEXPD
X'80'	REJECT
X'90'	SEND
X'91'	SENDEXPD
X'92'	SENDRCV
X'A0'	SETSESS
X'B0'	TESTSTAT

0D RPLEXTDS contains the RPLXSRV flag (bit 7), which is set if VTAM accepts all CSM buffers from the application. If no CSM buffers are specified by the application, this field is not set.

0E–0F Indicators for the type of information received or 0

Bit	Meaning
1...	DATA for byte 0E; PARTIAL_PS_HEADER for byte 0F
.1..	DATA_COMPLETE
..1.	DATA_INCOMPLETE
...1	SEND
.... 1...	CONFIRM
.... .1..	DEALLOCATE

.... ..1.
LOG_DATA

....1
PS_HEADER

1... ....
PARTIAL_PS_HEADER

.xxx xxxx
0

10–13 Address of SEND data or RECEIVE buffer (RPLAREA)

If OPTCD=XBUFLST is specified, this field contains the extended buffer list area. The contents of the extended buffer list are recorded in the XBA1, XBA2, XBA3 entries.

14–17 RPL record length

18–1B Conversation group ID (CGID) when CONTROL equals ALLOC, PREALLOC, or RCVFMH5; otherwise, 0

1C RAB conversation FSM

1D RAB router FSM

1E RAB error or failure FSM

1F RAB saved router FSM

ACRC entry for RPL6 return code

Entry: ACRC

VIT option:
APPC

Event: APPCSNRC macro

VIT processing module:
ISTRACAC

Control is returned to:
Issuer of the APPCSNRC macro

This trace record is written when an APPC module issues a macroinstruction to set an RPL6RC nonzero return code. The condition that this entry records is an exception and is recorded regardless of whether the APPC VIT option is active.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ACRC				ID	0		INSTANCE ID	CONVERSATION ID				HALF-SESSION ID				MODULE NAME				CONTROL BLOCK ADDRESS				RETURN CODE				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ACRC"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–06 0

07 Instance identifier in invoking module

08–0B Conversation ID

0C–0F Half-session ID

10–13 Invoking module name

14–17 Address of control block containing return code

18–1B Return code (RPL6RC)

18–19 Primary return code (RPL6RCPR)

1A–1B Secondary return code (RPL6RCSC)

1C–1F Request parameter header (RPH) address

ACSN entry for APPC sense code

Entry: ACSN

VIT option:
APPC

Event: APPCSNRC macro

VIT processing module:
ISTRACAC

Control is returned to:
Issuer of the APPCSNRC macro

This trace record is written when an APPC module issues a macroinstruction to set a nonzero sense code. It is treated as an exception condition and is always traced if the VIT is active, regardless of the VIT options specified.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ACSN				ID	0		INSTANCE ID	CONVERSATION ID				HALF-SESSION ID				MODULE NAME				CONTROL BLOCK ADDRESS				SENSE CODE OR RETURN CODE				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ACSN"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–06 0

07 Instance identifier in invoking module

08–0B Conversation ID

0C–0F Half-session ID

10–13 Invoking module name

14–17 Address of control block containing sense code

18–1B Sense code or internal return code

1C–1F Request parameter header (RPH) address

ACU1 entry for LU 6.2 user exit (Part 1)

Entry: ACU1

VIT option:
APPC

Event: LU 6.2 user exit (Part 1)

VIT processing module:
ISTRACAC

Control is returned to:
ISTAICUE

This trace record is written when an LU 6.2 user exit (either ATTN or TPEND) is dispatched. If both the API and APPC trace options are active, and a TPEND user exit is dispatched, VTAM generates user exit trace records for both API and APPC.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ACU1				ID		CODE		0				EXIT TYPE DEPEND INFO				0								PLU NAME OR APPLICATION ID							
																								SLU NAME OR 0							

Byte (hex)
Contents

00–03 Record ID: C"ACU1"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Exit code for user exit:
X'0C' for ATTN
X'0D' for TPEND

06–07 0

08–0B The type of exit determines the value of this field.
- For ATTN exit, the exit subtype (CNOS, FMH5, or LOSS)
- For TPEND exit, byte 8 is the reason code:

Code	Description
X'00'	Standard HALT command issued to close the network.
X'04'	HALT QUICK command or VARY INACT,I or F command issued for the application program name.
X'08'	HALT CANCEL command issued or VTAM terminated abnormally.
X'0C'	Alternate application issued an OPEN ACB for the same ACB this application has opened.

0C–0F 0

10–17 PLU name for ATTN exit; application program ID for TPEND exit

18–1F SLU name for ATTN exit; 0 for TPEND exit

ACU2 entry for LU 6.2 user exit (Part 2)

Entry: ACU2

VIT option:
APPC

Event: LU 6.2 user exit (Part 2)

VIT processing module:
ISTRACAC

This trace record is a continuation of the ACU1 trace record.

00 01 02 03	04 05 06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B 1C 1D 1E 1F
ACU2	EXIT ADDRESS	MODE NAME OR 0	0	NETID OR 0

Byte (hex)
Contents

00–03 Record ID: C"ACU2"

04–07 Exit address

08–0F Mode name for ATTN exit; 0 for TPEND exit

10–17 0

18–1F Network identifier for ATTN exit; 0 for TPEND exit

ADE entry for device errors

Entry: ADE

VIT option:
CIO

Event: Failure occurs when trying to activate a device (Instance 0), deactivate a device (Instance 1), allocate a device (Instance 2), or deallocate a device (Instance 2).

VIT processing module:
ISTRACCI

Control is returned to:
ISTINCAV

This trace record contains information about an error when VTAM attempts to activate a device (Instance 0), deactivate a device (Instance 1), allocate a device (Instance 2), or deallocate a device (Instance 2). The three instances of the trace record follow.

This record is treated as an exception entry and is always traced regardless of the VIT options specified.

Instance 0:

00 01 02	03	04	05	06	07	08 09	0A	0B	0C 0D	0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
ADE	CODE	ASID	0	RC	TYPE	DLR CUA	UCBRC	REASON	DEV ADD	FLAGS	XCNCB ADDRESS	SRB ADDRESS	IOSB ADDRESS	RPH ADDRESS

Byte (hex)
Contents

00–02 Record ID: C"ADE"

03 Code: X'F0' for activate device (DLRPLFCD)

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Return code (DLRPLRCD)

07 Device type

08–09 Channel unit address

0A UCBINFO return code or 0

0B UCBINFO reason code or 0

0C–0D
Data device address (DLRDATAD)

0E–0F Flags:

Bit	Meaning
1...	MPC indicator
.1..	TCP/IP legacy DLC
..1.	IDX indicator
...1	TCP/IP CTC DLC
.... 1...	TCP/IP CLAW DLC
.... .1..	TCP/IP LCS DLC
.... ..1.	TCP/IP CDLC DLC
....1	TCP/IP HYPERchannel DLC
.... 1...	QDIO indicator
.... .111 1111	Not used

10–13 XCNCB address

14–17 SRB address

18–1B IOSB address

1C–1F RPH address

Instance 1:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ADE			CODE	ASID	0	RC	TYPE	DLR CUA		0				FLAGS	ATNIX	DCB ADDRESS				0								RPH ADDRESS			

Byte (hex)
Contents

00–02 Record ID: C"ADE"

03 Code: X'F1' for deactivate device (DLRPLFCD)

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Return code (DLRPLRCD)

07 Device type

08–09 Channel unit address

0A–0D
0

0E Flags:

Bit	Meaning
1...	MPC indicator
.1..	TCP/IP legacy DLC
..1.	IDX indicator
...1 1111	Not used

0F UCB attention table index

10–13 DCB address

14–1B 0

1C–1F RPH address

Instance 2:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ADE			CODE	ASID	0	RC	TYPE	DEV ADD		ENTRY	HEADER	LINE RDTE ADDRESS				UCB ADDRESS				RUPE ADDRESS				RUPE RU CODE OR 0				RPH ADDRESS			

Byte (hex)
Contents

00–02 Record ID: C"ADE"

03 Code: X'CA' for allocate device or X'CD' for deallocate device (DLRPLFCD)

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Return code (DLRPLRCD)

07 Device type

08–09 Device address

0A RDTE entry type or 0

0B RDTE header type or 0

0C–0F Line RDTE address

10–13 UCB address

14–17 RUPE address

18–1B RUPE RU code or 0

1C–1F RPH address

AFSM entry for altering an FSM state

Entry: AFSM

VIT option:
SSCP

Event: Alteration of an FSM state

VIT processing module:
ISTRACSC

Control is returned to:
The module that issued the INTRACE macroinstruction

This trace record is written when the current state of an FSM changes.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
AFSM				ASID	0	DLC TYPE	FSM TYPE	OLD STATE	NEW STATE	WKE TYPE	INSTANCE	RESOURCE ADDRESS				RETURN ADDRESS				WORK ELEMENT ADDRESS				MODULE NAME				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"AFSM"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Data link control type:

- **A** ATM
- **E** Enterprise Extender
- **L** LAN (External Communication Adapter)
- **S** Shared Memory Communications over Remote Direct Memory Access (SMC-R)

07 FSM type:

- **A** AAL FSM (ATM only)
- **D** LDLC FSM
- **E** LDLC XID FSM
- **L** Link FSM
- **P** Port FSM
- **R** RDMA over Converged Ethernet (RoCE) user FSM
- **S** SMC-R FSM
- **X** XID FSM

08 Old state

09 New state

0A Work element type:

- **01** ISTRPH
- **17** ISTAUCPL
- **40** ISTLSPL
- **54** ISTRUPE
- **58** ISTTQE
- **99** IUTTIPAC
- **9A** ISTTSPL
- **9B** ISTLSCB

0B 0 or instance of the SETAFSM macro in the module

0C–0F Address of the control block containing the FSM

10–13 Return address of the module that changed the FSM state

14–17 Work element address

18–1B Name of the module that changed the FSM state

1C–1F Request parameter header (RPH) address

AI1 entry for authorized IO (Part 1)

Entry: AI1

VIT option:
API

Event: Authorized IO (Part 1)

VIT processing module:
ISTRACAP

Control is returned to:

ISTAICIR for:
ISTOCCSM for:

SEND INQUIRE

RECEIVE
INTRPRET

RESETSR
RCVCMD

SESSIONC
SENDCMD

SETLOGON

SESSIONC (BIND)

SIMLOGON

OPNDST

REQSESS

OPNSEC

TERMSESS

CLSDST

This trace record shows API requests under the authorized path or API requests not under the authorized path but issued by programs running under an authorized key. The API routine ISTAICIR or ISTOCCSM writes the entry and then queues the RPL to the correct PAB. For an explanation of the RPL fields, see z/OS Communications Server: SNA Data Areas Volume 1.

00	01	02	03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10	11	12	13	14	15 16 17	18 19 1A 1B	1C 1D 1E 1F
AI1			REQTY	ID	EXTDS	OPT4	OPT1	RPL ADDRESS	NIB ADDR OR CID	RH3	SRTYP	VTFL1	VTFL2	CHN	RU CNTL CODE	OPTC2	OPTC3

Byte (hex)
Contents

00–02 Record ID: C"AI1"

03 RPL request type (RPLREQ)

X'15' SETLOGON

X'16' SIMLOGON

X'17' OPNDST

X'19' CHANGE

X'1A' INQUIRE

X'1B' INTRPRET

X'1F' CLSDST

X'22' SEND

X'23' RECEIVE

X'24' RESETSR

X'25' SESSIONC

X'27' SENDCMD

X'28' RCVCMD

X'29' REQSESS

X'2A' OPNSEC

X'2C' TERMSESS

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Exit definition (RPLEXTDS)

06 Option code byte 4 (RPLOPT4)

07 Option code byte 1 (RPLOPT1)

08–0B RPL address

0C–0F NIB address or CID

10 Third byte of RH (RPLRH3)

11 Send/receive type (RPLSRTYP)

12 VTAM flags (RPLVTFL1)

13 Post/respond flags (RPLVTFL2)

14 RU chain position (RPLCHN)

15–17 RU control codes (RPLCNTRL)

18–1B VTAM options (RPLOPTC2, which corresponds to RPLOPT5 through RPLOPT8) (See z/OS Communications Server: SNA Programming for additional information.)

1C–1F VTAM options (RPLOPTC3, which corresponds to RPLOPT9 through RPLOPT12) (See z/OS Communications Server: SNA Programming for additional information.)

AI2 entry for authorized IO (Part 2)

Entry: AI2

VIT option:
API

Event: Authorized IO (Part 2)

VIT processing module:
ISTRACAP

This trace record is a continuation of the AI1 entry. It shows additional information about the PLU and SLU in a session established or terminated by a SIMLOGON, OPNDST, CLSDST, REQSESS, OPNSEC, or TERMSESS macroinstruction. This information includes some of the parameters exchanged and the names of the PLU and SLU.

00 01 02	03	04 05 06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B 1C 1D 1E 1F
AI2	0	RETURN ADDRESS	LOGON MODE NAME OR 0	APPLICATION LU NAME (IF AVAILABLE)	PARTNER LU (IF AVAILABLE)

Byte (hex)
Contents

00–02 Record ID: C"AI2"

03 0

04–07 Address of the issuer of the macro

08–0F For SIMLOGON, OPNDST, CLSDST, or REQSESS: Logon mode name (NIBLMODE) or 0 if the NIB is not available

For OPNSEC or TERMSESS: 0

10–17 Application LU name if available

18–1F Partner LU name if available

AI3 entry for authorized IO (part 3)

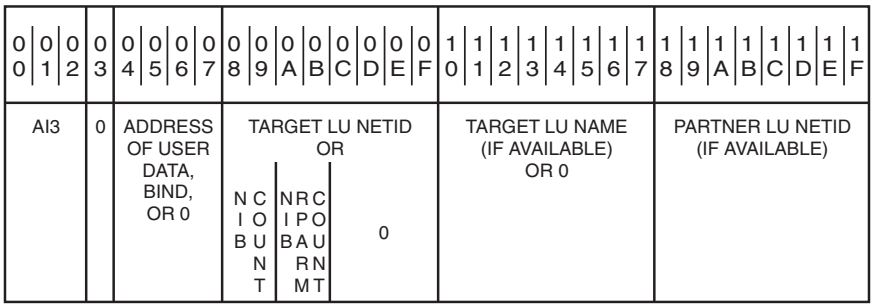
Entry: AI3

VIT option:
API

Event: Authorized IO (Part 3)

VIT processing module:
ISTRACAP

This trace record is a continuation of the AI2 entry. It shows additional information in a session established or terminated by a SIMLOGON, OPNDST, CLSDST, REQSESS, or OPNSEC macroinstruction.



Byte (hex)
Contents

00–02 Record ID: C"AI3"

03 0

04–07 For SIMLOGON, CLSDST, or REQSESS: Address of user data (RPLAREA)

For OPNDST or OPNSEC: Address of BIND (NIBNDAR) or 0 if the NIB is not available

08–0F Target LU network identifier (when for CLSDST PASS) or:

Byte (hex)
Contents

08–09 Count of node initialization blocks (NIBs) in NIB list (when not for CLSDST PASS)

0A–0B Count of node initialization blocks (NIBs) in NIB list with NIBRPARM=0 (when not for CLSDST PASS)

0C–0F 0

10–17 Target logical unit name, if available, or 0

18–1F Partner LU network identifier, if available

ALSx entry for adjacent link station

Entry: ALSA, ALSD, ALSP, ALSR, ALSS, or ALSV

VIT option:
SSCP

Event: ALSLIST macro

VIT processing module:
ISTRACSC

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced.

The adjacent link station (ALS) trace record contains information about the adding, deleting, replacing, selecting, or validating of an adjacent link station.

00	01	02	03	04	05	06	07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B 1C 1D 1E 1F
ALSA ALSD ALSP ALSR ALSS ALSV	ID	RC	CBID	FLAGS	NEWALS OR SELALS OR 0				RETURN ADDR	CDRADDR	OLDALS OR 0 OR 0 AND PUADDR

Byte (hex)

Contents

00–03 Record ID:

C"ALSA"
Add an adjacent link station.

C"ALSD"
Delete an adjacent link station.

C"ALSP"
Search for an APPN link station in the cross-domain resource's ALS list.

C"ALSR"
Replace an adjacent link station.

C"ALSS"
Select an adjacent link station.

C"ALSV"
Validate an adjacent link station.

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Return code from ALSLIST macro invocation

06 Session control block identifier or 0

07 Flags (from the following list):

Bit	Meaning
1...	The type of add is dynamic.
.1..	Autologon processing requested.
..1.	Verify that the add is required.
...1	Waiting autologon requests must be processed.
.... xx..	0
.... ..xx	Connection type of PU whose address is given in PUADDR: **00** Unknown **01** LEN **11** APPN

08–0F ALS name or 0

- For ALSA, ALSR, or ALSV: New ALS name passed on the add, replace, or validate function

- For ALSD or ALSP: 0
- For ALSS: ALS name returned on the select function

10–13 Return address of the caller of the ALSLIST function

14–17 Address of the cross-domain resource passed to the ALSLIST function

18–1F ALS name, PU address, or 0

- For ALSA or ALSP: 0
- For ALSD or ALSR: Old ALS name passed on the delete or replace function
- For ALSS or ALSV: 0 and PUADDR
  - 18–1B: 0
  - 1C–1F: The PU address that is returned for the select or validate function

AP entry for signals passed between components of the APPN CP

Entry: AP

VIT option:
SSCP

Event: Signals passed between components of the APPN CP

VIT processing module:
ISTRACSC

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced.

This trace record provides information about inbound request and responses which are processed by the CP. If this entry is associated with an event failure, nonzero sense code, it is generated regardless of the SSCP option. It is recognized as an exception code and is traced when the VIT is active.

00 01	02	03	04	05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
AP	TO PAB	FROM PAB	ID	MOD ID	RETURN ADDRESS	SENSE DATA OR 0	FIRST 16 BYTES OF INTERPROCESS SIGNAL (IPS)

Byte (hex)
Contents

00–01 Record ID: C"AP"

02 To process anchor block (PAB) identification byte:

Code (hex)
ID

"A" Advanced program-to-program communication (APPC)

"B" CMIP services session layer

"C" Session services for CP-CP sessions (SSC)

"D" APPN directory services (DR)

"E" Directory services management exit (DSME)

"F" CMIP services association control function, association control service element, directory service element, presentation

"G" VTAM topology agent (TOPO)

"H" Half session (HS)

"I" Disk input or output

Note: This code is an uppercase letter *I*.

"J" Management services transport (MST) main processing

"K" CMIP services initialization, termination, and command processing

"L" Session services for LU-LU sessions (SSL)

"M" Management services transport (MST) initialization processing

"N" Node operator services

"O" CMIP services management information base (MIB) controller

"P" SSCP functions

"Q" CMIP services scoping and replication

"R" CMIP services event filtering and forwarding

"S" System services control point (SSCP)

"T" Topology and routing services (TRS)

"U" Recovery RTP context manager (RCM)

"V" Recovery manager (RVM)

"X" Transaction programs (XP)

"Y" Recovery PAB (RPAB)

"Z" Dependent LU server (DLUS)

"l" LU server (LUS)

Note: This code is a lowercase letter *L*.

03 From process anchor block (PAB) Identification byte. The codes are the same as byte 2.

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 Last three characters of the module invoking APSEND. (The characters *KWN* indicate that the module name is not known.)

08–0B Address of the issuer of the APSEND module

0C–0F Sense code or 0

10–1F First 16 bytes of the interprocess signal (IPS). For a list of interprocess signals, see z/OS Communications Server: SNA Data Areas Volume 2.

A2 entry for requests and responses with a RUPE

Entry: **A2**

VIT option:
SSCP

Event: Requests and Responses with a RUPE

VIT processing module:
ISTRACSC

This trace record is a continuation of the AP entry.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
A2	30 MORE BYTES OF THE INTERPROCESS SIGNAL (IPS)																														

Byte (hex)
Contents

00–01 Record ID: C"A2"

02–1F 30 more bytes of the interprocess signal

ARB entry for RTP LU-LU session data

Entry: ARB

VIT option:
HPR

Event: Any LU-LU session data sent across an RTP connection

VIT processing module:
ISTITCHP

Control is returned to:
ISTRPCRS

This trace record is written when LU-LU session data is sent across an RTP connection. It contains statistical information about the LU-LU session data.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARB				ID	0	INSTANCE	FLAGS	SEND RATE				NEW BURST INTERVAL				BYTES SENT				BYTES TO SEND				PACKET SIZE				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARB"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 Information Flags and Burst Multiplier

Bit	Meaning
xx..	Adaptive Rate Based Algorithm Used
	00 ARB Mode Algorithm
	01 ARB Responsive Mode Algorithm
..xx xxxx	Burst Multiplier (RPN_BURST_MULT)

08–0B Send rate in bytes per second

0C–0F Burst interval in milliseconds

10–13 Bytes sent in the burst interval (RPN_BYTES_SENT)

14–17 Bytes left to send (RPN_BYTES_TO_SEND)

18–1B Size of the network layer packet (NLP)

1C–1F RPNCB address

ARBB entry for HPR trace option

Entry: ARBB

VIT option:
HPR

Event: All RTP connections using Responsive Mode ARB and ARBB active.

VIT processing module:
ISTITCHA

Control is returned to:
The module that issued the INTRACE macro.

This trace record is written when RTP connections are using Responsive Mode ARB and ARBB option is active. The trace record has six instances included as follows.

Instance 1:

00 01 02 03	04	05	06	07	08	09	0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
ARBB	ID	0	INSTANCE	0	RATE	LAST RATE	0 0	DELAY CHANGE SUM	CURRENT DELAY CHANGE	ELAPSED TIME	SMI	RPNCB ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"ARBB"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08 ARB rate status (MRP_NLH_RATE)

09 Rate of last ARB measurement sent (ARB_LAST_RATE)

0A–0B 0

0C–0F Delay Change Sum (DCS) — accumulated network delay in milliseconds (ARB_ACCUM_QTIME)

10–13 Current delay change (ARBLV_CURR_QTIME)

14–17 Elapsed time in milliseconds since the last ARB rate request (ARBLV_ETIME_IN_MS)

18–1B ARB request sender's measurement interval (SMI) in microseconds (THD_ARB_CURR_MEASURE_INT)

1C–1F RPNCB address

Instance 2:

00 01 02 03	04	05	06	07	08	09	0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
ARBB	ID	0	INSTANCE	0	RATE	LAST RATE	0 0	DELAY CHANGE SUM	DCS BOUNDARY REGION 1 AND 2	DCS BOUNDARY REGION 2 AND 3	DCS BOUNDARY REGION 3 AND 4	RPNCB ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"ARBB"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08 MRP_RCV_RATE_STAT

09 Rate of last ARB measurement sent (ARB_LAST_RATE)

0A–0B 0

0C–0F Delay Change Sum (DCS) — accumulated network delay in milliseconds (ARB_ACCUM_QTIME)

10–13 DCS boundary in milliseconds dividing region 1 and 2 (ARB_GREEN_THRESHOLD)

14–17 DCS boundary in milliseconds dividing region 2 and 3 (ARB_MAX_QTIME_RETN)

18–1B DCS boundary in milliseconds dividing region 3 and 4 (ARB_MAX_QTIME_RETN * ACM_UPPER_LIM)

1C–1F RPNCB address

Note: The following ARB rate replies are returned to the sender of the ARB rate request depending on the region in which the DCS lies:

DCS in region	Rate reply returned
1	NORMAL
2	RESTRAINT
3	SLOWDOWN 1 or SLOWDOWN 2
4	RESTRAINT

Instance 3:

00 01 02 03	04	05	06	07	08	09	0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
ARBB	ID	0	INSTANCE	FLAGS	RATE CUT	FLAGS	0 0	ALLOWED SENDING RATE	INCREMENT	INCREMENT TREND	DECREMENT TREND	RPNCB ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"ARBB"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 ARB flags passed on the ARB segment (THD_ARB_FLAGS)

08 Indicates size of rate cut for a SLOWDOWN (send_rate = send_rate — (send_rate / acm_cut_rate)) (ACM_CUT_RATE)

09 Flag values used for ARB processing (ARB_FLAGS)

0A–0B 0

0C–0F ARB allowed sending rate in kbps (ARB_ALLOW_SEND_RATE)

10–13 Current increment value for allowed send rate in kbps (ARB_CURR_RATE_INC)

14–17 Number of consecutive sending rate increments (ARB_INC_TREND)

18–1B Number of consecutive sending rate decrements (ARB_DEC_TREND)

1C–1F RPNCB address

Instance 4:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBB				ID	0	INSTANCE	0	FLAGS	0	0	0	FLAGS				INCREMENT TREND				DECREMENT TREND				RECEIVE RATE				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBB"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08 Flag values used for ARB processing (ARB_FLAGS)

09 0

0A–0B 0

0C–0F Flag values used for ARB processing in kbps (ARB_CURR_RATE_INC)

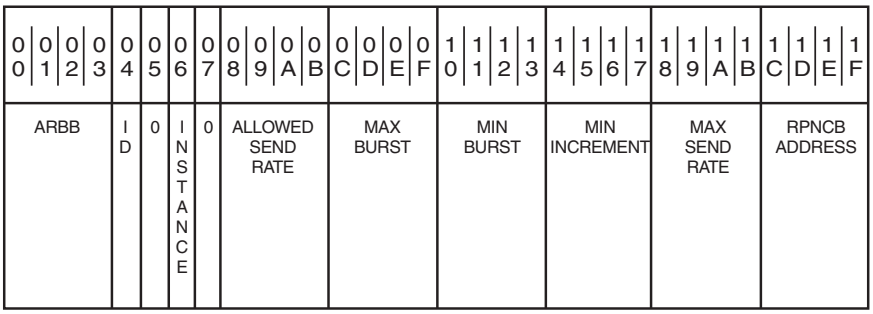
10–13 Number of consecutive sending rate increments (ARB_INC_TREND)

14–17 Number of consecutive sending rate decrements (ARB_DEC_TREND)

18–1B Receiving rate of the sender in kbps (THD_ARB_REC_RATE)

1C–1F RPNCB address

Instance 5:



Byte (hex)
Contents

00–03 Record ID: C"ARBB"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–0B ARB allowed sending rate in kbps (ARB_ALLOW_SEND_RATE)

0C–0F Maximum burst time allowed in milliseconds (ARB_BT_MAX)

10–13 Minimum burst time allowed in milliseconds (ARB_BT_MIN)

14–17 Minimum increment value for allowed send rate in kbps (ARB_MIN_RATE_INC)

18–1B Shared link rate in kbps (ARB_MAX_SEND_RATE)

1C–1F RPNCB address

Instance 6:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBB				ID	0	INSTANCE	0	SMOOTH ROUND TRIP				SHORT REQUEST TIMER				ADJUST INTERVAL				MEASURE INTERVAL				0				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBB"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–0B Smoothed Round Trip Time in milliseconds (RPN_SRTTs)

0C–0F Short Request timer in milliseconds (RPN_SHORT_REQ_T)

10–13 Counter for adjustment of Base ARB measurement interval (ARB_TIME_ADJUST_M_INT)

14–17 Interval in milliseconds for ARB measurement requests (ARB_MEASURE_INT)

18–1B 0

1C–1F RPNCB address

ARBR entry for HPR trace option

Entry: ARBR

VIT option:
HPR

Event: All RTP connections using Responsive Mode ARB and ARBR active.

VIT processing module:
ISTITCHA

Control is returned to:
The module that issued the INTRACE macro.

This trace record is written when RTP connections are using Responsive Mode ARB and ARBR option is active. The trace record has 38 instances included as follows.

Instance 0:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID		0		INSTANCE		0		FCURVE				RATE				DRAIN				ALLOWED SEND RATE				TARGET RATE				LOSS BUCKET CONTENTS				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–09 Aggressiveness indicator, the range is 0 (most aggressive) – 1000 (least aggressive) (ARB2_FCURVE_NOW)

0A–0B Determines how fast F_curve value increases (ARB2_ALPHA_NOW)

0C–0F Number of bytes drained from leaky bucket during last interval (DRAIN_IN_BYTES)

10–13 ARB allowed sending rate in kbps (ARB_ALLOW_SEND_RATE)

14–17 Target sending rate in kbps (ARB2_TARGET_RATE)

18–1B Number of bytes that can be placed in the leaky bucket (ARB2_LOSS_BUCKET_CONTENTS)

1C–1F RPNCB address

Instance 1:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID		0		INSTANCE		0		FLAGS		CORRELATOR		CORRELATOR				CORRELATOR				CORRELATOR				RECEIVER THRESHOLD				MIN RECEIVER THRESHOLD				MAX RECEIVER THRESHOLD				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08 ARB flags passed on the ARB segment (THD_ARB_FLAGS)

09 ARB request correlator sent on ARB segment (THD_ARB_CORRELATOR)

0A–0B Current ARB request correlator (ARB2_REQUEST_CORRELATOR)

0C–0D
Local request correlator working field (ARBLV_REQ_CORRELATOR)

0E–0F Previous ARB request correlator (ARB2_LAST_REQ_CORRELATOR)

10–13 Current receiver threshold in microseconds (ARB2_RCVR_THRESHOLD)

14–17 Minimum Receiver threshold in microseconds (ARB2_RCVR_THRESHOLD_MIN)

18–1B Maximum Receiver threshold in microseconds (ARB2_RCVR_THRESHOLD_MAX)

1C–1F RPNCB address

Instance 2:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID	0	INSTANCE	0	0	0	0		CORRELATOR		PARITY		PARITY		CORRELATOR		0				0				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08 0

09 0

0A–0B 0

0C–0D
Previous ARB request correlator (ARB2_LAST_REQ_CORRELATOR)

0E–0F Local ARB parity bit (ARBLV_TEMP_ARB_PARITY)

10–11 Local last ARB parity bit (ARBLV_TEMP_LAST_RCVD_PARITY)

12–13 Local request correlator working field (ARBLV_TEMP_REQ_CORRELATOR)

14–17 0

18–1B 0

1C–1F RPNCB address

Instance 3:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID	0	INSTANCE	0	IDLE TIME				CURRENT TIME				LAST DATA RECEIVED				IDLE TIME THRESHOLD				MAX SEND RATE				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–0B Amount of time idle in milliseconds since last data received (ARBLV_IDLE_TIME)

0C–0F Current time stamp value (ARBLV_CURR_TIME)

10–13 Time stamp value of last data received (ARB2_LAST_DATA_RCVD)

14–17 Idle time in milliseconds threshold (INC_IDLE_TIME_THRESH(ARBLV_MAXSNDI))

18–1B Shared link rate table index (ARBLV_MAXSNDI)

1C–1F RPNCB address

Instance 4:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID		0	INSTANCE	FLAGS		ELAPSED TIME		POTENTIAL DCS				POTENTIAL ERROR COUNT				DELAY CHANGE BAR				DC STANDARD DEVIATION				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 Flag values used for ARB processing (ARB_FLAGS)

08–0B Elapsed time in microseconds since last ARB status request (ARBLV_ETIME_IN_MS)

0C–0F Potential DCS — accumulated network delay in microseconds (ARB2_POT_ACCUM_QTIME)

10–13 Potential Count of errors detected (ARB2_POT_ERROR_COUNT)

14–17 Delay Change bar value in microseconds (ARB2_DC_BAR)

18–1B Delay Change standard deviation in microseconds (ARB2_DC_SDEV)

1C–1F RPNCB address

Instance 5:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID		0	INSTANCE	0		POT - PC BAR VALUE		POT - PC STANDARD DEVIATION				POT - PC THRESHOLD				AVERAGE COEFFICIENT				DC STANDARD DEVIATION				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–0B ARB2_POT_DC_BAR (Potential Delay Change bar value in microseconds)

0C–0F ARB2_POT_DC_SDEV (Potential Delay Change standard deviation in microseconds)

10–13 ARB2_POT_DC_THRESH (Potential Delay Change threshold in microseconds)

14–17 ARBLV_AVG_COEFF (Average Coefficient based on elapsed time between ARB status requests)

18–1B ARB2_DC_SDEV (Delay Change standard deviation in microseconds)

1C–1F RPNCB address

Instance 6:

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
ARBR	ID	0	INSTANCE	FLAGS	DCS BAR VALUE	AVG COEFFICIENT	POTENTIAL DCS	DCS SQUARED BAR	MAX DC	RPNCB ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 ARB_FLAGS (Flag values used for ARB processing)

08–0B ARB2_DCS_BAR (Delay Change Sum bar value in microseconds)

0C–0F ARBLV_AVG_COEFF (Average Coefficient based on elapsed time between ARB status requests)

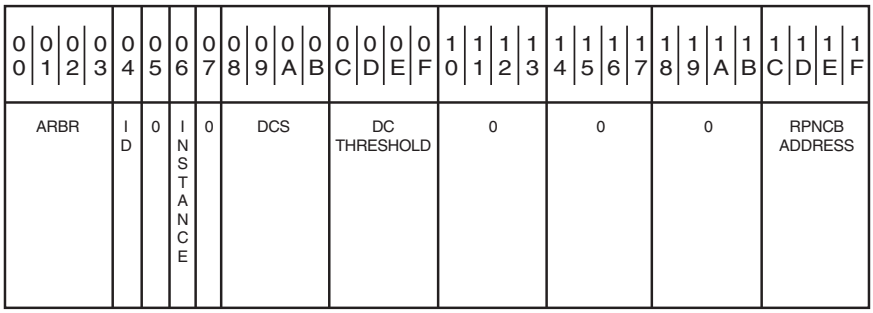
10–13 ARB2_POT_ACCUM_QTIME (Potential DCS — accumulated network delay in microseconds)

14–17 ARB2_DCS_SQUARED_BAR (Delay Change Sum bar value squared in milliseconds)

18–1B ARB2_ACCUM_QTIME_MAX (Maximum Delay Change over last 30 ARB status requests in microseconds)

1C–1F RPNCB address

Instance 7:



00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
ARBR	ID	0	INSTANCE	0	DCS	DC THRESHOLD	0	0	0	RPNCB ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–0B Delay Change Sum(DCS) — accumulated network delay in microseconds (ARBLV_CURR_QTIME)

0C–0F Delay Change threshold in microseconds (ARB2_DC_THRESH)

10–13 0

14–17 0

18–1B 0

1C–1F RPNCB address

Instance 8:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID		0	INSTANCE	FLAGS		POTENTIAL DCS BAR			POTENTIAL DCS SQUARED BAR			DCS VARIANCE				MAX DCS				MAX DC				RPNCB ADRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 Flag values used for Responsive Mode ARB processing (ARB2_PHASE_FLAGS)

08–0B Potential Delay Change Sum(DCS) bar value in microseconds (ARB2_POT_DCS_BAR)

0C–0F Potential DCS bar value squared in milliseconds (ARB2_POT_DCS_SQUARED_BAR)

10–13 Delay Change Sum variance (ARBLV_DCS_VARIANCE)

14–17 Maximum Delay Change Sum recorded in microseconds (ARB2_DCS_MAX_OVERALL)

18–1B Maximum Delay Change in microseconds over last 30 ARB status requests (ARB2_ACCUM_QTIME_MAX)

1C–1F RPNCB address

Instance 9:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID		0	INSTANCE	0	FLAGS	FLAGS	FLAGS	FLAGS	POTENTIAL DCS			LAST DCS				RECEIVER THRESHOLD				MAX SEND RATE				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08 Flag values used for ARB processing (ARB_FLAGS)

09 Flag values used for Responsive Mode ARB processing (ARB2_PHASE_FLAGS)

0A Potential flag values used for Responsive Mode ARB processing (ARB2_POT_PHASE_FLAGS)

0B Global ARB segment flags (MRP_ARB_FLAGS)

0C–0F Potential DCS — accumulated network delay in milliseconds (ARB2_POT_ACCUM_QTIME)

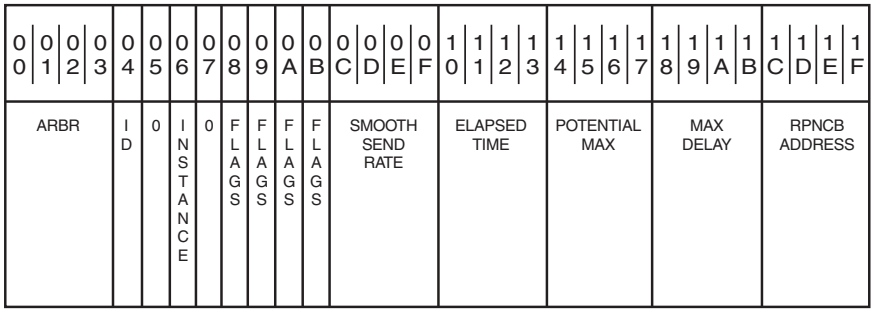
10–13 Last Delay Change Sum(DCS) in microseconds (ARBLV_LAST_ACCUM_QTIME)

14–17 Receiver Threshold value in microseconds (ARB2_RCVR_THRESHOLD)

18–1B Shared link rate in kbps (ARB_MAX_SEND_RATE)

1C–1F RPNCB address

Instance 10:



Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08 Flag values used for ARB processing (ARB_FLAGS)

09 Flag values used for Responsive Mode ARB processing (ARB2_PHASE_FLAGS)

0A Potential flag values used for Responsive Mode ARB processing (ARB2_POT_PHASE_FLAGS)

0B Global ARB segment flags (MRP_ARB_FLAGS)

0C–0F Smoothed sending rate in kbps (ARB2_SMOOTHED_RATE)

10–13 Elapsed time in microseconds since last ARB status request (ARBLV_ETIME_IN_MS)

14–17 Potential maximum (ARB2_POT_MAX_DCS_WINDOW)

18–1B Maximum Delay in microseconds Change Sum recorded (ARB2_POT_DCS_MAX_OVERALL)

1C–1F RPNCB address

Instance 11:

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
ARBR	ID	0	INSTANCE	0	LAST CURRENT BYTE RECEIVED	BYTE RECEIVED LAST ARB	BITS OF DATA – LAST INTERVAL	POTENTIAL SMOOTHED RATE	MAX WINDOW	RPNCB ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–0B Last current byte received (RPN_LAST_BYTE_RCV)

0C–0F Byte received during last ARB status request (ARB2_LAST_BYTE_RCV)

10–13 Bits of data received over last interval (ARBLV_BITS_OF_DATA)

14–17 Potential smoothed sending rate in kbps (ARB2_POT_SMOOTHED_RATE)

18–1B Maximum window size over last 10 ARB status requests (ARB2_POT_MAX_DCS_WINDOW)

1C–1F RPNCB address

Instance 12:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID		0	INSTANCE	0	POTENTIAL DCS BAR			THRESHOLD MAX				THRESHOLD VARIANCE				INCREMENTS TO WINDOW SIZE				INCREMENTS OVER TIME				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–0B Potential Delay Change Sum bar value in microseconds (ARB2_POT_DCS_BAR)

0C–0F Present Receiver Threshold maximum in microseconds (ARB2_PRESENT_THR_MAX)

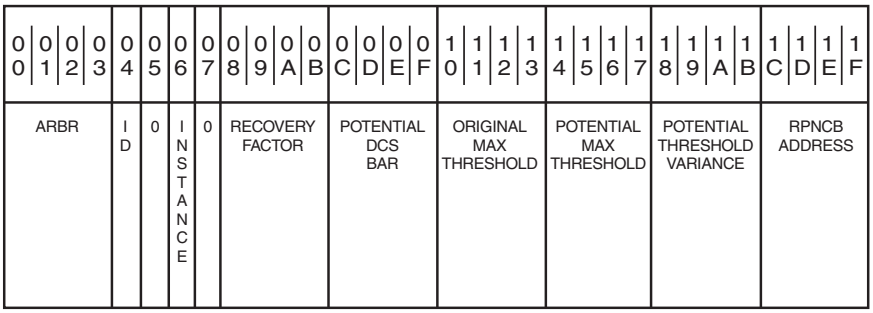
10–13 Computed threshold variance in microseconds for this link (ARB2_ANTICIPATED_VAR)

14–17 Fraction that indicates number of increments related to window size (value is 0–1000) (ARB2_N_FRACTION)

18–1B Fraction that indicates number of increments over time (value is 0–100) (ARB2_N_TREND)

1C–1F RPNCB address

Instance 13:



00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID	0	INSTANCE	0	RECOVERY FACTOR				POTENTIAL DCS BAR				ORIGINAL MAX THRESHOLD				POTENTIAL MAX THRESHOLD				POTENTIAL THRESHOLD VARIANCE				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–0B Dictates how long the computer stays active (values 0–100) (ARB2_RECOVERY_FACTOR)

0C–0F Potential Delay Change Sum bar value in microseconds (ARB2_POT_DCS_BAR)

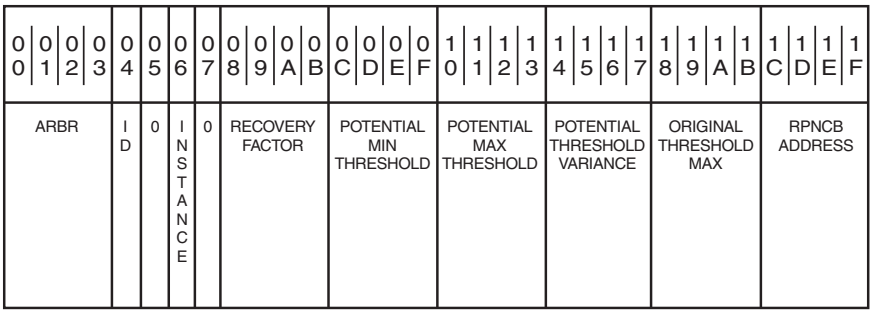
10–13 Original Threshold maximum in microseconds (ARB2_ORIG_THR_MAX)

14–17 Potential Present Receiver Threshold maximum in microseconds (ARB2_POT_PRESENT_THR_MAX)

18–1B Potential threshold variance in microseconds for this link (ARB2_POT_ANTICIPATED_VAR)

1C–1F RPNCB address

Instance 14:



00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID	0	INSTANCE	0	RECOVERY FACTOR				POTENTIAL MIN THRESHOLD				POTENTIAL MAX THRESHOLD				POTENTIAL THRESHOLD VARIANCE				ORIGINAL THRESHOLD MAX				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–0B Dictates how long the computer stays active (values 0–100) (ARB2_RECOVERY_FACTOR)

0C–0F Potential Present Receiver Threshold minimum in microseconds (ARB2_POT_PRESENT_THR_MIN)

10–13 Potential Present Receiver Threshold maximum in microseconds (ARB2_POT_PRESENT_THR_MAX)

14–17 Potential threshold variance in microseconds for this link (ARB2_POT_ANTICIPATED_VAR)

18–1B Original Threshold maximum in microseconds (ARB2_ORIG_THR_MAX)

1C–1F RPNCB address

Instance 15:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID	0	INSTANCE	0	POTENTIAL MIN THRESHOLD				POTENTIAL MAX THRESHOLD				POTENTIAL THRESHOLD VARIANCE				SAVED MIN THRESHOLD				SAVED MAX THRESHOLD				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–0B Potential Present Receiver Threshold minimum in microseconds (ARB2_POT_PRESENT_THR_MIN)

0C–0F Potential Present Receiver Threshold maximum in microseconds (sARB2_POT_PRESENT_THR_MAX)

10–13 Potential threshold variance in microseconds for this link (ARB2_POT_ANTICIPATED_VAR)

14–17 Saved Receiver Threshold minimum in microseconds (ARB2_SAVED_THR_MIN)

18–1B Saved Receiver Threshold maximum in microseconds (ARB2_SAVED_THR_MAX)

1C–1F RPNCB address

Instance 16:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID		0	INSTANCE	0	WINDOW SIZE			INCREMENTS TO WINDOW SIZE				NUMBER INCREMENTS				LAST N_FRACTION				INCREMENTS OVER TIME				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–0B Number of ARB status requests used in calculating Receiver thresholds (ARB2_WINDOW_SIZE)

0C–0F Fraction that indicates number of increments related to window size (value 0–1000) (ARB2_N_FRACTION)

10–13 Number of consecutive sending rate increments (ARB_INC_TREND)

14–17 Last N_Fraction (value is 0–1000) (ARBLV_N_FRACTION_LAST)

18–1B Fraction that indicates number of increments over time (value is 0–100) (ARB2_N_TREND)

1C–1F RPNCB address

Instance 17:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID	0	INSTANCE	0	WINDOW SIZE				NUMBER INCREMENTS				INCREMENTS OVER TIME				POTENTIAL MAX THRESHOLD				ORIGINAL MAX THRESHOLD				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–0B Number of ARB status requests used in calculating Receiver thresholds (ARB2_WINDOW_SIZE)

0C–0F Number of consecutive sending rate increments (ARB_INC_TREND)

10–13 Fraction that indicates number of increments over time (value 0–100) (ARB2_N_TREND)

14–17 Potential Present Receiver Threshold maximum in microseconds (ARB2_POT_PRESENT_THR_MAX)

18–1B Original Threshold maximum in microseconds (ARB2_ORIG_THR_MAX)

1C–1F RPNCB address

Instance 18:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID	0	INSTANCE	0	POTENTIAL RECEIVER THRESHOLD				MIN RECEIVER THRESHOLD				MAX RECEIVER THRESHOLD				POTENTIAL MAX THRESHOLD				ORIGINAL MAX THRESHOLD				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–0B Potential Receiver Threshold value in microseconds (ARB2_POT_RCVR_THRESHOLD)

0C–0F Minimum Receiver Threshold value in microseconds (ARB2_RCVR_THRESHOLD_MIN)

10–13 Maximum Receiver Threshold value in microseconds (ARB2_RCVR_THRESHOLD_MAX)

14–17 Potential Present Threshold maximum in microseconds (ARB2_POT_PRESENT_THR_MAX)

18–1B Original Threshold maximum in microseconds (ARB2_ORIG_THR_MAX)

1C–1F RPNCB address

Instance 19:

00 01 02 03	04	05	06	07	08	09	0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
ARBR	ID	0	INSTANCE	0	CORRELATOR	FLAGS	CORRELATOR	MAX SEND RATE	ALLOWED SEND RATE	TARGET SEND RATE	SMOOTH SEND RATE	RPNCB ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08 ARB request correlator sent on ARB segment (THD_ARB_CORRELATOR)

09 Flag values used for Responsive Mode ARB processing (ARB2_PHASE_FLAGS2)

0A–0B Current ARB request correlator (ARB2_REQUEST_CORRELATOR)

0C–0F Shared link rate in kbps (ARB_MAX_SEND_RATE)

10–13 ARB allowed sending rate in kbps (ARB_ALLOW_SEND_RATE)

14–17 Target sending rate in kbps (ARB2_TARGET_RATE)

18–1B Smoothed actual sending rate in kbps (ARB2_SMOOTH_ACTUAL_RATE)

1C–1F RPNCB address

Instance 20:

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D	0E 0F	10 11	12 13	14 15	16 17	18 19 1A 1B	1C 1D 1E 1F
ARBR	ID	0	INSTANCE	0	SMOOTH ROUND TRIP	BURST	FCURVE	RATE	SND/TRGT	NUM STEPS	0	0	RPNCB ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–0B Smoothed Round Trip Time in milliseconds (RPN_SRTT)

0C–0D
ARB Burst interval in milliseconds (ARB2_BURST_INTVL)

0E–0F Aggressiveness indicator, range is 0 (most aggressive) – 1000 (least aggressive) (ARB2_FCURVE_NOW)

10–11 Determines how fast F_curve value increases (ARB2_ALPHA_NOW)

12–13 Fraction of the current send/target rate (value 0-1000) (ARB2_DOWN_GAMMA)

14–15 Number of aggressive steps taken (ARB2_AGGRESSIVE_STEPS)

16–17 0

18–1B 0

1C–1F RPNCB address

Instance 21:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID	0	INSTANCE	0	CORRELATOR	FLAGS	0	0	CORRELATOR		0		0				0				0				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08 ARB request correlator sent on ARB segment (THD_ARB_CORRELATOR)

09 Flag values used for Responsive Mode ARB processing (ARB2_PHASE_FLAGS2)

0A 0

0B 0

0C–0D
Current ARB request correlator (ARB2_REQUEST_CORRELATOR)

0E–0F 0

10–13 0

14–17 0

18–1B 0

1C–1F RPNCB address

Instance 22:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID	0	INSTANCE	0	0				ALLOWED SEND RATE				TARGET SEND RATE				SLOW CNT		CON CNT		0				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–0B 0

0C–0F ARB allowed sending rate in kbps (ARB_ALLOW_SEND_RATE)

10–13 Target sending rate in kbps (ARB2_TARGET_RATE)

14–15 Number of consecutive slowdowns while using above 10% of shared link rate (ARB2_SLOW_COUNT)

16–17 Number of consecutive ARB status requests while in conservative phase (ARB2_CONSERVATIVE_CNT)

18–1B 0

1C–1F RPNCB address

Instance 23:

00 01 02 03	04	05	06	07	08	09	0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
ARBR	ID	0	INSTANCE	0	FLAGS	FLAGS	FCURVE	BURST SIZE	MIN BURST SIZE	RATE CHANGE	ELAPSED TIME	RPNCB ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08 Flag values used for ARB processing (ARB_FLAGS)

09 ARB flags passed on the ARB segment (THD_ARB_FLAGS)

0A–0B Aggressiveness indicator, range is 0 (most aggressive) – 1000 (least aggressive) (ARB2_FCURVE_NOW)

0C–0F Number of bits in burst size based on link rate (ARBLV_BURST_SIZE_MIN)

10–13 Current minimum burst size (ARB2_BURST_SIZE_MIN)

14–17 Fractional value used to determine rate increase or decrease (ARBLV_GAMMA_VALUE)

18–1B Elapsed time in milliseconds since last ARB status reply received (ARBLV_ETIME_IN_MS)

1C–1F RPNCB address

Instance 24:

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
ARBR	ID	0	INSTANCE	0	BITS OF DATA	BURST SIZE	CURRENT SEND RATE	RATE CHANGE	MIN GAMMA	RPNCB ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–0B Bits of data sent over the last interval (ARBLV_BITS_OF_DATA)

0C–0F Number of bits in burst size based on link rate (ARBLV_BURST_SIZE_MIN)

10–13 Current sending rate of last interval (ARBLV_CURRENT_SEND_RATE)

14–17 Fractional value used to determine rate increase or decrease (ARBLV_GAMMA_VALUE)

18–1B Minimum Gamma value (ARBLV_GAMMA_MIN)

1C–1F RPNCB address

Instance 25:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID		0		0		FLAGS		FLAGS		HIGH STEP		NEXT BYTE				LAST BYTE SENT				SMOOTH SEND RATE				MAX SEND RATE				RPNCB ADDRESS			
						INSTANCE																											

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08 Flag values used for Responsive Mode ARB processing (ARB2_PHASE_FLAGS)

09 Flag values used for Responsive Mode ARB processing (ARB2_PHASE_FLAGS2)

0A–0B Number of instances where allowed sending rate is above shared link rate (ARB2_HIGH_STEPS)

0C–0F Sequence number of next byte to be transmitted (RPN_NEXT_BYTE_XMIT)

10–13 Last byte transmitted during previous ARB rate reply (ARB2_LAST_BYTE_SENT)

14–17 Smoothed actual sending rate in kbps (ARB2_SMOOTH_ACTUAL_RATE)

18–1B Shared link rate in kbps (ARB_MAX_SEND_RATE)

1C–1F RPNCB address

Instance 26:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID	0	INSTANCE	0	FLAGS	FLAGS	INDEX	0	HIGH STEP		0		MAX SEND RATE				SMOOTH SEND RATE				0				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08 Flag values used for Responsive Mode ARB processing (ARB2_PHASE_FLAGS)

09 Flag values used for Responsive Mode ARB processing (ARB2_PHASE_FLAGS2)

0A Shared link rate table index (ARBLV_MAXSNDI)

0B 0

0C–0D
Number of instances where allowed sending rate is above "shared link rate" (ARB2_HIGH_STEPS)

0E–0F 0

10–13 Shared link rate in kbps (ARB_MAX_SEND_RATE)

14–17 Smoothed actual sending rate in kbps (ARB2_SMOOTH_ACTUAL_RATE)

18–1B 0

1C–1F RPNCB address

Instance 27:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID	0	INSTANCE	0	NUM STEP		HIGH STEP		SLOW COUNT		CON COUNT		FCURVE		0	0	GAMMA VALUE				SEND TARGET				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–09 Number of aggressive steps taken (ARB2_AGGRESSIVE_STEPS)

0A–0B Number of instances where allowed sending rate is above "shared link rate" (ARB2_HIGH_STEPS)

0C–0D
Number of consecutive slowdowns while using above 10% of shared link rate (ARB2_SLOW_COUNT)

0E–0F Number of consecutive ARB status requests while in conservative phase (ARB2_CONSERVATIVE_CNT)

10–11 Aggressiveness indicator, range is 0 (most aggressive) – 1000 (least aggressive) (ARB2_FCURVE_NOW)

12–13 0

14–17 Fractional value used to determine rate increase or decrease (ARBLV_GAMMA_VALUE)

18–1B Fraction of the current send/target rate (value 0 – 1000) (ARB2_DOWN_GAMMA)

1C–1F RPNCB address

Instance 28:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID	0	INSTANCE	0	FLAGS	FLAGS	CON COUNT		TARGET SEND RATE				CURRENT SEND RATE				MAX SEND RATE				0				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08 Flag values used for Responsive Mode ARB processing (ARB2_PHASE_FLAGS)

09 Flag values used for Responsive Mode ARB processing (ARB2_PHASE_FLAGS2)

0A–0B Number of consecutive ARB status requests while in conservative phase (ARB2_CONSERVATIVE_CNT)

0C–0F Target for sending rate in kbps (ARBLV_TARGET_RATE)

10–13 Current sending rate in kbps (ARBLV_CURR_RATE)

14–17 Shared link rate in kbps (ARB_MAX_SEND_RATE)

18–1B 0

1C–1F RPNCB address

Instance 29:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID	0	INSTANCE	0	CON COUNT		0		RANDOM VALUE				SMOOTH ROUND TRIP				SMOOTH ROUND TRIP LOWER BOUND				RANDOM THRESHOLD				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–09 Number of consecutive ARB status requests while in conservative phase (ARB2_CONSERVATIVE_CNT)

0A–0B 0

0C–0F Random value in the range 0–16 (ITSUDATA)

10–13 Smoothed Round Trip Time in milliseconds (RPN_SRTT)

14–17 Smoothed Round Trip Time with a lower bound of 100 milliseconds (ARBLV_X)

18–1B Random Threshold value used to determine when to leave conservative phase (ARB2_RANDOM_THRESH)

1C–1F RPNCB address

Instance 30:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID	0	INSTANCE	0	FLAGS	FLAGS	FCURVE		RATE		SLOW COUNT		TARGET SEND RATE				CURRENT SEND RATE				GAMMA VALUE				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08 Flag values used for Responsive Mode ARB processing (ARB2_PHASE_FLAGS)

09 Flag values used for ARB processing (ARB_FLAGS)

0A–0B Aggressiveness indicator, range is 0 (most aggressive) – 1000 (least aggressive) (ARB2_FCURVE_NOW)

0C–0D
Determines how fast F_curve value increases (ARB2_ALPHA_NOW)

0E–0F Number of consecutive slowdowns while using above 10% of shared link rate (ARB2_SLOW_COUNT)

10–13 Target for sending rate in kbps (ARBLV_TARGET_RATE)

14–17 Current sending rate in kbps (ARBLV_CURR_RATE)

18–1B Fractional value used to determine rate increase or decrease (ARBLV_GAMMA_VALUE)

1C–1F RPNCB address

Instance 31:

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
ARBR	ID	0	INSTANCE	0	0	VARIABLE X	VARIABLE B	VARIABLE C	SHARED RATE FRACTION	RPNCB ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–0B 0

0C–0F Local variable used to compute decreased target rate (ARBLV_X)

10–13 Local variable used to compute decreased target rate (ARBLV_B)

14–17 Local variable used to compute decreased target rate (ARBLV_C)

18–1B Fractional amount of shared link rate used (value 0-1000) (ARBLV_SHARED_RATE_FRACTION)

1C–1F RPNCB address

Instance 32:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID	0	INSTANCE	FLAGS	SLOW COUNT		RATE		TARGET SEND RATE				VARIABLE				VARIABLE				0				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 Flag values used for Responsive Mode ARB processing (ARB2_PHASE_FLAGS)

08–09 Number of consecutive slowdowns while using above 10% of shared link rate (ARB2_SLOW_COUNT)

0A–0B Determines how fast F_curve value increases (ARB2_ALPHA_NOW)

0C–0F Target for sending rate in kbps (ARBLV_TARGET_RATE)

10–13 Local variable used to compute decreased target rate (ARBLV_B)

14–17 Local variable used to compute decreased target rate (ARBLV_C)

18–1B 0

1C–1F RPNCB address

Instance 33:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID	0	INSTANCE	0	MIN STEPS TO TARGET				MAX STEPS TO TARGET				NUMBER STEPS TO TARGET				TRANS TIME FORWARD				TRANS TIME REVERSE				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–0B Minimum number of steps to reach target rate (multiplied by 1000) (ARBLV_KUP_MIN)

0C–0F Maximum number of steps to reach target rate (multiplied by 1000) (ARBLV_KUP_MAX)

10–13 Number of steps to be taken to reach target rate (multiplied by 1000) (ARBLV_KUP_NOW)

14–17 Accumulated trans time forward in microseconds (ARB_ACCUM_TTIME_FRW)

18–1B Accumulated trans time reverse in microseconds (ARB_ACCUM_TTIME_REV)

1C–1F RPNCB address

Instance 34:

00 01 02 03	04	05	06	07	08	09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
ARBR	ID	0	INSTANCE	0	FLAGS	0	BURST INTERNAL	NUMBER STEPS TO TARGET	MIN BURST TIME	NUMBER BITS BURST SIZE	RPNCB ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08 Flag values used for ARB processing (ARB_FLAGS)

09–0B 0

0C–0F Burst interval, which is the maximum of SRTT and 100 milliseconds (ARBLV_BURST_INTERVAL)

10–13 Number of steps to be taken to reach target rate (multiplied by 1000) (ARBLV_KUP_NOW)

14–17 Minimum ARB burst time duration in milliseconds (ARB_BT_MIN)

18–1B Number of bits in burst size based on link rate (ARBLV_BURST_SIZE_MIN)

1C–1F RPNCB address

Instance 35:

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
ARBR	ID	0	INSTANCE	0	SMOOTH ROUND TRIP	SMOOTH DEVIATION	SHORT REQUEST TIME	CURRENT ROUND TRIP	REFIFO TIME	RPNCB ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–0B Smoothed Round Trip Time in milliseconds (RPN_SRTT)

0C–0F Smoothed deviation of Round Trip Time in milliseconds (RPN_SMOOTH_DEV)

10–13 Short Request time in milliseconds (RPN_SHORT_REQ_T)

14–17 Current Round Trip Time in milliseconds (ARB2_CURRENT_RTT)

18–1B REFIFO time value in milliseconds (RPN_REFIFO_T)

1C–1F RPNCB address

Instance 36:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID		0		INSTANCE		0		FCURVE				0		IDLE TIME		ALLOWED SEND RATE				TARGET SEND RATE				CURRENT ROUND TRIP				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–09 Aggressiveness indicator, range is 0 (most aggressive) – 1000 (least aggressive) (ARB2_FCURVE_NOW)

0A–0B 0

0C–0F Amount of time in milliseconds idle since last data transmitted (ITSUDATA)

10–13 ARB allowed sending rate in kbps (ARB_ALLOW_SEND_RATE)

14–17 Target sending rate in kbps (ARB2_TARGET_RATE)

18–1B Current Round Trip Time in milliseconds (ARB2_CURRENT_RTT)

1C–1F RPNCB address

Instance 37:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARBR				ID		0		INSTANCE		0		BURST INT				FCURVE		MAX SEND RATE		SMOOTH ACTUAL SEND RATE				TARGET SEND RATE				NUMBER BITS BURST SIZE				RPNCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ARBR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace instance

07 0

08–09 ARB Burst interval in milliseconds (ARB2_BURST_INTVL)

0A–0B Aggressiveness indicator, range is 0 (most aggressive) – 1000 (least aggressive) (ARB2_FCURVE_NOW)

0C–0F Shared link rate in kbps (ARB_MAX_SEND_RATE)

10–13 Smoothed actual sending rate in kbps (ARB2_SMOOTH_ACTUAL_RATE)

14–17 Target sending rate in kbps (ARB2_TARGET_RATE)

18–1B Number of bits in burst size based on link rate (ARBLV_BURST_SIZE_MIN)

1C–1F RPNCB address

AREL entry for abend RELSTORE

Entry: AREL

VIT option:
SMS

Event: Abend RELSTORE

VIT processing module:
ISTRACSM

Control is returned to:
ISTORAPR

This trace record identifies the buffers that are released by VTAM when a VTAM application program is terminated.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
AREL				ID	CBID	0		PST ADDRESS				BUFFER ADDRESS				RETURN ADRESS				0											

Byte (hex)
Contents

00–03 Record ID: C"AREL"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Control block ID index value

06–07 0

08–0B PST address

0C–0F Address of buffer being released

10–13 Address of the caller of the abend RELSTORE routine

14–1F 0

ARP or ARS entry for RTP session data reply (Part 1)

Entry: ARP or ARS

VIT option:
HPR

Event: Any session data reply is sent over an RTP connection using Responsive Mode ARB

VIT processing module:
ISTITCHR

Control is returned to:
ISTRPCAR

This trace record is written when a session data reply is sent across an RTP connection using Responsive Mode ARB, or when simulating a slowdown reply. It contains statistical information about the session data.

00 01 02 03	04	05	06 07	08 09	0A 0B	0C 0D 0E 0F	10 11	12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
ARP OR ARS	ID	0	PHASE FLAGS	HIGH STEPS	AGGRESSIVE STEPS	MEASURE INT	BURST INTERVAL	DOWNWARD GAMMA VALUE	GAMMA VALUE	NCB ADDRESS	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID:

- C"ARP" for real reply
- C"ARS" for simulated reply

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06–07 Phase flags (ARB2_PHASE_FLAGS, ARB2_PHASE_FLAGS2)

Bit **Meaning**

1... ....
Conservation phase

.1.. ....
Medium aggressive phase

..1. ....
Send setup segment

...1 ....
High flag

.... 1... ....
Delay change sum flag

.... .1.. ....
Upward cycle flag

.... ..1. ....
Idle - no data has been sent recently

....1 ....
Startup

.... 1... ....
Last parity bit received on an ARB rate request

.... .1.. ....
Current ARB request parity bit

....11 1111
Not used

08–09 High steps (ARB2_HIGH_STEPS) – the number of successive normal rate increases above the current shared link rate

0A–0B Aggressive steps (ARB2_AGGRESSIVE_STEPS)

0C–0F Measurement interval in milliseconds (ARB2_MEASURE_INT)

10–11 Burst interval in milliseconds (ARB2_BURST_INTVL)

12–13 Downward gamma value (ARB2_DOWN_GAMMA)

14–17 Gamma value

18–1B NCB address

1C–1F Request parameter header (RPH) address

ARP2 or ARS2 entry for RTP session data reply (Part 2)

Entry: ARP2 or ARS2

VIT option:
HPR

Event: Any session data reply is sent over an RTP connection using Responsive Mode ARB

VIT processing module:
ISTITCHR

This trace record is a continuation of the ARP or ARS entry.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARP2 OR ARS2				CURRENT	FCURVE	CURRENT	ALPHA	CURRENT TRACK SPEED (Kup)				MAXIMUM SEND RATE				ALLOWED SEND RATE				TARGET RATE				SMOOTH ACTUAL RATE				SMOOTH ROUND TRIP TIME			

Byte (hex)
Contents

00–03 Record ID:
- C"ARP2" for real reply
- C"ARS2" for simulated reply

04–05 Current F-curve value (ARB2_FCURVE_NOW)

06–07 Current alpha value (ARB2_ALPHA_NOW)

08–0B Current tracking speed value

0C–0F Maximum send rate in kbps (ARB_MAX_SEND_RATE)

10–13 Allowed send rate in kbps (ARB_ALLOW_SEND_RATE)

14–17 Target rate in kbps (ARB2_TARGET_RATE)

18–1B Smooth actual rate in kbps (ARB2_SMOOTH_ACTUAL_RATE)

1C–1F Smooth round-trip time in milliseconds (RPN_SRTT)

ARQ entry for RTP session data request (Part 1)

Entry: ARQ

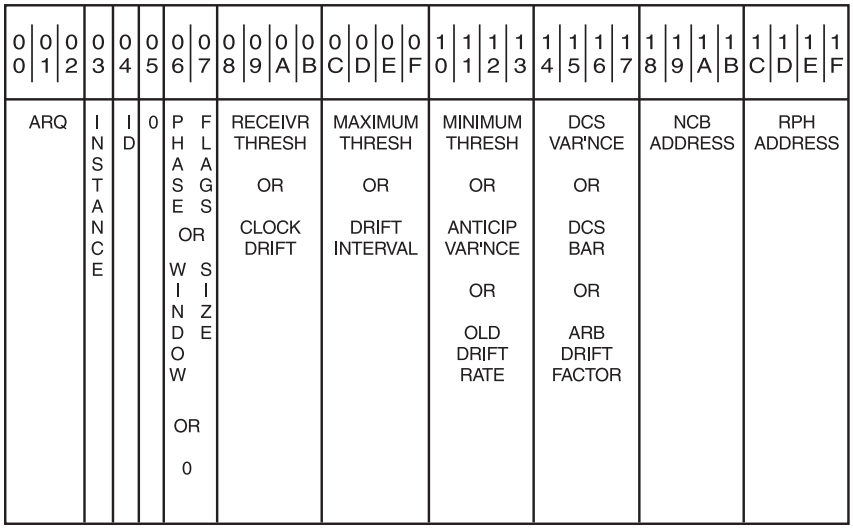
VIT option:
HPR

Event: Any session data request is received over an RTP connection using Responsive Mode ARB

VIT processing module:
ISTITCHR

Control is returned to:
ISTRPCAR

This trace record is written when session data is received across an RTP connection using Responsive Mode ARB. It contains statistical information about the session data.



Byte (hex)
Contents

00–02 Record ID: C"ARQ"

03 Trace instance

Code	Meaning
C	Computer (values before computer code executes).
D	Drift detected.
N	Entry (values on entry).
R	Drift reduction.
X	Exit (values on exit).

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06–07

Code	Meaning
N, X	Phase flags (ARB2_PHASE_FLAGS, ARB2_PHASE_FLAGS2).
C	Window size (ARB2_POT_WINDOW_SIZE).
D, R	0

Phase flags:

Bit	Meaning
1...	Conservation phase
.1..	Medium aggressive phase
..1.	Send setup segment

...1 ....
High flag

.... 1... ....
Delay change sum flag

.... .1.. ....
Upward cycle flag

.... ..1. ....
Idle - no data has been sent recently

....1 ....
Startup

.... 1... ....
Last parity bit received on an ARB rate request

.... .1.. ....
Current ARB request parity bit

....11 1111
Not used

08–0B

Code	Meaning
C, N, X	Receiver threshold in microseconds (ARB2_POT_RCVR_THRESHOLD).
D	Current accumulated queuing time in microseconds (ARBLV_CLOCK_DRIFT). This is the minimum of the ACCUM QUEUING TIME and DCS BAR.
R	Current accumulated queuing time in microseconds (ARBLV_CLOCK_DRIFT). This is the absolute value of ACCUM QUEUING TIME plus 1500 microseconds.

0C–0F

Code	Meaning
C, N, X	Maximum present threshold in microseconds (ARB2_POT_PRESENT_THR_MAX).
D	Elapsed time, in microseconds, since a drift condition was detected.
R	ACCUM QUEUING TIME has been rounded back to 0.

10–13

Code	Meaning
C	Minimum present threshold in microseconds (ARB2_POT_PRESENT_THR_MIN).
N, X	Anticipated variance in milliseconds (ARB2_POT_ANTICIPATED_VAR).
D, R	Amount of clock drift, measured in microseconds, allowed per second.

14–17

Code	Meaning

C Delay change sum variance.

N, X Delay change sum bar in microseconds (ARB2_POT_DCS_BAR).

D, R This value has a range of 2 to 20000. The default is 20000, which is associated with a drift of 50 microseconds per second. The drift rate, in microseconds, can be determined by dividing one million by the ARB_DRIFT_FACTOR.

18–1B NCB address

1C–1F Request parameter header (RPH) address

ARQ2 entry for RTP session data request (Part 2)

Entry: ARQ2

VIT option:
HPR

Event: Any session data request is received over an RTP connection using Responsive Mode ARB.

VIT processing module:
ISTITCHR

This trace record is a continuation of the ARQ entry. This trace record is written only for the Entry and Exit instances.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ARQ2				CURRENT QUEUING TIME OR INCRE'T TREND				ACCUM QUEUING TIME				RECEIVR THRESH MAXIMUM OR RATE SCALER				RECEIVR THRESH MINIMUM OR ERROR COUNT				TARGET RATE				RECOVRY FACTOR				LAST REQUEST	CORRELATOR	0	

Byte (hex)
Contents

00–03 Record ID: C"ARQ2"

04–07 Current queuing time in milliseconds for Entry. Increment trend (ARB2_POT_INC_TREND) for Exit.

08–0B Accumulated queuing time in microseconds (ARB_ACCUM_QTIME for Entry, ARB2_POT_ACCUM_QTIME for Exit)

0C–0F Receiver threshold maximum in microseconds (ARB2_RCVR_THRESHOLD_MAX) for Entry. Rate scaler for Exit.

10–13 Receiver threshold minimum in microseconds

(ARB2_RCVR_THRESHOLD_MIN) for Entry. Error count (ARB2_POT_ERROR_COUNT) for Exit.

14–17 Target rate (ARB2_TARGET_RATE)

18–1B Recovery factor (ARB2_POT_RECOVERY_FACTOR)

1C–1D
Last request correlator (ARB2_LAST_REQ_CORRELATOR)

1E–1F 0

ASNB entry for ASSIGN_BUFFER requests

Entry: ASNB

VIT option:
CSM

Event: IVTCSM REQUEST=ASSIGN_BUFFER

VIT processing module:
ISTITCCS

Control is returned to:
IVTSMCBF

This record provides the status of an IVTCSM REQUEST=ASSIGN_BUFFER macroinstruction. A pair of ASNB records is created for each IVTCSM REQUEST=ASSIGN_BUFFER macroinstruction. The first record, along with the ASN2 continuation records, is created when the macroinstruction is issued and records the buffer token provided. The second record is created when the macroinstruction completes and records the new buffer tokens and additional information.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ASNB				ID	0	FLAG	RECNUM	TYPE	0	OWNER	IDB	RTN COD		RSN COD		UTILRTN CALLER OR RETURN ADDRESS				LAST BUFFER LIST ENTRY				NUMBER OF BUFFERS				THREAD VALUE OR 0			

Byte (hex)
Contents

00–03 Record ID: C"ASNB"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace record flags:

B'0... ....'
Indicates that this is the last record for this event.

B'1... ....'
Indicates that additional records exist for this event. Use the trace record number from this entry to locate corresponding continuation records.

B'.1.. ....'
Traces the issuance of the request.

B'.0.. ....'
Traces the completion of the request.

07 Trace record number to correlate all the entries for this particular event.

08 Type or state of buffers allocated

X'80' Fixed

X'20' Eligible to be made pageable

09 0

0A–0B Owner ID. When traced on issuance, the owner ID is always 0.

0C–0D
Return Code

0E–0F Reason Code

10–13 Address of utility routine caller or return address of the issuer of the IVTCSM macroinstruction

14–17 Last buffer list entry. When traced on issuance, the last entry is nonzero whether an error occurred or not. On completion of assigned buffer, the last entry is 0 if the return code is 0 and nonzero if the return code is nonzero.

18–1B Number of buffers requested to be assigned

1C–1F THREAD value, if specified, or 0 if THREAD is not specified. The THREAD value is used only to correlate this trace record to a specific IVTCSM macroinstruction.

ASN2 entry for ASSIGN_BUFFER requests

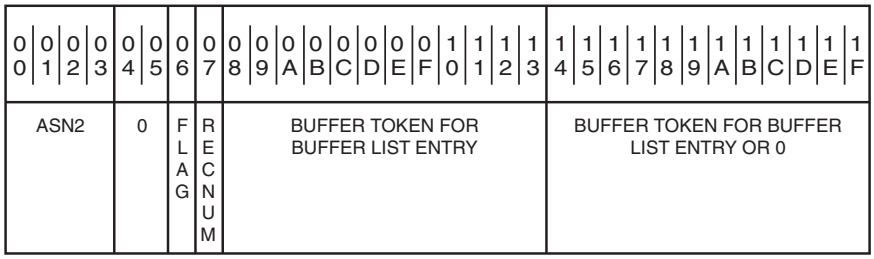
Entry: ASN2

VIT option:
CSM

Event: IVTCSM REQUEST=ASSIGN_BUFFER

VIT processing module:
ISTITCCS

This trace record is a continuation of the ASNB trace record. It contains information about the buffer images that were assigned. Note that two buffer tokens are present in the trace record for each buffer list entry. This is because a token is received on input and a new token is created to represent the new image of the buffer on output.



Byte (hex)
Contents

00–03 Record ID: C"ASN2"

04–05 0

06 Trace record flag:

B'0... ....'
Indicates that this is the last record for this event.

B'1... ....'
Indicates that additional records exist for this event. Use the trace record number from this entry to locate corresponding continuation records.

07 Trace record number to correlate all the entries for this particular event

08–13 Buffer token contained in the buffer list entry

14–1F Buffer token contained in the buffer list entry or 0 if there was an odd number of buffers in the list

ATSK entry for attach of a subtask

Entry: ATSK

VIT option:
PSS

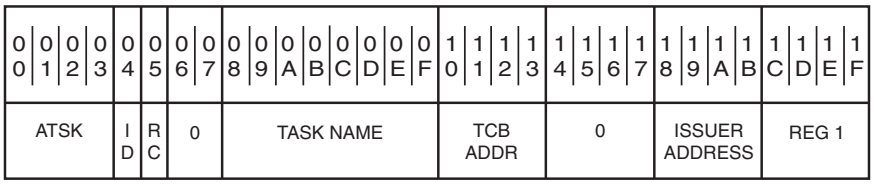
Event: ATTACH of a subtask

VIT processing module:
ISTRACPS

Control is returned to:
The module that issued the ATTACH

This trace record is written when a VTAM module issues an ATTACH macro to start another subtask. This record is generated after the ATTACH completes to ensure that completion information is included in the entry. Consequently, this entry can sometimes appear after the BTSK entry that is generated by the subtask it is attaching.

Not all subtask events generate this entry.



00 01 02 03	04	05	06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
ATSK	ID	RC	0	TASK NAME	TCB ADDR	0	ISSUER ADDRESS	REG 1

Byte (hex)
Contents

00–03 Record ID: C"ATSK"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Return code from the ATTACH macro

06–07 0

08–0F Name of the subtask being attached

10–13 TCB address returned from the ATTACH macro

14–17 0

18–1B Address of the issuer of the ATTACH macro

1C–1F Register 1

ATTx entry for attention

Entry: ATT

VIT option:
CIO

Event: Attention

VIT processing module:
ISTRACCI

Control is returned to:
ISTTSCCA or ISTTSCLA

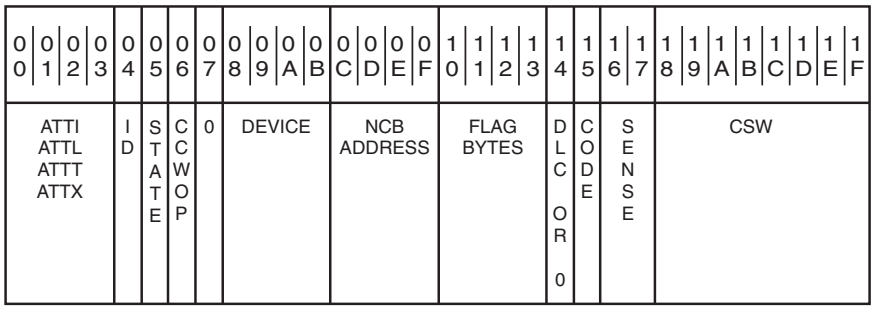
ATTI is written when an attention interrupt occurs for a channel-attached communication controller or an SNA cluster controller.

ATTL is written when an attention interrupt occurs for a channel-attached non-SNA device (device defined in a local non-SNA major node).

ATTT is written when an attention interrupt occurs for a TCP/IP DLC connection.

ATTX is written when an attention interrupt occurs for a channel-to-channel attachment, including an IBM 3172 Interconnect Nways Controller.

For record types with suffix I, X, or T, the CIO events are also captured within the NCB (pointed to by NCBCIOMV). The NCB trace table is mapped by NCBCIOAR.



00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ATTI ATTL ATTT ATTX				ID		STATE	CCWOP	0	DEVICE			NCB ADDRESS				FLAG BYTES				DLC OR 0	CODE	SENSE		CSW							

Byte (hex)
Contents

00–03 Record ID:
- C"ATTI" for ICNCB
- C"ATTL" for LDNCB
- C"ATTT" for RWNCB
- C"ATTX" for XCNCB

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Link station state (NCBLNKST) for ICNCB, LDNCB, and RWNCB; station state (XCNSSFSM) for XCNCB

06 CCW opcode or channel

07 0

08–0B Channel device name in EBCDIC (either a device address or device number)

0C–0F NCB address

10–13 Flag bytes (NCBFLAGS)

14 0 or for ATTT:
- For the CDLC DLC: C
- For the LCS DLC: L
- For the CLAW DLC: W
- For the CTC DLC: X
- For the HYPERchannel DLC: H

15 I/O completion code (IOSCOD in the IOSB)

16–17 Sense data (IOSSNS of the IOSB)

18–1F Channel status word from the IOSB

BSPx entry for ADD, DELETE, and FIND macros

Entry: BSPA, BSPD, or BSPF

VIT option:
NRM

Event: BSBPCID ADD, DELETE, and FIND macros

VIT processing module:
ISTRACNR

Control is returned to:
ISTTSCPU

This trace record is written when ADD, DELETE, and FIND operations are performed for the BSBPCID tree. It shows:

- Key used for the invocation
- Information from the boundary session block (BSB) indicating the state of the session

Use this entry to track activity on a session.

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
BSPA BSPF BSPD	ID	PLU STATE	MACRO RC	FLAGS OR 0	ADDRESS OF ISSUER OF MACRO	BSB ADDRESS	PCID	BSB FLAGS	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID:
C"BSPA" for BSBPCID ADD
C"BSPF" for BSBPCID FIND
C"BSPD" for BSBPCID DELETE

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Primary logical unit (PLU) state

06 Macro return code

Code	Meaning
X'00'	Successful invocation
X'04'	Boundary session block (BSB) not found
X'08'	Duplicate input address
X'12'	Address not valid

07 IP flags, if this BSB represents a SNA/IP session. 0 otherwise.

08–0B Address of the issuer of the macro

0C–0F Boundary session block (BSB) address

10–17 Procedure-correlation identifier (PCID)

18–1B Boundary session block (BSB) flags (FLAG1, FLAG2, FLAG3)

1C–1F Request parameter header (RPH) address of module issuing the call

BSSx entry for Add, Delete, and Find

Entry: BSSA, BSSD, or BSSF

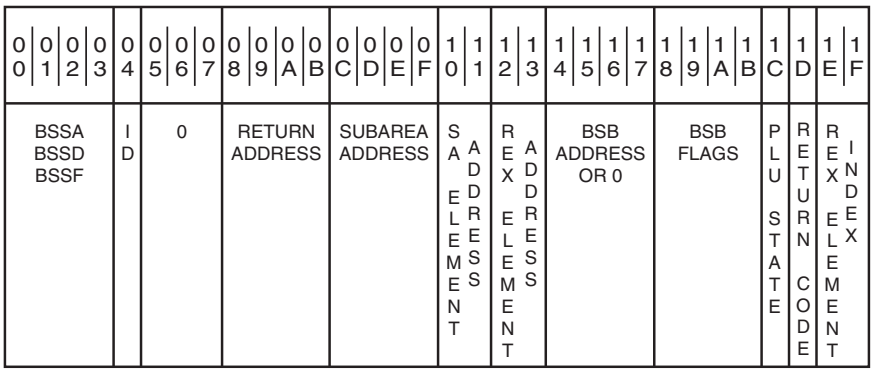
VIT option:
NRM

Event: BSBSA ADD, DELETE, and FIND macros

VIT processing module:
ISTRACNR

Control is returned to:
ISTTSCB2

This trace record contains information about BSBSA ADD, DELETE, or FIND macros issued by a VTAM module.



Byte (hex)
Contents

00–03 Record ID:
- C"BSSA" for BSBSA ADD
- C"BSSD" for BSBSA DELETE
- C"BSSF" for BSBSA FIND

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0B Address of the issuer of the macro

0C–0F Subarea address

10–11 Subarea element address

12–13 Rex element address

14–17 Boundary session block (BSB) address or 0

18–1B BSB Flags (FLAG1, FLAG2, FLAG3)

1C PLU state

1D Return code

Note: It is not required that users of the product know the meaning of this internal VTAM return code. When required, the product support organization may use it to assist in internal flow diagnosis.

1E–1F Rex element address index

BSXx entry for Add, Delete, and Find

Entry: BSXA, BSXD, or BSXF

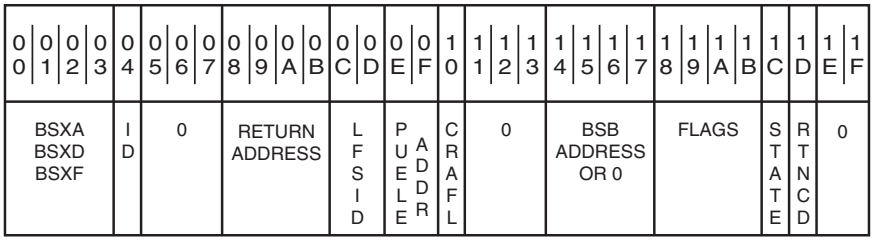
VIT option:
NRM

Event: BSBREX ADD, DELETE, and FIND macros

VIT processing module:
ISTRACNR

Control is returned to:
ISTTSCB1

This trace record contains information about BSBREX ADD, DELETE, or FIND macros issued by a VTAM module.



Byte (hex)
Contents

00–03 Record ID:

- C"BSXA" for BSBREX ADD
- C"BSXD" for BSBREX DELETE
- C"BSXF" for BSBREX FIND

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0B Address of the issuer of the macro

0C–0D
LFSID

0E–0F PU element address

10 CRA flags

11–13 0

14–17 Boundary session block (BSB) address or 0

18–1B BSB Flags (FLAG1, FLAG2, FLAG3)

1C PLU state

1D Return code

Note: It is not required that users of the product know the meaning of this internal VTAM return code. When required, the product support organization may use it to assist in internal flow diagnosis.

1E–1F 0

BTSK entry for begin a subtask

Entry: BTSK

VIT option:
PSS

Event: Begin a subtask

VIT processing module:
ISTRACPS

Control is returned to:
The subtask that is just starting

This trace record is written when a VTAM subtask begins execution. This record can appear in the internal trace table before the ATSK entry for the ATTACH of the subtask.

Some subtasks start without generating this entry.

00 01 02 03	04	05 06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
BTSK	ID	0	TASK NAME	TCB ADDR	ENTRY POINT ADDR	0	REG 1

Byte (hex)
Contents

00–03 Record ID: "BTSK"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0F Name of the subtask that was entered

10–13 TCB address of the current subtask

14–17 Entry point into the subtask

18–1B 0

1C–1F Contents of register 1 upon entry

BUFF entry for 8K external buffer

Entry: BUFF

VIT option:
None (generated when VIT is running externally using 8K buffers)

Event: External VIT tracing

VIT processing module:
ISTRACRR

Control is returned to:
ISTRACRR

This trace record is the first record in an 8K external VIT buffer. It determines if the 8K buffer was written to the external trace file in the proper sequence. It also indicates whether enough 8K buffers were specified on the TRACE start option or the MODIFY TRACE command by counting the records that were individually GTRACEd.

00 01 02 03	04	05	06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
BUFF	ID	0	BFR NUM	RECORDS INDIV GTRACED	BUFFER SEQ NUMBER	TIME STAMP OF FIRST RECORD IN BUFFER	0	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: "BUFF"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06–07 Current BFRNUM value (as specified on TRACE start option or MODIFY TRACE command)

08–0B Count of VIT records individually GTRACEd because of a lack of 8K buffers

0C–0F Buffer sequence number

10–17 Time stamp of first VIT record in the buffer

18–1B 0

1C–1F RPH address

C64Q entry for CDSG queue manager events (IUTC64QM macro) (Part 1)

Entry: C64Q

VIT option:
CIA

Event: Queue management using IUTC64QM

VIT processing module:
ISTITCSH

Control is returned to:
IUTC64QM issuer

This trace record is written when the IUTC64QM macro is run. The record is primarily used to identify the addition or removal of elements to or from a queue header.

Restriction: This record is not written for a Get_Element_Count request or when a Remove_Element request fails.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
C	6	4	Q	ID	0		FUNCTION	RETURN ADDRESS				BEFORE SYNCH	AFTER SYNCH	0		ADDED / REMOVED ELEMENT ADDRESS or 0								IUTC64QH ADDRESS							

Byte (hex)
Contents

00–03 Record ID: C"C64Q"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–06 0

07 Function:

C'A' For Add_Chain

C'R' For Remove_Element

C'S' For Synch_byte_only

08–0B Address of caller (within IUTC64QM expansion)

0C Contents of synch byte before CDSG

0D Contents of synch byte after CDSG

0E–0F 0

10–18 Element address:

- For Add_Chain, address of first element in chain
- For Remove_Element, address of element removed
- For Synch_byte_only, 0

19–1F CDSG queue manager header address (IUTC64QH)

C642 entry for CDSG queue manager events (IUTC64QM macro) (Part 2)

Entry: C642

VIT option:
CIA

Event: Queue management using IUTC64QM

VIT processing module:
ISTITCSH

This trace record is a continuation of the C64Q entry.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
C	6	4	2	0				FIFO QUEUE ANCHOR								LIFO QUEUE ANCHOR								FIFO	COUNT	LIFO	COUNT	RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"C642"

04–07 0

08–0F Address of first element on FIFO queue after the CDSG

10–17 Address of first element on LIFO queue after the CDSG

18–19 Number of elements on FIFO queue after CDSG (X'FFFF' if 65,525 or more elements are on the queue)

1A–1B Number of elements on LIFO queue after CDSG (X'FFFF' if 65,525 or more elements are on the queue)

1C–1F Request parameter header (RPH) address

CCI or CCO entry for SSCP (RUPE — Part 1)

Entry: CCI or CCO

VIT option:
SSCP

Event: Requests/responses with a RUPE (Part 1)

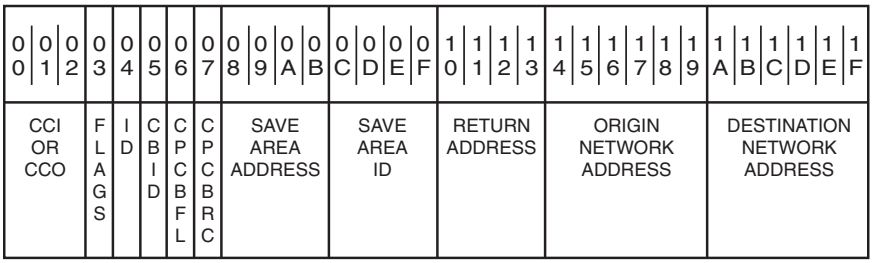
VIT processing module:
ISTRACSC

Control is returned to:

ISTINCCI for inbound processing
ISTINCCO for outbound processing

This trace record provides information about outbound processing done by ISTINCCO and inbound processing done by ISTINCCI. ISTINCCO processes a request; ISTINCCI sends a response to the requester.

If this entry is associated with an event failure (that is, the sense data is nonzero), this entry is generated whether the SSCP option is in effect or not. It is treated as an exception condition and, therefore, is traced whenever the VIT is active.



Byte (hex)
Contents

00–02 Record ID:
- C"CCI" for inbound processing
- C"CCO" for outbound processing

03 Flags
- 80 = response RU
- 40 = sense traced
- 00 = request RU

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Control block ID=X'54'

06 Flags (CPCBFL)

07 Return code (CPCBRC)

08–0B Save area address

0C–0F Save area ID (bytes 4, 5, 7, and 8 of the module name if available)

10–13 Address of the issuer of the macro (CPCALL, CPEXIT, or CPWAIT)

14–19 For sender, network address at origin (RUPE)

1A–1F For sender, network address at destination (RUPE)

CC2 entry for SSCP (RUPE — Part 2)

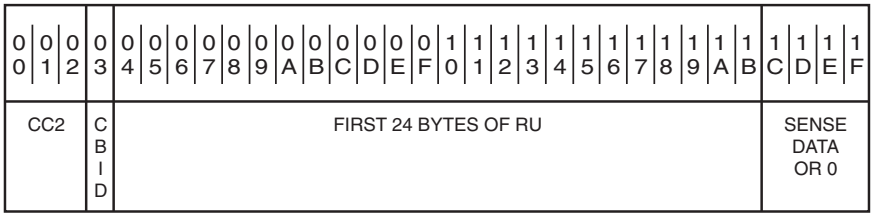
Entry: CC2

VIT option:
SSCP

Event: Requests/responses with a RUPE (Part 2)

VIT processing module:
ISTRACSC

This trace record is a continuation of the CCI or CCO (RUPE) entry.



Byte (hex)
Contents

00–02 Record ID: C"CC2"

03 Control block ID=X'54'

04–1B First 24 bytes of RU

1C–1F Sense data or 0

CCI or CCO entry for SSCP (NCSPL — Part 1)

Entry: CCI or CCO

VIT option:
SSCP

Event: Requests/responses for an NCSPL (Part 1)

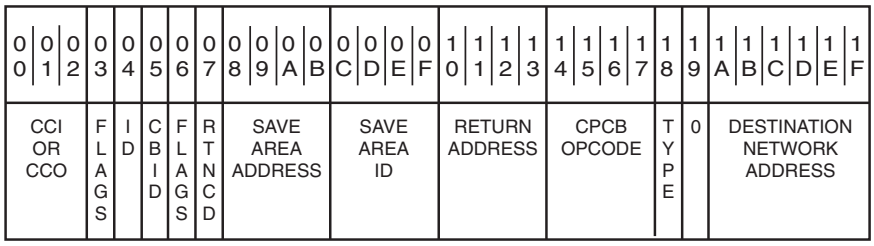
VIT processing module:
ISTRACSC

Control is returned to:

ISTINCCI for inbound processing
ISTINCCO for outbound processing

This trace record provides information about outbound processing, which processes a request, and inbound processing, which sends a response to the requester.

If this entry is associated with an event failure (that is, the sense data is nonzero), this entry is generated whether the SSCP option is in effect or not. It is treated as an exception condition and, therefore, is traced whenever the VIT is active.



Byte (hex)
Contents

00–02 Record ID:
- C"CCI" for inbound processing
- C"CCO" for outbound processing

03 Flags
- 80 = response RU
- 40 = sense traced
- 00 = request RU

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Control block ID=X'60'

06 Flags (CPCBFL)

07 Return code (CPCBRC)

08–0B Save area address

0C–0F Save area ID (bytes 4, 5, 7, and 8 of the module name if available)

10–13 Address of the issuer of the macro (CPCALL, CPEXIT, or CPWAIT)

14–17 CPCB operation code (see z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures.)

18 WTD type

19 0

1A–1F Network address at destination

CC2 entry for SSCP (NCSPL — Part 2)

Entry: CC2

VIT option:
SSCP

Event: Requests/responses for an NCSPL (Part 2)

VIT processing module:
ISTRACSC

This trace record is a continuation of the CCI or CCO (NCSPL) entry.

00 01 02	03	04 05 06 07	08 09 0A 0B	0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
CC2	CBID	RDTE STATE	CPCB WTD	0

Byte (hex)
Contents

00–02 Record ID: C"CC2"

03 Control block ID=X'60'

04–07 RDTE state (in control block RPRE)

08–0B CPCB WTD (first 4 bytes)

0C–1F 0

CCI or CCO entry for SSCP (not RUPE or NCSPL)

Entry: CCI or CCO

VIT option:
SSCP

Event: Requests/responses for neither RUPE nor NCSPL

VIT processing module:
ISTRACSC

Control is returned to:

ISTINCCI for inbound processing
ISTINCCO for outbound processing

This trace record provides information about outbound processing, which processes a request, and inbound processing, which sends a response to the requester.

If this entry is associated with an event failure (that is, the sense data is nonzero), this entry is generated whether the SSCP option is in effect or not. It is treated as an exception condition and, therefore, is traced whenever the VIT is active.

00 01 02	03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
CCI OR CCO	FLAGS	ID	CBID	CPCBF	RTNCD	SAVE AREA ADDRESS	SAVE AREA ID	RETURN ADDRESS	CPCB OPCODE	CPCB WORD 3	CPCB WORD 4

Byte (hex)
Contents

00–02 Record ID:

- C"CCI" for inbound processing
- C"CCO" for outbound processing

03 Flags

- 80 = response RU
- 40 = sense traced
- 00 = request RU

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Control block ID (Control block IDs are shown in z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures.)

06 CPCB flag (CPCBFL)

07 Return code (CPCBRC)

08–0B Save area address

0C–0F Save area ID (bytes 4, 5, 7, and 8 of the module name if available)

10–13 Address of the issuer of the macro (CPCALL, CPEXIT, or CPWAIT)

14–17 CPCB operation code (see z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures.)

18–1B CPCB word 3 (field WTDPTR)

1C–1F CPCB word 4 (field CPCBPH)

CCR entry for a communication channel operation

Entry: CCR

VIT option:
CIA

Event: communication channel operation for an IBM 10GbE RoCE Express feature that operates in a shared RoCE environment

This trace record is written when a communication channel operation is performed during the activation of a 10GbE RoCE Express feature that operates in a shared RoCE environment.

00 01 02 03	04 05	06	07	08 09	0A 0B	0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
CCR	ASID	0	COMMAND	RETURN CODE	REASON CODE	0	PFCTE ADDRESS	MID MODULE	RPH ADDRESS

Byte (hex)
Contents

00-03 Record ID: C"CCR"

04-05 ID is the primary address space ID (ASID).

06 0

07 Operation code for the communication channel command that was issued

08-09 Return code

0A-0B Reason code

0C-0F 0

10-18 Address of the PFCTE control block that represents this 10GbE RoCE Express feature

19-1B Identifier of the module that issued the communication channel command

1C-1F RPH address

CCR2 entry for communication channel operation (Part 2)

Entry: CCR2

VIT option:
CIA

Event: communication channel operation for an IBM 10GbE RoCE Express feature that operates in a shared RoCE environment.

This record is a continuation of the CCR trace record.

00 01 02 03	04 05 06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B 1C 1D 1E 1F
C C R 2	OPCODE AND RETRIES	INITIAL VALUE	COMMAND VALUE	COMPLETION VALUE

Byte (hex)
Contents

00-03 Record ID: C"CCR2"

04-07 Operation code and operation retries values

Bit	Meaning
0 - 11	Represents the operation code performed
12 - 31	Represents the number of retries before the command completes

08-0F The value of the communication channel before the command is attempted

10-17 The value stored by z/OS Communication Server into the communication channel to execute the command

18-1F The value of the communication channel after the command completes

CDHx entry for CIDCTL HOSTNODE Add, Change, Delete, and Find macros

Entry: CDHA, CDHC, CDHD, CDHF

VIT option:
NRM

Event: CIDCTL HOSTNODE ADD, CHANGE, DELETE, FIND macros

VIT processing module:
ISTRACNR

Control is returned to:
ISTNACRT

This trace record is written whenever a CIDCTL HOSTNODE ADD, CHANGE, DELETE, or FIND macro is invoked. CIDCTL FIND macro invocations executed during the process of sending or receiving data are not traced unless they result in a nonzero return code.

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11	12 13	14 15	16 17	18 19 1A 1B	1C 1D 1E 1F
CDHA CDHC CDHD CDHF	ID	0	FLAGS	RC	RETURN ADDRESS	CONTROL BLOCK ADDRESS	INDEX	SUB	ELEMENT	0	HOST NODE TABLE ENTRY ADDRESS	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID:
- C"CDHA" CIDCTL HOSTNODE ADD
- C"CDHC" CIDCTL HOSTNODE CHANGE
- C"CDHD" CIDCTL HOSTNODE DELETE
- C"CDHF" CIDCTL HOSTNODE FIND

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 NATFLAGS byte from NATBL

07 Return code

08–0B Return address of the invoker of the CIDCTL macro

0C–0F Address of the control block that was added, found, or changed; 0 for delete

10–11 Index portion of subarea address

12–13 Subarea portion of subarea address

14–15 Element portion of subarea address

16–17 0

18–1B Host node table entry address

1C–1F Address of RPH

CDNx entry for CIDCTL NEXTNODE Add, Delete, and Find macros

Entry: CDNA, CDND, CDNF

VIT option:
NRM

Event: CIDCTL NEXTNODE ADD, DELETE, FIND macros

VIT processing module:
ISTRACNR

Control is returned to:
ISTNACRT

This trace record is written whenever a CIDCTL NEXTNODE ADD, DELETE, or FIND macro is invoked. CIDCTL FIND macro invocations executed during the process of sending or receiving data are not traced unless they result in a nonzero return code.

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11	12 13	14 15	16 17	18 19 1A 1B	1C 1D 1E 1F
CDNA CDND CDNF	ID	0	FLAGS	RC	RETURN ADDRESS	CONTROL BLOCK ADDRESS	INDEX	SUB	ELEMENT	0	HOST NODE TABLE ENTRY ADDRESS	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID:
- C"CDNA" CIDCTL NEXTNODE ADD
- C"CDND" CIDCTL NEXTNODE DELETE
- C"CDNF" CIDCTL NEXTNODE FIND

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 NATFLAGS byte from NATBL

07 Return code

08–0B Return address of the invoker of the CIDCTL macro

0C–0F Address of the control block that was added or found; 0 for delete

10–11 Index portion of subarea address

12–13 Subarea portion of subarea address

14–15 Element portion of subarea address

16–17 0

18–1B Host node table entry address

1C–1F Address of RPH

CDN2 entry for CIDCTL NEXTNODE FIND (Part 2)

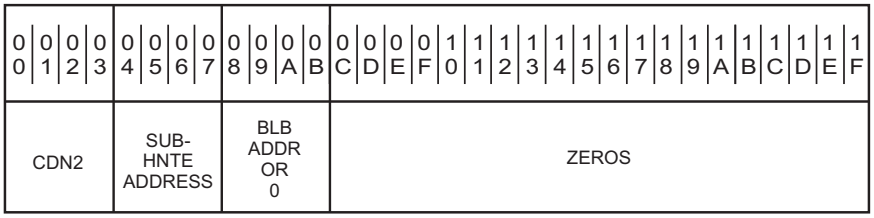
Entry: CDN2

VIT option:
NRM

Event: CIDCTL NEXTNODE FIND macro

VIT processing module:
ISTRACNR

This trace record is a continuation of the CDNF entry. This entry is present only when the subordinate host node table entry address is found and is associated with a boundary logical unit control block (BLB).



Byte (hex)
Contents

00–03 Record ID: C'CDN2'

04-07 Subordinate host node table entry address.

08-0B Boundary Logical Unit control block address or 0.

0C-0F 0

CDSQ entry for CDS queue manager event (IUTCDSQM macro)

Entry: CDSQ

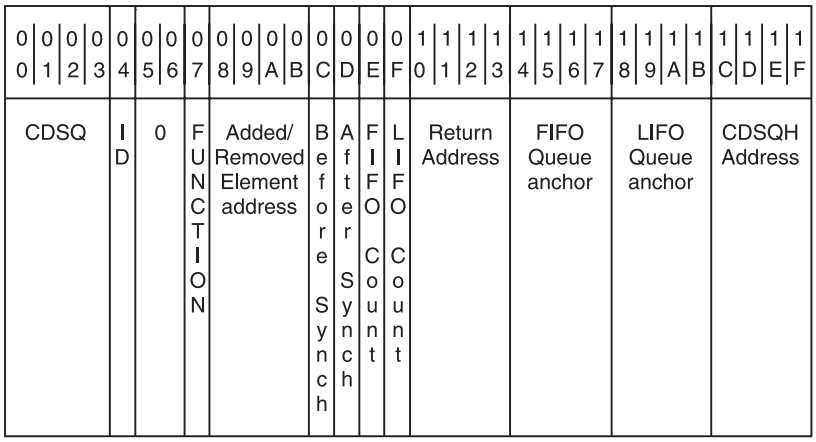
VIT option:
CIA

Event: Queue management using IUTCDSQM

VIT processing module:
ISTITCOD

Control is returned to:
IUTCDSQM issuer

This trace record is written when the IUTCDSQM macro is run. It is primarily used to identify the addition or removal of elements to or from a queue header. **Exception:** This record is not written for a Get_Element_Count request or when a Remove_Element request fails.



00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CDSQ				ID	0		FUNCTION	Added/ Removed Element address				Before Synch	After Synch	FIFO Count	LIFO Count	Return Address				FIFO Queue anchor				LIFO Queue anchor				CDSQH Address			

Byte (hex)
Contents

00–03 Record ID: C"CDSQ"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05-06 0

07 Function:
- C'A' for Add_Chain
- C'R' for Remove_Element
- C'S' for Synch_byte_only

08–0B Element address:
- For Add_Chain, address of first element in chain
- For Remove_Element, address of element removed
- For Synch_byte_only, 0

0C Contents of synch byte before CDS

0D Contents of synch byte after CDS

0E Number of elements on FIFO queue after CDS (X'FF' if there are 255 or more elements on the queue)

0F Number of elements on LIFO queue after CDS (X'FF' if there are 255 or more elements on the queue)

10-13 Address of caller (within IUTCDSQM expansion)

14-17 Address of first element on FIFO queue after the CDS

18-1B Address of first element on LIFO queue after the CDS

1C-1F CDS queue manager header address (IUTCDSQH)

CFAL entry for coupling facility IXLALTER service (Part 1)

Entry: CFAL

VIT option:
CFS

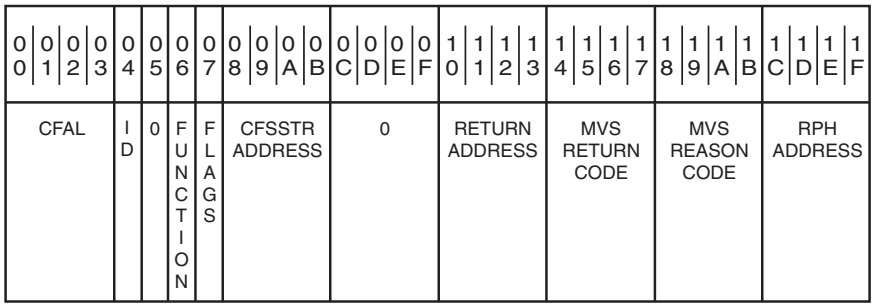
Event: Invocation of the MVS macro IXLALTER

VIT processing module:
ISTRACCF

Control is returned to:
ISTFSUAL

This trace entry is written when the IXLALTER macro is used to:

- Initiate an alter of the coupling facility storage attributes
- Stop an alter in progress of the coupling facility storage



00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
CFAL	ID	0	FUNCTION	FLAGS	CFSSTR ADDRESS	0	RETURN ADDRESS	MVS RETURN CODE	MVS REASON CODE	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"CFAL"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Function request by this invocation of IXLALTER:

Bit	Meaning
X'01'	REQUEST(START) to start the alter process.
X'02'	REQUEST(STOP) stop the alter process.

07 Event flags

Bit	Meaning
1...	Request that the size of the coupling facility structure be changed.
.1..	Request that the entry-to-element ratio for a coupling facility structure be changed.
..xx xxxx	0

08–0B Structure object (CFSSTR) address.

0C–0F 0

10–13 Return address of the invoker of the utility module.

14–17 Return code from the MVS macro IXLALTER. See z/OS MVS Programming: Sysplex Services Reference for an explanation of this code.

18–1B Reason code from the MVS macro IXLALTER. See z/OS MVS Programming: Sysplex Services Reference for an explanation of this code.

1C–1F Request parameter header (RPH) address.

CFA2 entry for coupling facility IXALTER service (Part 2)

Entry: CFA2

VIT option:
CFS

Event: Invocation of the MVS macro IXLALTER

VIT processing module:
ISTRACCF

This trace entry is a continuation of the CFAL entry.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CFA2				TARGET	ENTRY RATIO	TARGET	ELEMENT RATIO	TARGET		STRUCTURE	SIZE	0																			

Byte (hex)
Contents

00–03 Record ID: C"CFA2"

04–05 If request is to alter the entry-to-element ratio, this is the target entry portion of the ratio.

06–07 If request is to alter the entry-to-element ratio, this is the target element portion of the ratio.

08–0B If request is to alter the structure size, this is the target structure size.

0C–1F 0

CFCE entry for coupling facility request completion exit

Entry: CFCE

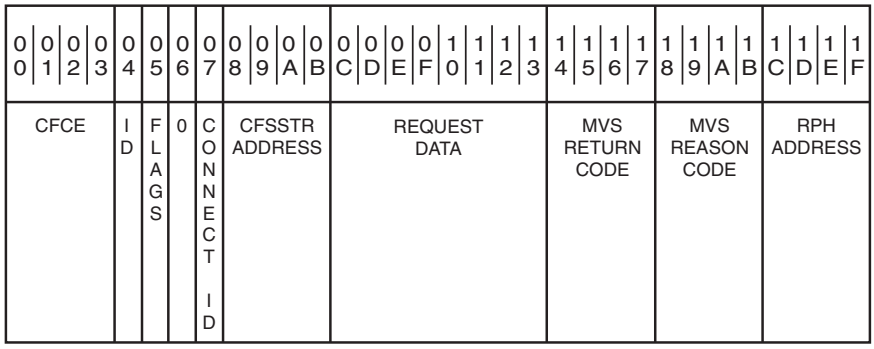
VIT option:
CFS

Event: Complete exit driven for a connection to coupling facility structure

VIT processing module:
ISTRACCF

Control is returned to:
ISTFSXCM

This trace record is written when a previous request to access the coupling facility structure has completed asynchronously.



Byte (hex)
Contents

00–03 Record ID: C"CFCE"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Event flags:

Bit **Meaning**

1... ....
This event applies to the new version of the structure.

.1.. ....
This event pertains to an invocation of the IXLLIST macro.

..1. ....
This event pertains to an invocation of the IXLCACHE macro.

...1 ....
This event pertains to an invocation of the IXLLOCK macro.

.... xxxx
0

06 0

07 The connection identifier for the target of this event

08–0B Structure object (CFSSTR) address

0C–13 The request data specified on the MVS macro invocation identified in the flags at offset X'05' of CFCE

Bit **Meaning**

..1. ....
When this bit is on at the completion exit, the buffer contents for the DELETE_ENTRYLIST are traced using the CFLS VIT entries.

14–17 Return code for the MVS macro indicated at offset X'05'

18–1B Reason code for the MVS macro indicated at offset X'05'

1C–1F Request parameter header (RPH) address

CFCN entry for coupling facility connection service (Part 1)

Entry: CFCN

VIT option:
CFS

Event: Invocation of the MVS macro IXLCONN

VIT processing module:
ISTRACCF

Control is returned to:
ISTFSGCN

This trace record is written when there is an attempted connection to the coupling facility structure with the IXLCONN macro.

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
CFCN	ID	FLAGS	0	ID OR 0	CFSSTR ADDRESS	0	INVOKER ADDRESS	MVS RETURN CODE	MVS REASON CODE	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"CFCN"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Event flags:

Bit **Meaning**

1... ....
The rebuild process is in progress for the structure.

.1.. ....
The rebuild stop process is in progress for the structure.

..1. ....
This connection attempt caused the structure to be allocated.

...1 ....
A previously failed connection has been reestablished.

.... 1...
Full connectivity to the rebuild structure cannot be obtained. This bit is valid only if this connection attempt caused the structure to be allocated. This bit is set only if IXLCONN was invoked during rebuild processing.

... .1..
The structure involved is volatile.

... ..1.
VTAM did not process this event.

... ...x
0

06 0

07 Connection identifier or 0. If IXLCONN was successful, this field contains the connection identifier assigned to this connection. Otherwise this field contains the value 0.

08–0B Structure object (CFSSTR) address

0C–0F 0

10–13 The address of the invoker of IXLCONN

14–17 Return code for the MVS macro IXLCONN

18–1B Reason code for the MVS macro IXLCONN

1C–1F Request parameter header (RPH) address

CFC2 entry for coupling facility connection service (Part 2)

Entry: CFC2

VIT option:
CFS

Event: Invocation of the MVS macro IXLCONN

VIT processing module:
ISTRACCF

This trace record is a continuation of the CFCN entry.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CFC2				ACTUAL SIZE OR 0				MAX SIZE				ENTRY	RATIO	ELEM	RATIO	0															

Byte (hex)
Contents

00–03 Record ID: C"CFC2"

04–07 The actual size of the structure allocated, or 0. If IXLCONN was successful, this field contains the actual number of 4K blocks allocated to the structure.

08–0B Maximum structure size. This field contains the structure size, in 4K blocks, defined in the active coupling facility resource management policy at the time this structure was allocated.

0C–0D
The entry portion of the entry-to-element ratio specified on IXLCONN.

0E–0F The element portion of the entry-to-element ratio specified on IXLCONN.

10–1F 0

CFDS entry for coupling facility disconnection service (Part 1)

Entry: CFDS

VIT option:
CFS

Event: Invocation of the MVS macro IXLDISC

VIT processing module:
ISTRACCF

Control is returned to:
ISTFSUDC

This trace record is written when a connector disconnects from the coupling facility structure with the IXLDISC macro.

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
CFDS	ID	FLAGS	0	CONNECT ID	CFSSTR ADDRESS	0	RETURN ADDRESS	RETURN CODE	REASON CODE	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"CFDS"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Macro parameter flags

Bit **Meaning**

1... ....
REASON(FAILURE) was specified for the request

.xxx xxxx
0

06 0

07 Connection identifier of the invoker of IXLDISC

08–0B Structure object (CFSSTR) address

0C–0F 0

10–13 The address of the invoker of IXLDISC

14–17 Return code for the MVS macro IXLDISC

18–1B Reason code for the MVS macro IXLDISC

1C–1F Request parameter header (RPH) address

CFD2 entry for coupling facility disconnection service (Part 2)

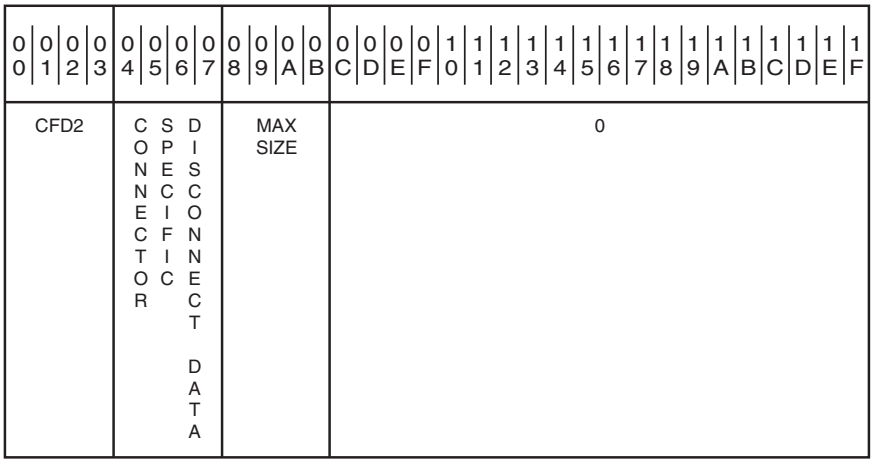
Entry: CFD2

VIT option:
CFS

Event: Invocation of the MVS macro IXLDISC

VIT processing module:
ISTRACCF

This trace record is a continuation of the CFDS entry.



Byte (hex)
Contents

00–03 Record ID: C"CFD2"

04–07 Connector-specific disconnect data

08–0B Maximum size

0C–1F 0

CFEE entry for coupling facility connection event exit

Entry: CFEE

VIT option:
CFS

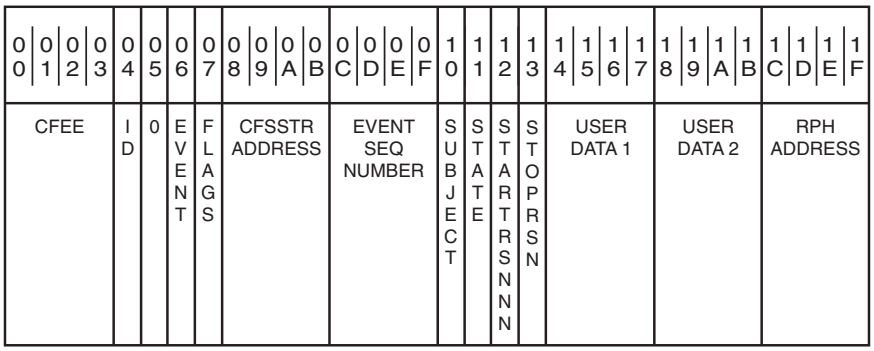
Event: Event Exit Driven for a Connection to a Coupling Facility Structure

VIT processing module:
ISTRACCF

Control is returned to:
ISTFSXEV

This trace record is written when any of the following actions occurs:

- A new connection is established to the coupling facility structure.
- A connection to the coupling facility structure is terminated.
- A connector loses read/write access to the coupling facility structure.
- A state change occurs for the coupling facility structure.
- A user sync point is set by a connector to the coupling facility structure.
- A user sync point has been confirmed by all connectors to the coupling facility structure.



Byte (hex)
Contents

00–03 Record ID: C"CFEE"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Event identifier (see the mapping of IXLYEEPL in *z/OS MVS Data Areas* at z/OS Internet Library for an explanation of this code.)

07 The event identifier in byte 06 determines the meaning of this field.

Event flags:

- If byte 06 indicates a loss of connectivity event, use the following flags:

  Bit **Meaning**

  1... ....
  The rebuild process is in progress for the structure.

  .1.. ....
  The rebuild stop process is in progress for the structure.

  ..1. ....
  This event applies to the rebuild version of the structure.

  ...1 ....
  No action will be taken. MVS will determine action based on policy information.

.... xxxx
0

- If byte 06 indicates an existing connection event, use the following flags:

  Bit **Meaning**

  1... ....
  The rebuild process is in progress for the structure.

  .1.. ....
  The rebuild stop process is in progress for the structure.

  ..1. ....
  This event does not pertain to a real connection but indicates that all existing connection events have been received.

  ...1 ....
  The connection identified is active.

  .... 1...
  The connection identified does not have access to the structure.

 xxx
  0

- If byte 06 indicates a disconnected or failed event, use the following flags:

  Bit **Meaning**

  1... ....
  The rebuild process is in progress for the structure.

  .1.. ....
  The rebuild stop process is in progress for the structure.

  ..1. ....
  This event applies to the rebuild version of the structure.

  ...1 ....
  The connection disconnected abnormally.

  xxxx
  0

- If byte 06 indicates a rebuild existing connection event, use the following flags:

  Bit **Meaning**

  1... ....
  The rebuild process is in progress for the structure.

  .1.. ....
  The rebuild stop process is in progress for the structure.

  ..1. ....
  This event does not pertain to a real connection but indicates that all rebuild existing connection events have been received.

  ...1 ....
  The connection identified is active.

  xxxx
  0

- If byte 06 indicates structure alter begin event, use the following flags:

Bit **Meaning**

1... ....
The rebuild process is in progress for the structure.

.1.. ....
The rebuild stop process is in progress for the structure.

..1. ....
Structure size will be altered.

...1 ....
Entry-to-element ratio will be altered.

.... xxxx
0

- If byte 06 indicates structure alter end event, use the following flags:

  Bit **Meaning**

  1... ....
  The rebuild process is in progress for the structure.

  .1.. ....
  The rebuild stop process is in progress for the structure.

  ..1. ....
  Attempt to alter structure size.

  ...1 ....
  Attempt to alter entry-to-element ratio.

  .... 1...
  Alter request able to meet all specified targets.

  .... .1..
  Alter request able to meet only some specified targets.

 xx
  0

- If byte 06 indicates a recommended action, use the following flags:

  Bit **Meaning**

  1... ....
  The rebuild process is in progress for the structure.

  .1.. ....
  The rebuild stop process is in progress for the structure.

  ..1. ....
  Policy is available to determine action.

  ...1 ....
  Action is disconnect.

  xxxx
  0

- For all other events, use the following flags:

  Bit **Meaning**

  1... ....
  The rebuild process is in progress for the structure.

.1.. ....
The rebuild stop process is in progress for the structure.

..1. ....
VTAM ignored this event.

...x xxxx
0

08–0B Structure object (CFSSTR) address

0C–0F Event sequence number. Each event is assigned a unique sequence number.

10 The connection identifier for the subject of this event

11 Connection FSM State. Connection states are listed in the VTAM data map ISTCFCON.

12 Reason for starting rebuild (see the mapping of IXLYEEPL in *z/OS MVS Data Areas* at z/OS Internet Library for an explanation of this code).

13 Reason for stopping rebuild (see the mapping of IXLYEEPL in *z/OS MVS Data Areas* at z/OS Internet Library for an explanation of this code).

- If byte 06 indicates a rebuild event, then this field contains the reason for stopping rebuild (see the mapping of IXLYEEPL in *z/OS MVS Data Areas* at z/OS Internet Library for an explanation of this code).
- If byte 06 indicates structure alter end event, use the following flags:

  Bit Meaning

  1... ....
  Alter request failed because of structure failure.

  .1.. ....
  Alter request failed because of loss of connectivity.

  ..1. ....
  Alter request failed because of rebuild started.

  ...1 ....
  Alter request failed because ratios specified on alter request are not consistent with structure attributes.

  xxxx
  0

14–17 User Data 1

The contents of this field depend upon the event received and the state of the structure when the event was received.

If this event pertains to a user sync point, this field contains the connector-defined event for the user sync point set if a user sync point has been set.

If this event pertains to a disconnect or failed connection event, then this field contains the first 4 bytes of the connector-defined data specified in IXLDISC.

If this event pertains to a rebuild connects complete event, then this field contains the number of active connectors to the original structure.

If this event pertains to a rebuild event, other than rebuild connects complete, then this field contains the connector-defined reason for starting rebuild, if a connector-specified reason was given.

If this event pertains to alter begin event, then the first 2 bytes contain the target entry portion of the entry-to-element ratio. The second 2 bytes contain the target element portion of the entry-to-element ratio.

If this event pertains to an alter end event and the ratio was changed, then this field contains the current number of entries.

If this event indicates a structure state change, the first 2 bytes of this field contain a validity flag. The validity flag byte 14 contains:

Bit **Meaning**

1... ....
Coupling facility operational level of the coupling facility in which the structure resides is valid. If this bit has been set, User Data 2 contains the coupling facility operational level for the coupling facility in which the structure resides.

Otherwise, this field contains all zeros.

18–1B User Data 2

The contents of this field depend upon the event received and the state of the structure when the event was received.

If this event pertains to a user sync point, this field contains the connector-defined event for the user sync point confirmed if a user sync point has been confirmed.

If this event pertains to a disconnect or failed connection event, then this field contains the last 4 bytes of the connector-defined data specified in IXLDISC.

If this event pertains to a rebuild stop event, then this field contains the connector-defined reason for stopping the rebuild, if a connector-specified reason was given.

If this event pertains to a rebuild connects complete event, then this field contains the number of connectors that successfully connected to the rebuild structure.

If this event pertains to an alter begin event, then this field contains the target structure size.

If this event pertains to an alter end event and the ratio was changed, then this field contains the current number of elements. If the structure size was changed then this field contains the current structure size. If both ratio and size are changed, this field contains the current number of elements.

If this event indicates a structure state change and byte 14 (first byte of User Data 1 field) contains a value of X'80', this field contains the coupling facility operational level. This is the operational level of the coupling facility in which the structure resides.

Otherwise, this field contains all zeros.

1C–1F Request parameter header (RPH) address

CFER entry for coupling facility connection event exit response service

Entry: CFER

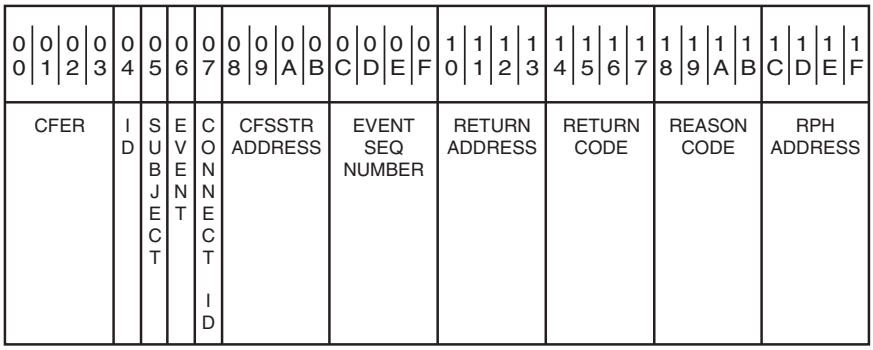
VIT option:
CFS

Event: Invocation of the MVS macro IXLEERSP

VIT processing module:
ISTRACCF

Control is returned to:
ISTFSURS

This trace record is written when a response is given to an event exit event using the IXLEERSP macro.



Byte (hex)
Contents

00–03 Record ID: C"CFER"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 The connection identifier of the subject of the original event. This field applies to Disconnected/Failed Events, Existing Connection Events, and Rebuild Connect Failure Events only.

06 Event code (See the mapping of ISTXEEPL in z/OS Communications Server: SNA Data Areas Volume 1 for an explanation of this code.)

07 Connection identifier of the invoker of IXLEERSP

08–0B Structure object (CFSSTR) address

0C–0F The event sequence number of the event to which a response is being given. This field applies to Disconnected/Failed Events, Existing Connection Events, and Rebuild Connect Failure Events only. Otherwise, this field contains a 0.

10–13 The address of the invoker of IXLEERSP

14–17 Return code for the MVS macro IXLEERSP

18–1B Reason code for the MVS macro IXLEERSP

1C–1F Request parameter header (RPH) address

CFFC entry for coupling facility IXLFORCE service

Entry: CFFC

VIT option:
CFS

Event: Invocation of the MVS macro IXLFORCE

VIT processing module:
ISTRACCF

Control is returned to:
ISTFSUFC

This trace record is written when a failed-persistent connection is deleted using the IXLFORCE macro.

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
CFFC	ID	SUBJECT	FUNC	CONNECT ID	CFSSTR ADDRESS	0	RETURN ADDRESS	RETURN CODE	REASON CODE	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"CFFC"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 The connection identifier of the failed-persistent connection

06 The function requested by this invocation of IXLFORCE:

X'01' REQUEST(CONNECTION) has been specified.

07 Connection identifier of the invoker of IXLFORCE

08–0B Structure object (CFSSTR) address

0C–0F 0

10–13 The address of the invoker of IXLFORCE

14–17 Return code for the MVS macro IXLFORCE

18–1B Reason code for the MVS macro IXLFORCE

1C–1F Request parameter header (RPH) address

CFLS entry for coupling facility IXLLIST service (Part 1)

Entry: CFLS

VIT option:
CFS

Event: Invocation of the MVS macro IXLLIST

VIT processing module:
ISTRACCF

Control is returned to:
Module invoking the IXLLIST macro that caused the record to be produced.

This trace record is written for a request to access the coupling facility structure using the IXLLIST macro.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CFLS				ID		0		FUNCTION		FLAGS		CFSSTR ADDRESS				CFSBUF ADDRESS OR 0				RETURN ADDRESS				RETURN CODE OR PART 1 OF REQUEST DATA				REASON CODE OR PART 2 OF REQUEST DATA				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"CFLS"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 The function requested by this invocation of IXLLIST:

X'01' REQUEST(READ) specified

X'02' REQUEST(READ_LCONTROLS) specified

X'03' REQUEST(WRITE) specified

X'04' REQUEST(MOVE) specified

X'05' REQUEST(DELETE) specified

X'06' REQUEST(LOCK) specified

X'07' REQUEST(MONITOR_LIST) specified

X'08' REQUEST(READ_LIST) specified

X'09' REQUEST(DELETE_MULTI) specified

X'0A' REQUEST(WRITE_LCONTROLS) specified

X'0B' REQUEST(DELETE_ENTRYLIST) specified

X'0C' REQUEST(READ_MULT) specified

07 Flags

Bit **Meaning**

1... ....
Request will complete asynchronously. Bytes X'14' – X'1B' will contain the request data.

.1.. ....
Request is for the rebuild version of the structure.

..1. ....
The buffer list contains real addresses.

...x xxxx
0

08–0B Structure object (CFSSTR) address

0C–0F Buffer object (CFSBUF) address or 0 if not using a buffer object.

10–13 The address of the invoker of IXLLIST

14–17 Return code for the MVS macro IXLLIST or the first 4 bytes of request data. If this IXLLIST invocation will complete asynchronously, this field holds the first 4 bytes of the request data specified on this request. Otherwise it holds the return code for this invocation of IXLLIST.

18–1B Reason code for the MVS macro IXLLIST or the second 4 bytes of request data. If this IXLLIST invocation will complete asynchronously, this field holds the second 4 bytes of the request data specified on this request. Otherwise it holds the reason code for this invocation of IXLLIST.

When this field represents the second 4 bytes of the request data, the tracing of the buffer contents is deferred until the completion exit is driven, as follows:

Bit **Meaning**

..1. ....
When this bit is on at the completion exit, the buffer contents for the DELETE_ENTRYLIST are traced using the CFLS VIT entries.

1C–1F Request parameter header (RPH) address

CFL2 entry for IXLLIST lock service (Part 2)

Entry: CFL2

VIT option:
CFS

Event: Invocation of the MVS macro IXLLIST

VIT processing module:
ISTRACCF

This trace record is a continuation of the CFLS entry when byte X'06' in the CFLS entry indicates a LOCK request.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CFL2				FUNCTION	MODE	LOCKOPER	LOCKCOMP	LOCK INDEX				0																			

Byte (hex)
Contents

00–03 Record ID: C"CFL2"

04 Function code = X'06'

05 The value specified for the MODE parameter:
- X'01'MODE(SYNCSUSPEND) specified
- X'02'MODE(SYNCEXIT) specified
- X'03'MODE(AYSNCEXIT) specified

06 The value specified for the LOCKOPER parameter:
- X'01'LOCKOPER(SET) specified
- X'02'LOCKOPER(RESET) specified

07 The value specified for the LOCKCOMP parameter. This 1-byte value represents the connection identifier of the connector that is assumed to own a given lock.

08–0B The index of the lock that is being manipulated.

0C–1F 0

CFL2 entry for IXLLIST list controls services (Part 2)

Entry: CFL2

VIT option:
CFS

Event: Invocation of the MVS macro IXLLIST with REQUEST READ_LCONTROLS or WRITE_LCONTROLS

VIT processing module:
ISTRACCF

This trace record is a continuation of the CFLS entry when byte X'06' in the CFLS entry indicates a READ_LCONTROLS or WRITE_LCONTROLS request.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CFL2				FUNCTION	MODE	0		SOURCE LIST NUMBER				NUMBER ENTRIES				LISTKEY				0								FIRST FOUR BYTES LIST DESC			

Byte (hex)
Contents

00–03 Record ID: C"CFL2"

04 Function code:
- X'02'REQUEST(READ_LCONTROLS) specified
- X'0A'REQUEST(WRITE_LCONTROLS) specified

05 The value specified for the MODE parameter:
- X'01'MODE(SYNCSUSPEND) specified
- X'02'MODE(SYNCEXIT) specified
- X'03'MODE(AYSNCEXIT) specified

06–07 0

08–0B The list number for which the data is being retrieved or updated

0C–0F If request is READ_LCONTROLS, the number of entries currently in use on the list; otherwise 0

10–13 If the request is WRITE_LCONTROLS, the LISTKEY value; otherwise 0

14–1B 0

1C–1F The first 4 bytes of the 32-byte list descriptor area

CFL3 entry for IXLLIST service (REQUEST LCONTROLS) (Part 3)

Entry: CFL3

VIT option:
CFS

Event: Invocation of the MVS macro IXLLIST with REQUEST READ_LCONTROLS or WRITE_LCONTROLS

VIT processing module:
ISTRACCF

This trace record is a continuation of the CFLS entry when byte X'06' in the CFLS entry indicates a READ_LCONTROLS or WRITE_LCONTROLS request.

00 01 02 03	04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
CFL3	LAST 28 BYTES OF LIST DESCRIPTOR

Byte (hex)
Contents

00–03 Record ID: C"CFL3"

04–1F The last 28 bytes of the 32-byte list descriptor area

CFL2 entry for IXLLIST services (single entry) (Part 2)

Entry: CFL2

VIT option:
CFS

Event: Invocation of the MVS macro IXLLIST with REQUEST READ, WRITE, MOVE, or DELETE

VIT processing module:
ISTRACCF

This trace record is a continuation of the CFLS entry when byte X'06' in the CFLS entry indicates a READ, WRITE, MOVE, or DELETE request.

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
CFL2	FUNCTION	MODE	DATAOPER	0	SOURCE LIST NUMBER	BUFFER ALET OR LISTKEY INCREM	ENTRYNAME, ENTRYID, OR ENTRYKEY

Byte (hex)
Contents

00–03 Record ID: C"CFL2"

04 Function code:
- X'01'REQUEST(READ) specified
- X'03'REQUEST(WRITE) specified
- X'04'REQUEST(MOVE) specified
- X'05'REQUEST(DELETE) specified

05 The value specified for the MODE parameter:
- X'01'MODE(SYNCSUSPEND) specified
- X'02'MODE(SYNCEXIT) specified

- X'03'MODE(AYSNCEXIT) specified

06 If byte X'04' indicates a MOVE or DELETE function, use the following information to determine the DATAOPER parameter:
- X'01'DATAOPER(NONE) specified
- X'02'DATAOPER(READ) specified
- X'03'DATAOPER(WRITE) specified

07 0

08–0B The list number for which the data is being retrieved or updated

0C–0F
- If the request is READ, WRITE, or DELETE, the Access List Entry Token (ALET) of the data buffers in the buffer object
- If the request is MOVE, the LISTKEY INCREMENT value

10–1F The value of any ENTRYNAME, ENTRYID, or ENTRYKEY parameter specified

CFL2 entry for IXLLIST services (multiple entries) (Part 2)

Entry: CFL2

VIT option:
CFS

Event: Invocation of the MVS macro IXLLIST with REQUEST READMULT, READLIST, or DELETEMULT

VIT processing module:
ISTRACCF

This trace record is a continuation of the CFLS entry when byte X'06' in the CFLS entry indicates a READMULT, READLIST or DELETEMULT request.

00 01 02 03	04	05	06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
CFL2	FUNCTION	MODE	NUMBER PROCESS	SOURCE LIST NUMBER	BUFFER ALET	RESTART ENTRYID OR RESTART TOKEN

Byte (hex)
Contents

00–03 Record ID: C"CFL2"

04 Function code:
- X'08'REQUEST(READ_LIST) specified
- X'09'REQUEST(DELETE_MULT) specified
- X'0C'READ(READ_MULT) specified

05 The value specified for the MODE parameter:
- X'01'MODE(SYNCSUSPEND) specified
- X'02'MODE(SYNCEXIT) specified
- X'03'MODE(AYSNCEXIT) specified

06–07 The number of processed entries. If the number is greater than 65635, the number will be X'FFFF'.

08–0B The list number for which the data is being retrieved or deleted

0C–0F Access List Entry Token (ALET) of the data buffers in the buffer object

10–1F For READLIST request, the 12-byte restart entry ID padded to the right with zeros. For READMULT and DELETEMULT, the 16-byte restart token.

CFL3 entry for IXLLIST services (REQUEST entries) (Part 3)

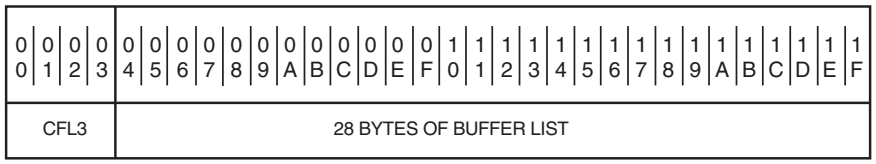
Entry: CFL3

VIT option:
CFS

Event: Invocation of the MVS macro IXLLIST with REQUEST READ, WRITE, MOVE or DELETE, READMULT, READLIST, or DELETEMULT

VIT processing module:
ISTRACCF

This trace record is a continuation of the CFLS entry when byte X'06' in the CFLS entry indicates a REQUEST READ, WRITE, MOVE or DELETE, READMULT, READLIST, or DELETEMULT request. The VTAM internal trace will generate up to five CFL3 entries.



Byte (hex)
Contents

00–03 Record ID: C"CFL3"

04–1F Up to 28 bytes of the contents of the buffer list

CFL2 entry for IXLLIST delete entry list service (Part 2)

Entry: CFL2

VIT option:
CFS

Event: Invocation of the MVS macro IXLLIST with REQUEST DELETE_ENTRYLIST

VIT processing module:
ISTRACCF

This trace record is a continuation of the CFLS entry when byte X'06' in the CFLS entry indicates a DELETE_ENTRYLIST request.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CFL2				FUNCTION	MODE	0		FIRST		LAST		BUFFER ALET				0															

Byte (hex)
Contents

00–03 Record ID: C"CFL2"

04 Function code = X'0B'

05 The value specified for the MODE parameter:
- X'01'MODE(SYNCSUSPEND) specified
- X'02'MODE(SYNCEXIT) specified
- X'03'MODE(AYSNCEXIT) specified

06–07 0

08–09 Index of the first entry ID processed

0A–0B Index of the last entry ID processed

0C–0F Access List Entry Token (ALET) of the buffer holding the entry IDs to be deleted

10–1F 0

CFL3 entry for IXLLIST delete entry list service (Part 3)

Entry: CFL3

VIT option:
CFS

Event: Invocation of the MVS macro IXLLIST with REQUEST DELETE_ENTRYLIST

VIT processing module:
ISTRACCF

This trace record is a continuation of the CFLS entry when byte X'06' in the CFLS entry indicates a REQUEST DELETE_ENTRYLIST request. The VTAM internal trace will generate up to 36 CFL3 entries.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CFL3	28 BYTES OF ENTRY ID BUFFER																														

Byte (hex)
Contents

00–03 Record ID: C"CFL3"

04–1F Up to 28 bytes of the contents of the buffer containing entry IDs to be deleted. The buffer contents traced will begin at the index of the first entry (specified at offset X'04' in CFL2) and end at the index of the second entry (specified at offset X'0C' in CFL2) if 36 CFL3 entries have not been generated.

CFL2 entry for IXLLIST monitor service (Part 2)

Entry: CFL2

VIT option:
CFS

Event: Invocation of the MVS macro IXLLIST with REQUEST MONITOR_LIST

VIT processing module:
ISTRACCF

This trace record is a continuation of the CFLS entry when byte X'06' in the CFLS entry indicates a MONITOR_LIST request.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CFL2	FUNCTION	MODE	ACTION	0	SOURCE LIST NUMBER		VECTOR INDEX		0																						

Byte (hex)
Contents

00–03 Record ID: C"CFL2"

04 Function code = X'07'

05 The value specified for the MODE parameter:

- X'01'MODE(SYNCSUSPEND) specified
- X'02'MODE(SYNCEXIT) specified
- X'03'MODE(AYSNCEXIT) specified

06 The value specified for the ACTION parameter:
- X'01'ACTION(START) specified
- X'02'ACTION(STOP) specified

07 0

08–0B The list number for which the monitoring is being started or stopped

0C–0F The list monitoring vector index being assigned for the list

10–1F 0

CFNF entry for event notification

Entry: CFNF

VIT option:
CFS

Event: Event Notification Facility (ENF) Exit Driven for Event X'35'

VIT processing module:
ISTRACCF

Control is returned to:
ISTFSXEF

This trace record is written when a change in coupling facility resources or in the coupling facility structure has occurred that may now allow a connection to a structure that had previously failed.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CFNF				ID	0	FUNC	0	CFSSTR ADDRESS				STRUCTURE NAME																RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"CFNF"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Exit function codes pertaining to ENF Events with event code X'35':

X'01' A coupling facility resource has become available that may allow a structure to successfully connect.

X'02' A specific coupling facility structure has become available.

07 0

08–0B Structure object (CFSSTR) address

0C–1B If the exit function code is X'02', this contains the structure name. Otherwise, it contains 0.

1C–1F Request parameter header (RPH) address

CFPG entry for IXLPURGE service

Entry: CFPG

VIT option:
CFS

Event: Invocation of the MVS macro IXLPURGE

VIT processing module:
ISTRACCF

Control is returned to:
ISTFSNPG

This trace record is written when VTAM issues an IXLPURGE macro to purge outstanding accesses to the coupling facility structure.

00 01 02 03	04	05 06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
CFPG	ID	0	FLAGS	CFSSTR ADDRESS	0	RETURN ADDRESS	MVS RETURN CODE	MVS REASON CODE	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"CFPG"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–06 0

07 Event flags:

Bit Meaning

1... ....
Purged by request ID (REQID)

.1.. ....
Purged by address space token (STOKEN)

..1. ....
Purged by task token (TTOKEN)

...x xxxx
0

08–0B Structure object (CFSSTR) address.

0C–0F 0

10–13 Address of the invoker of IXLPURGE.

14–17 Return code from the MVS macro IXLPURGE.

18–1B Reason code from the MVS macro IXLPURGE.

1C–1F Request parameter header (RPH) address.

CFP2 entry for IXLPURGE service (Part 2)

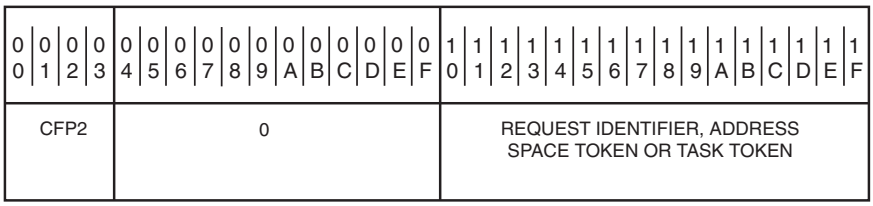
Entry: CFP2

VIT option:
CFS

Event: Invocation of the MVS macro IXLPURGE

VIT processing module:
ISTRACCF

This trace record is a continuation of the CFPG entry.



Byte (hex)
Contents

00–03 Record ID: C"CFP2"

04–0F 0

10–1F If purging by request identifier, the 8-byte request identifier, padded to the right with zeros.

If purging by address space, the 8-byte address space token, padded to the right with zeros.

If purging by task, the 16-byte address space token.

CFRB entry for structure rebuild service

Entry: CFRB

VIT option:
CFS

Event: Invocation of the MVS macro IXLREBLD

VIT processing module:
ISTRACCF

Control is returned to:
ISTFSURB

This trace record is written when a rebuild of the coupling facility structure is started, stopped, or completed, using the IXLREBLD macro.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CFRB				ID	FLAGS	FUNCTION	CONNECT ID	CFSSTR ADDRESS				CONNECT REASON CODE				INVOKER ADDRESS				MVS RETURN CODE				MVS REASON CODE				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"CFRB"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Macro Parameter Flags

Bit **Meaning**

1... ....
STARTREASON(LOSSCONN) was specified for the request.

.1.. ....
STARTREASON(STRFAILURE) was specified for the request.

..1. ....
STOPREASON(LOSSCONNOLD) was specified for the request.

...1 ....
STOPREASON(LOSSCONNEW) was specified for the request.

.... 1...
STOPREASON(STRFAILUREOLD) was specified for the request.

.... .1..
The rebuild was started or stopped for a connection-specific reason. Bytes X'0C'–X'0F' contain the connection-specific reason.

.... ..xx
0

06 The function requested by this invocation of IXLREBLD:

X'01' REQUEST(START) was specified.

X'02' REQUEST(STOP) was specified.

X'03' REQUEST(COMPLETE) was specified.

07 Connection identifier of the invoker of IXLREBLD

08–0B Structure object (CFSSTR) address

0C–0F Connection-specific reason for starting or stopping the rebuild.

10–13 The address of the invoker of IXREBLD

14–17 Return code for the MVS macro IXLREBLD

18–1B Reason code for the MVS macro IXLREBLD

1C–1F Request parameter header (RPH) address

CFTP entry for coupling facility TCP/IP interface requests

Entry: CFTP

VIT option:
CFS

Event: Completion of a request from TCP/IP to CFS

VIT processing module:
ISTRACCF

Control is returned to:
ISTFSDPC or ISTFSVPC

This trace record is written when a request from TCP/IP to the coupling facility completes.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CFTP				ID	FUNCTION	OPERATION	FLAGS	OBJECT ADDRESS				CFUSR ADDRESS				TCP NAME								RETURN CODE				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"CFTP"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 The TCP/IP function identifier:

X'01' Sysplex Wide Security Associations

X'02' Sysplexports

06 The operation requested by TCP/IP for the following function:

- Sysplex Wide Security Associations

  X'01' RegisterUser

  X'02' DeregisterUser

  X'03' ClaimList

X'04' UpdateEntry

X'05' DeleteEntry

X'06' DeleteMult

X'07' FreeList

X'08' ReceiveData

X'09' RepopulateComplete

X'0A' QuiesceComplete

X'0B' InitSeq#

X'0C' GetSeq#

X'0D' QuerySeq#

X'0E' ValidateList

X'0F' FreeAll

X'10' ClaimSeq

- Sysplexports

  X'01' RegisterUser

  X'02' DeregisterUser

  X'03' AssociateStack

  X'04' GetEphemeralPort

  X'05' MarkEphemeralPort

  X'06' UnassociateStack

  X'07' FreeList

  X'08' QueryList

  X'09' RepopulateComplete

  X'0A' QuiesceComplete

  X'0B' GetEphemeralPortBlock

  X'0C' FreeEphemeralPortBlock

  X'0D' SetExplicitBindPortRange

  X'0E' GetExplicitBindEphemeralPortBlock

  X'10' FreeExplicitBindEphemeralPortBlock

07 TCP/IP request flags

Bit	Meaning
1...	Request issued as part of repopulation processing
.xxx xxxx	0

08–0B Structure object address

0C–0F CFS TCP/IP user control block (CFUSR) address

10–17 The TCP/IP stack name

18–1B Return code for the request

1C–1F Request parameter header (RPH) address

CFT2 entry for coupling facility TCP/IP interface requests (Part 2)

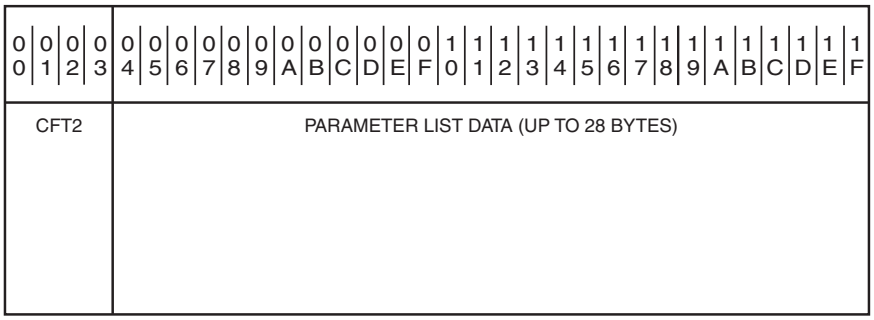
Entry: CFT2

VIT option:
CFS

Event: Completion of a request from TCP/IP to CFS

VIT processing module:
ISTRACCF

This trace record is a continuation of the CFTP entry. As many of these as necessary are generated to display the entire parameter list.



Byte (hex)
Contents

00–03 Record ID: C"CFT2"

04–1F 28 bytes of the parameter list data for this request

CFTX entry for coupling facility TCP/IP event exit invocation

Entry: CFTX

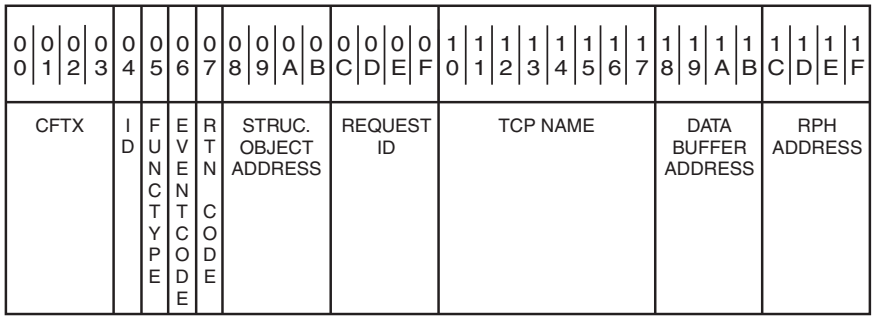
VIT option:
CFS

Event: Invocation of the CFS TCP/IP event exit

VIT processing module:
ISTRACCF

Control is returned to:
ISTFSNTX

This trace record is written when an asynchronous event causes CFS to drive the TCP/IP event exit routine.



00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
CFTX	ID	FUNCTYPE	EVENTCODE	RTN CODE	STRUC. OBJECT ADDRESS	REQUEST ID	TCP NAME	DATA BUFFER ADDRESS	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"CFTX"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 The TCP/IP function identifier:

- **X'01'** Sysplex Wide Security Associations
- **X'02'** Sysplexports

06 The event code describing the asynchronous event:

- **X'01'** Quiesce
- **X'02'** Repopulate/Rebuild
- **X'03'** Repopulate/Reconnect
- **X'04'** Deregistered
- **X'05'** Connection Attempt Failed
- **X'06'** Received Data
- **X'07'** DeleteMult Complete
- **X'08'** FreeList Complete
- **X'09'** FreeAll Complete

07 Return code:

- **X'00'** Success
- **X'08'** Failure

08–0B Structure object address

0C–0F Request Correlation ID - Correlates this event with the original request

10–17 The TCP/IP stack name

18–1B Data buffer address, if event is “Received Data”; otherwise 0

1C–1F Request parameter header (RPH) address

CFUS entry for user sync point service

Entry: CFUS

VIT option:
CFS

Event: Invocation of the MVS macro IXLUSYNC

VIT processing module:
ISTRACCF

Control is returned to:
ISTFSUUS

This trace record is written when a connector sets or confirms a user sync point for a coupling facility structure with the IXLUSYNC macro.

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
CFUS	ID	0	FUNC	CONNECT ID	CFSSTR ADDRESS	USER EVENT	RETURN ADDRESS	RETURN CODE	REASON CODE	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"CFUS"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Function requested by this invocation of IXLUSYNC:

- **X'01'** SET function requested
- **X'02'** CONFIRM function requested
- **X'03'** CONFIRMSET function requested

07 Connection identifier of the invoker of IXLUSYNC

08–0B Structure object (CFSSTR) address

0C–0F The value of USEREVENT parameter for this invocation of IXLUSYNC

10–13 The address of the invoker of IXLUSYNC

14–17 Return code for the MVS macro IXLUSYNC

18–1B Reason code for the MVS macro IXLUSYNC

1C–1F Request parameter header (RPH) address

CFVC entry for IXLVECTR service

Entry: CFVC

VIT option:
CFS

Event: Invocation of the MVS macro IXLVECTR

VIT processing module:
ISTRACCF

Control is returned to:
ISTFSLVC

This trace record is written when VTAM issues an IXLVECTR macro to modify or test the list notification vector.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CFVC				ID	0	FUNCTION	0	CFSSTR ADDRESS				VECTOR INDEX				RETURN ADDRESS				RETURN CODE				BIT STRING OR ACTUAL LENGTH				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"CFVC"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Function codes

X'01' Modify vector size

X'02' Load and test a range of vector entries

X'03' Test a single list state.

07 0

08–0B Structure object (CFSSTR) address.

0C–0F If byte 06 indicates a modify vector size, then this field contains the new length of the vector.

If byte 06 indicates a load and test function, then this field contains the starting vector index to begin testing. Thirty-two consecutive bits will be tested.

If byte 06 indicates a test function, then this field contains the vector index being tested.

10–13 Address of the invoker of IXLVECTR.

14–17 Return code from the MVS macro IXLVECTR. See the z/OS MVS Programming: Sysplex Services Reference for an explanation of this code.

18–1B If byte 06 indicates a modify vector size function, then this field contains the actual length of the new vector.

If byte 06 indicates a load and test function, then this field contains a 32-bit string where each bit indicates the following information:

0 List is not empty

1 List is empty

1C–1F Request parameter header (RPH) address.

CHGO entry for CHANGE_OWNER requests

Entry: CHGO

VIT option:
CSM

Event: IVTCSM REQUEST=CHANGE_OWNER

VIT processing module:
ISTITCCS

Control is returned to:
IVTSMCCO

This trace record provides the status of an IVTCSM REQUEST=CHANGE_OWNER macroinstruction.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CHGO				ID	0	FLAG	RECNUM	0		OWNER		RTN COD		RSN COD		UTILRTN CALLER OR RETURN ADDRESS				LAST BUFFER LIST ENTRY				NUMBER OF BUFFERS				THREAD VALUE OR 0			

Byte (hex)
Contents

00–03 Record ID: C"CHGO"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace record flag:

B'0... ....'
Indicates that this is the last record for this event.

B'1... ....'
Indicates that additional records exist for this event. Use the trace record number from this entry to locate corresponding continuation records.

07 Trace record number to correlate all the entries for this particular event.

08–09 0

0A–0B Owner ID

0C–0D
Return code

0E–0F Reason code

10–13 Address of utility routine caller or return address of the issuer of the IVTCSM macroinstruction

14–17 Last buffer list entry

18–1B Number of buffers

1C–1F THREAD value if specified or 0 if THREAD is not specified. The THREAD value is used only to correlate this trace record to a specific IVTCSM macroinstruction.

CHG2 entry for CHANGE_OWNER requests

Entry: CHG2

VIT option:
CSM

Event: IVTCSM REQUEST=CHANGE_OWNER

VIT processing module:
ISTITCCS

This trace record is a continuation of the CHGO trace record. Each CHG2 record traces, at most, two buffers that were requested for ownership change.

00 01 02 03	04 05	06	07	08 09 0A 0B 0C 0D 0E 0F 10 11 12 13	14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
CHG2	0	FLAG	RECNUM	BUFFER TOKEN FOR INPUT BUFFER LIST ENTRY	BUFFER TOKEN FOR INPUT BUFFER LIST ENTRY OR 0

Byte (hex)
Contents

00–03 Record ID: C"CHG2"

04–05 0

06 Trace record flag:

B'0... ....'
Indicates that this is the last record for this event.

B'1... ....'
Indicates that additional records exist for this event. Use the trace record number from this entry to locate corresponding continuation records.

07 Trace record number to correlate all the entries for this particular event

08–13 Buffer token contained in input buffer list entry

14–1F Buffer token contained in input buffer list entry or 0

CI1 or CO1 trace entries

This trace record provides information about the inbound and outbound requests sent to session services to begin or end a same-network or cross-network LU-LU session.

The CI1 and CO1 traces have two formats:

- **Format 0** is used for same-network sessions or when VTAM does not know whether the request is for a cross-network session. This format contains parts 1, 2, and 3 of the CIn or COn record.
- **Format 1** is used for cross-network sessions. This format contains parts 1, 2, 3, and 4 of the CIn or COn record.

CI1 or CO1 entry for SSCP (RUPE — Part 1)

Entry: CI1 or CO1

VIT option:
SSCP

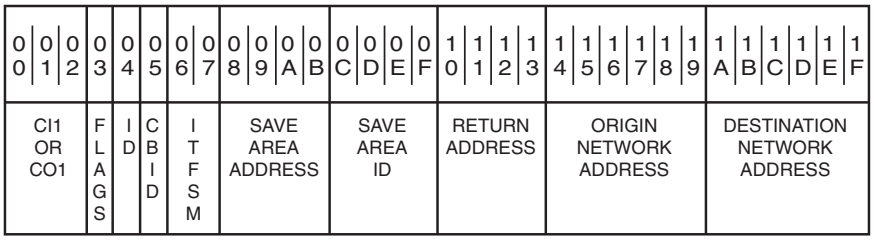
Event: Requests (Part 1)

VIT processing module:
ISTRACSC

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced

Part 1 of the CIn or COn record is for both format 0 and format 1 and contains essentially the same information as the CCI or CCO entry.

If this entry is associated with an event failure (that is, the sense data is nonzero), this entry is generated whether the SSCP option is in effect. It is treated as an exception condition and, therefore, is traced whenever the VIT is active.



Byte (hex)
Contents

00–02 Record ID:
- C"CI1" for inbound processing
- C"CO1" for outbound processing

03 Flags

Bit **Meaning**

0... ....
Requests

1... ....
Response

.0.. ....
No sense

.1.. ....
Sense

.... ..00
Format 0

.... ..01
Format 1

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Control block ID=X'54'

06–07 Initiation and termination finite state machines (taken from the session information block, SIB)

08–0B Save area address

0C–0F Save area ID (bytes 4, 5, 7, and 8 of the module name if available)

10–13 Address of the issuer of the macro (CPCALL, CPEXIT, or CPWAIT)

14–19 Network address at origin (RUPEOAF)

1A–1F Network address at destination (RUPEDAF)

CI1 or CO1 entry for SSCP (NCSPL — Part 1)

Entry: CI1 or CO1

VIT option:
SSCP

Event: Requests (Part 1)

VIT processing module:
ISTRACSC

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CI1 OR CO1			FLAGS	ID	CBID	FLAGS	RTNCD	SAVE AREA ADDRESS				SAVE AREA ID				RETURN ADDRESS				CPCB OPCODE				TYPE	0	DESTINATION NETWORK ADDRESS					

Byte (hex)
Contents

00–02 Record ID:
- C"CI1" for inbound processing
- C"CO1" for outbound processing

03 Flags

Bit	Meaning
0...	Requests
1...	Response
.0..	No sense
.1..	Sense
.... ..00	Format 0
.... ..01	Format 1

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Control block ID=X'60'

06 Flags (CPCBFL)

07 CPCB return code (CPCBRC)

08–0B Save area address

0C–0F Save area ID (bytes 4, 5, 7, and 8 of the module name if available)

10–13 Address of the issuer of the macro (CPCALL, CPEXIT, or CPWAIT)

14–17 CPCB operation code (See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures.)

18 WTD type

19 0

1A–1F Network address at destination (NCSPLDAF)

CI1 or CO1 entry for SSCP (not RUPE or NCSPL — Part 1)

Entry: CI1 or CO1

VIT option:
SSCP

Event: Requests (Part 1)

VIT processing module:
ISTRACSC

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced

00	01	02	03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
CI1 OR CO1	FLAGS	ID	CBID	CPCBF	RTNCD	SAVE AREA ADDRESS	SAVE AREA ID	RETURN ADDRESS	CPCB OPCODE	CPCB WORD 3	CPCB WORD 4		

Byte (hex)
Contents

00–02 Record ID:
- C"CI1" for inbound processing
- C"CO1" for outbound processing

03 Flags

Bit	Meaning
0...	Requests
1...	Response
.0..	No sense
.1..	Sense
.... ..00	Format 0
.... ..01	Format 1

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Control block ID (See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures.)

06 CPCB flag (CPCBFL)

07 Return code (CPCBRC)

08–0B Save area address

0C–0F Save area ID (bytes 4, 5, 7, and 8 of the module name if available)

10–13 Address of the issuer of the macro (CPCALL, CPEXIT, or CPWAIT)

14–17 CPCB operation code (See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures.)

18–1B CPCB word 3 (field WTDPTR)

1C–1F CPCB word 4 (field CPCBPH)

CI2 or CO2 entry for SSCP (RUPE - Part 2)

Entry: CI2 or CO2

VIT option:
SSCP

Event: Requests (Part 2)

VIT processing module:
ISTRACSC

The CI2 and CO2 trace records are continuations of the CI1 and CO1 entries.

00 01 02	03	04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B	1C 1D 1E 1F
C C 2	C B I D	FIRST 24 BYTES OF RU	SENSE DATA OR SEQ NUM OR 0

Byte (hex)
Contents

00–02 Record ID:
- C"CI2" for inbound processing
- C"CO2" for outbound processing

03 Control block ID=X'54'

04–1B First 24 bytes of RU

1C–1F Sense data or 0

CI2 or CO2 entry for SSCP (NCSPL — Part 2)

Entry: CI2 or CO2

VIT option:
SSCP

Event: Requests (Part 2)

VIT processing module:
ISTRACSC

This trace record is a continuation of the CI1 or CO1 trace record.

00 01 02	03	04 05 06 07	08 09 0A 0B	0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
CI2 OR CO2	C B I D	RDTE STATE	CPCB WTD	0

Byte (hex)
Contents

00–02 Record ID:
- C"CI2" for inbound processing
- C"CO2" for outbound processing

03 Control block ID=X'60'

04–07 RDTE state (in control block RPRE). This value, a resource status code, is explained in z/OS Communications Server: IP and SNA Codes and in control block FSM. See z/OS Communications Server: SNA Data Areas Volume 1.

08–0B CPCB WTD (first 4 bytes)

0C–1F 0

CI2 or CO2 entry for SSCP (not RUPE or NCSPL — Part 2)

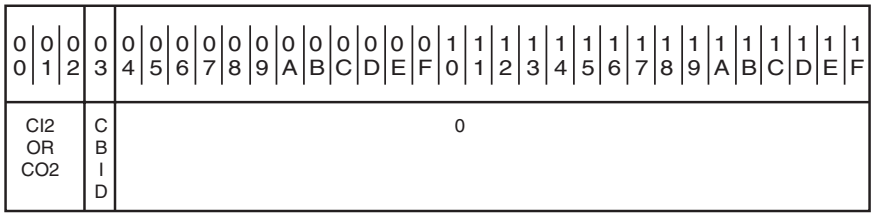
Entry: CI2 or CO2

VIT option:
SSCP

Event: Requests (Part 2)

VIT processing module:
ISTRACSC

This trace record is a continuation of the CI1 or CO1 trace record.



Byte (hex)
Contents

00 - 02 Record ID:
- C"CI2" for inbound processing
- C"CO2" for outbound processing

03 Control block ID (See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures.)

04 - 1F
0

CI3 or CO3 entry for SSCP (RUPE, NCSPL, or not RUPE or NCSPL — Part 3)

Entry: CI3 or CO3

VIT option:
SSCP

Event: Requests (Part 3)

VIT processing module:
ISTRACSC

Part 3 of the CIn or COn record is for both format 0 and format 1 and contains the address of the ISTSIB for the session, the ISTPCID, and the PLU and SLU names.

Note: If this is the last CIn or COn entry, these are the PLU and SLU names as known in this network. If this entry is followed by CI4 or CO4, these are just the PLU and SLU names. The CI4 or CO4 entry identifies the network.

00 01 02	03	04 05 06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B 1C 1D 1E 1F
CI3 OR CO3	0	SIB ADDRESS	PCID FOR THIS REQUEST	PLU NAME	SLU NAME

Byte (hex)
Contents

00–02 Record ID:
- C"CI3" for inbound processing
- C"CO3" for outbound processing

03 0

04–07 SIB address

08–0F PCID for this request

10–17 PLU name

18–1F SLU name

CI4 or CO4 entry for SSCP (RUPE, NCSPL, or not RUPE or NCSPL — Part 4)

Entry: CI4 or CO4

VIT option:
SSCP

Event: Requests (Part 4)

VIT processing module:
ISTRACSC

Part 4 of the CIn or COn entry is for format 1 only.

00 01 02	03 04 05 06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B 1C 1D 1E 1F
CI4 OR CO4	0	PCID IN PREVIOUS REQUEST	PLU NETID	SLU NETID

Byte (hex)
Contents

00–02 Record ID:
- C"CI4" for inbound processing
- C"CO4" for outbound processing

03–07 0

08–0F PCID in previous request

10–17 PLU network ID

18–1F SLU network ID

CMER entry for error in CMIP services (Part 1)

Entry: CMER

VIT option:
None (Generated by CMIP services)

Event: Error discovered in CMIP services (Part 1)

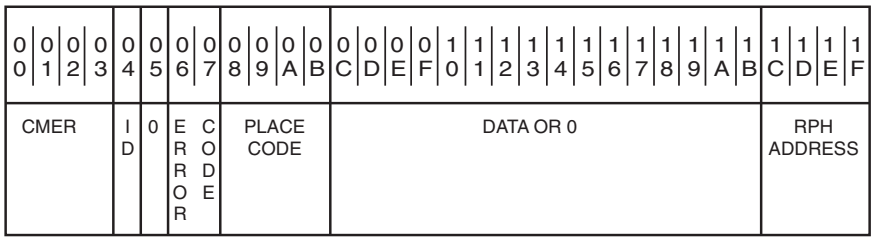
VIT processing module:
ISTITCCM

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced

This trace record is generated when an error is detected in CMIP services. For long CMIP strings, a maximum of seven CME2 trace records are generated. For longer CMIP strings, an additional CMER trace record with a maximum of seven CME2 trace records are generated.

For detailed descriptions of the fields, see z/OS Communications Server: CMIP Services and Topology Agent Guide.

This entry is always traced, regardless of the VIT options specified.



Byte (hex)
Contents

00–03 Record ID: C"CMER"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06–07 Error code indicating which error is detected

08–0B Place code indicating where the error is detected

0C–1B The first 16 bytes of data (padded on the right with zeros). 0 if there is no data. The data consists of one or more variables. Each variable is preceded by a 2-byte field indicating its length in bytes. The length of the data itself, not the number of bytes being traced, is used.

If the data is too long to fit in the VIT record, the length field does not match the number of bytes traced.

1C–1F Request parameter header (RPH) address

CME2 entry for error in CMIP services (Part 2)

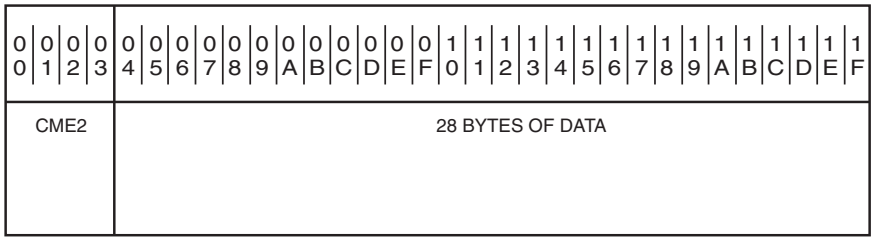
Entry: CME2

VIT option:
None (Generated by CMIP services)

Event: Error discovered in CMIP services (Part 2)

VIT processing module:
ISTITCCM

This trace record is a continuation of the CMER entry. It contains 28 more bytes of the CMIP error data. A maximum of seven CME2 trace records are generated. The number of records depends on the length of the data.



Byte (hex)
Contents

00–03 Record ID: C"CME2"

04–1F Up to 28 bytes of data (padded on the right with zeros)

CNA entry for VCNSCMD issued by application

Entry: CNA

VIT option:
VCNS

Event: VCNSCMD issued by application

VIT processing module:
ISTRACNS

Control is returned to:
ISTAICVC

This CNA trace record shows VCNS command requests. The API routine ISTAICVC writes the entry and then queues the RPL to the correct PAB.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CNA				ID	EXTDS	OPT1	CNTRL	RPL ADDRESS				RPL3 ADDRESS				RPL AREA				VCNS FLAGS			0	OPERAND-DEPENDENT DATA							

Byte (hex)
Contents

00–03 Record ID: C"CNA"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Exit definition (RPLEXTDS)

Bit **Meaning**

1... ....
Indicates RPL exit was scheduled

.1.. ....
Indicates RPL exit not specified

..1. ....
Indicates RPL exit was specified

...x xx..
0

.... ..1.
Indicates BRANCH=YES specified

....x
0

06 Option code byte 1 (RPLOPT1)

Bit **Meaning**

xxxx ....
0

.... 1...
Asynchronous request indicator

.... .xx.
0

....1
External ECB indicator

07 VCNSCMD CONTROL= operand value

08 INQUIRE

10 LOGON

14 TEST

18 XID

20 LOGOFF

40 STATUS

50 SET

80 SEND

C0 CHECK

E0 SETCPARM

F0 RECEIVE

FC REPLY

08–0B RPL address

0C–0F RPL3 address (RPLAAREA)

10–13 Address of area into which data is to be read or from which data is to be written (RPLAREA), or 0 if no area is supplied

14 VCNS flag byte

Bit **Meaning**

1... ....
Q-bit indicator

.1.. ....
M-bit indicator

..1. ....
D-bit indicator

...1 ....
Buffer list indicator

.... xxxx
0

15 VCNS flag byte

Bit	Meaning
00..	Continue specific
01..	Continue any
11..	Continue same
..00	Data flow=on
..01	Data flow=off
..11	Data flow=same
.... 1...	Receive any indicator
.... .xxx	0

16 VCNS flag byte

Bit	Meaning
1...	STYPE=CONFIRM indicator
.xxx xxxx	0

17 0

18–1F When CONTROL equals LOGON or CONTROL equals INQUIRE: symbolic name of the network access point

18–1B When CONTROL does not equal LOGON and CONTROL does not equal INQUIRE and the request is an X.25 request: address into which expedited data is to be read or from which expedited data is to be written, or 0 if no area is supplied

1C–1F When CONTROL does not equal LOGON and CONTROL does not equal INQUIRE: connection or resource identifiers (RID)

- RID is supplied when the VCNSCMD CONTROL value is:

  LOGOFF

  OPEN (STYPE=REQUEST)

  READ

  RECEIVE (when SMODE is CONNECTIONLESS)

  REPLY

  SEND (when the connection ID value is 0)

  SET

  SETCPARM (when the connection ID value is 0)

  STATUS (when the RID value is not 0)

  TEST

XID

- Connection identifier is supplied when the VCNSCMD CONTROL value is:

  CLOSE

  EXPEDITE

  OPEN (STYPE=CONFIRM)

  RECEIVE (Specific)

  RESET

  RESUME

  SEND (when the connection ID value is not 0)

  SETCPARM (when the connection ID value is not 0)

  SUSPEND

  STATUS (when the RID value is 0)

CNP1 or CNR1 entry for ECB posted or RPL exit dispatched (Part 1)

Entry: CNP1 or CNR1

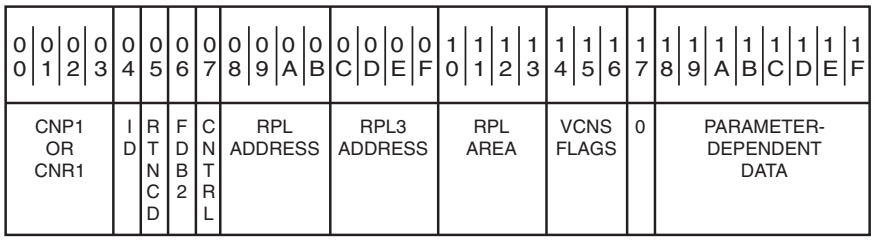
VIT option:
VCNS

Event: ECB posted or RPL exit dispatched (Part 1)

VIT processing module:
ISTRACNS

Control is returned to:
ISTAICPT for CNP1. ISTAPCUE for CNR1

The CNP1 trace record is written when an ECB is posted. The CNR1 trace record is written when an RPL exit is dispatched. These trace records signal that execution of the VCNSCMD macroinstruction is complete and show that the data returned to the user application program.



Byte (hex)
Contents

00–03 Record ID:

- C"CNP1" for ECB posting
- C"CNR1" for RPL exit dispatching

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Global VTAM return code (RPLRTNCD)

06 Global VTAM feedback code (RPLFDB2)

07 VCNSCMD CONTROL= operand value

08 INQUIRE

10 LOGON

14 TEST

18 XID

20 LOGOFF

40 STATUS

50 SET

80 SEND

C0 CHECK

E0 SETCPARM

F0 RECEIVE

08–0B RPL address

0C–0F RPL3 address (RPLAAREA)

10–13 Address of area containing user data (RPLAREA), or 0 if no area is supplied

14 VCNS flag byte

Bit	Meaning
1...	Q-bit indicator
.1..	M-bit indicator
..1.	D-bit indicator
...1	Buffer list indicator
.... xxxx	0

15 VCNS flag byte

Bit	Meaning
00..	Continue specific
01..	Continue any
11..	Continue same
..00	Data flow=on
..01	Data flow=off

..11 ....
Data flow=same

.... 1...
Receive any indicator

.... .xxx
0

16 VCNS flag byte

Bit Meaning

1... ....
STYPE=CONFIRM indicator

.xxx xxxx
0

17 0

18–1B Address into which expedited data is to be read or from which expedited data is to be written, or 0 if no area is supplied

1C–1F Connection or resource identifier (RID)

- RID is returned when the VCNSCMD CONTROL value is:
  LOGON
  LOGOFF
  READ
  SET
  STATUS (for network access point)
  TEST
  XID
- Connection ID is returned when the VCNSCMD CONTROL value is:
  CLOSE
  EXPEDITE
  OPEN
  RECEIVE
  RESET
  RESUME
  SEND
  SETCPARM
  SUSPEND
  STATUS (for connection)
- 0 is returned when the VCNSCMD CONTROL value is INQUIRE

CNP2 or CNR2 entry for ECB posted or RPL exit dispatched (Part 2)

Entry: CNP2 or CNR2

VIT option:
VCNS

Event: ECB posted or RPL exit dispatched (Part 2)

VIT processing module:
ISTRACNS

The CNP2 trace record is a continuation of the CNP1 trace record. The CNR2 trace record is a continuation of the CNR1 trace record.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CNP2 OR CNR2				ECB ADDRESS OR EXIT ADDRESS				RCPRI		RCSEC		LENGTH OF USER DATA AREA				MAXLN		DATLN		SENSE DATA OR 0				EXPEDITED DATA							

Byte (hex)
Contents

00–03 Record ID:
- C"CNP2" for continuation of CNP1
- C"CNR2" for continuation of CNR1

04–07 ECB or RPL exit address (RPLECB)

08–09 VCNSCMD primary return code

0A–0B VCNSCMD secondary return code

0C–0F Length of area containing user data (RPLRLEN)

10–11 Length of expedited data area

12–13 Length of expedited data received

14–17 Four bytes of sense data, or 0 when no sense data is returned

18–1F Eight bytes of expedited data

CNP3 or CNR3 entry for ECB posted or RPL exit dispatched (Part 3)

Entry: CNP3 or CNR3

VIT option:
VCNS

Event: ECB posted or RPL exit dispatched (Part 3)

VIT processing module:
ISTRACNS

The CNP3 trace record is a continuation of the CNP2 trace record. The CNR3 trace record is a continuation of the CNR2 trace record. These records are written only when the VCNSCMD CONTROL operand value is RECEIVE or CLOSE, and RPLRLEN is greater than 0.

00 01 02 03	04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
CNP3 OR CNR3	DATA FIELD

Byte (hex)
Contents

00–03 Record ID:
- C"CNP3" for continuation of CNP2
- C"CNR3" for continuation of CNR2

04–1F Twenty-eight bytes of user data (RPLAREA)

CNTP entry for buffer pool contraction

Entry: CNTP

VIT option:
CSM

Event: Pool contraction

VIT processing module:
ISTITCCS

Control is returned to:
IVTSMCEX

This trace record is written when CSM pool contraction occurs.

00 01 02 03	04	05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
CNTP	ID	0	POOL ADDRESS	EXTENT ADDRESS	NUMBER OF BUFFERS IN EXTENT	TOTAL BUFFERS AFTER CNTRACT	FREE BUFFERS AFTER CNTRACT	0

Byte (hex)
Contents

00–03 Record ID: C"CNTP"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0B Pool address

0C–0F Extent address

10–13 Number of buffers in extent

14–17 Total number of buffers in the pool after contraction

18–1B Number of free buffers in the pool after contraction

1C–1F 0

CONT entry for buffer pool contraction

Entry: CONT

VIT option:
SMS

Event: Buffer pool contraction

VIT processing module:
ISTRACSM

Control is returned to:
ISTORAPX

This trace record is generated whenever VTAM needs to contract a buffer pool. Buffer pool contraction will occur when VTAM determines that it has excess buffers that can be returned to the operating system.

00 01 02 03	04	05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15	16 17	18 19 1A 1B	1C 1D 1E 1F
CONT	ID	0	BPCB ADDRESS	PXB ADDRESS	EXTENT ADDRESS	QUEUE	0	TOTAL NUMBER OF BUFFERS	AVAIL NUMBER OF BUFFERS

Byte (hex)
Contents

00–03 Record ID: C"CONT"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0B Address of buffer pool control block (BPCB) for which contraction occurred

0C–0F Address of pool expansion block (PXB) that is contracted

10–13 Extent address (PXBSTADR)

14–15 Number of queued RPHs waiting for expansion

16–17 0

18–1B Total number of buffers in pool after this contraction (BPCBTOTL)

1C–1F Total number of available buffers in pool after this contraction

CPx entry for requests/responses processed by the CP (Part 1)

Entry: CPI or CPO

VIT option:
SSCP

Event: Requests/responses with a RUPE

VIT processing module:
ISTRACSC

Control is returned to:
Many modules possible

This trace record provides information about inbound and outbound requests and responses that are processed by the CP.

If this entry is associated with an event failure (that is, the sense data is nonzero), this entry is generated whether the SSCP option is in effect or not. It is treated as an exception condition, and therefore, is traced whenever the VIT is active.

00 01 02	03	04	05	06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17 18 19	1A 1B 1C 1D 1E 1F
CPI CPO	FLAGS	ID	CBID	0	SAVE AREA ADDRESS	SAVE AREA ID	RETURN ADDRESS	RUPE ORIGIN NETWORK ADDRESS	RUPE DESTINATION NETWORK ADDRESS

Byte (hex)
Contents

00–02 Record ID:
- C"CPI" for inbound processing
- C"CPO" for outbound processing

03 Flags
- X'80' = response RU
- X'40' = sense traced
- X'00' = request RU

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Control Block ID=X'54'

06–07 0

08–0B Save Area Address

0C–0F Save Area ID

10–13 Address of the issuer of the APSEND macro

14–19 For sender, network address at origin

1A–1F For sender, network address at destination

CP2 entry for requests/responses processed by the CP (Part 2)

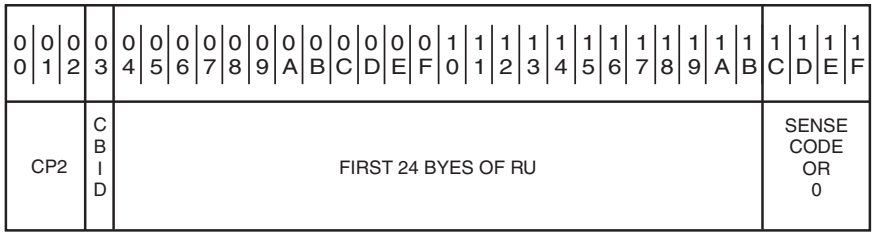
Entry: CP2

VIT option:
SSCP

Event: Requests/responses with a RUPE (Part 2)

VIT processing module:
ISTRACSC

This trace record is a continuation of the CPI or CPO entry.



Byte (hex)
Contents

00–02 Record ID: C"CP2"

03 Control Block ID=X'54'

04–1B First 24 bytes of RU

1C–1F Sense code or 0

CPPG or CPPT entry for CPPURGE or CPPOST event (Part 1)

Entry: CPPG or CPPT

VIT option:
SSCP

Event: CPPURGE or CPPOST Macro (Part 1)

VIT processing module:
ISTRACSC

Control is returned to:
ISTPVCWP

This trace record gives information about CPPURGE or CPPOST macroinstruction processing. It may help you determine why I/O is outstanding or why an SSCP request is failing.

CPPG and CPPT are the complements of CPWT. Each CPPT is preceded by a CPWT. But a CPPG can post several events at once, as it may be concluding

several CPWT entries.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CPPG OR CPPT				ID		RTNCD	TYPE	OPT	LQAB GROUP ADDRESS			WREDATA IN WRE				WORK ELEMENT ADDRESS				OPC IN WORK ELEMENT OR 0				SAVE AREA ID OR 0				SENSE DATA OR 0			

Byte (hex)
Contents

00–03 Record ID:

- C"CPPG" for CPPURGE processing
- C"CPPT" for CPPOST processing

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Return code set by CPPOST or CPPURGE

06 Type flags

Bit **Meaning**

....x
1 = PVI event

.... ..x.
1 = search on EID

0 = search on URC

.... .x..
For OPTIONS(POST) only, 1 indicates that return of a control block is optional. This bit corresponds to the CTLBLKOP keyword on the CPPOST macro.

.... x...
For OPTIONS(FIND) only, 1 indicates that the invoker intends to change the WRE's event ID. This bit corresponds to the CHGEID keyword on the CPPOST macro.

07 High-order 4 bits: Type of LQAB used for the search

Value **LQAB type**

0000 Global LQAB

0001 EID-related LQAB

0010 DAF-related LQAB

0011 URC-related LQAB

Low-order 4 bits: Function requested through the OPTIONS keyword on the CPPOST macro, 0 for CPPG

Value **Keyword**

0000 FIND

0001 DEQ

0010 POST

08–0B LQAB group address

0C–0F Data field in ISTWRE

10–13 Work element address

14–17 CPCB operation code that indicates the original request for this work element or 0 (See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures.)

18–1B For PVI events, caller's save area ID or 0. For non-PVI events, save area ID

1C–1F For POST or PURGE, sense data or 0. For DEQ or FIND, 0

CPP2 entry for CPPURGE or CPPOST (Part 2)

Entry: CPP2

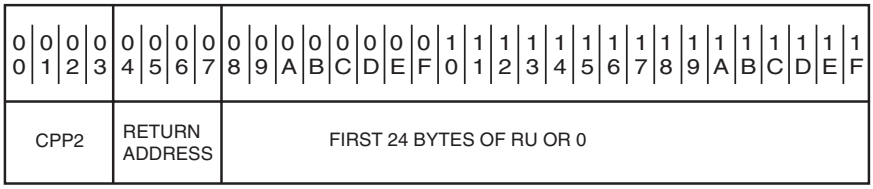
VIT option:
SSCP

Event: CPPURGE or CPPOST macro (Part 2)

VIT processing module:
ISTRACSC

This trace record contains part or all of the RU for CPPURGE or CPPOST macroinstruction processing. It may help you determine why I/O is outstanding or why an SSCP request is failing. If an RU is fewer than 24 bytes long, only the bytes in the actual RU will be moved to the corresponding fields in the trace records. The leftover bytes will be set to 0.

Note: This trace record is produced only for PVI events where a RUPE is available.



Byte (hex)
Contents

00–03 Record ID: C"CPP2"

04–07 Return Address

08–1F First 24 bytes of RU or 0

CPP3 entry for CPPURGE or CPPOST (Part 3)

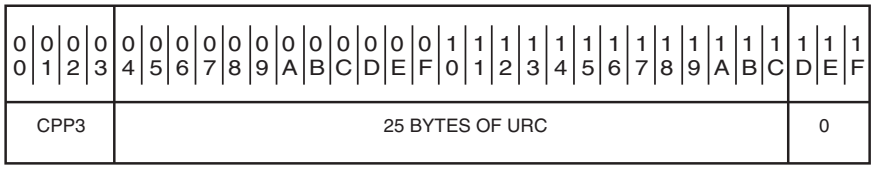
Entry: CPP3

VIT option:
SSCP

Event: CPPURGE or CPPOST macro (Part 3)

VIT processing module:
ISTRACSC

This trace record is a continuation of the CPPG or CPPT trace record.



00 01 02 03	04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C	1D 1E 1F
CPP3	25 BYTES OF URC	0

Byte (hex)
Contents

00–03 Record ID: C"CPP3"

04–1C 25 bytes of URC

1D–1F 0

CPP4 entry for CPPURGE or CPPOST (Part 4)

Entry: CPP4

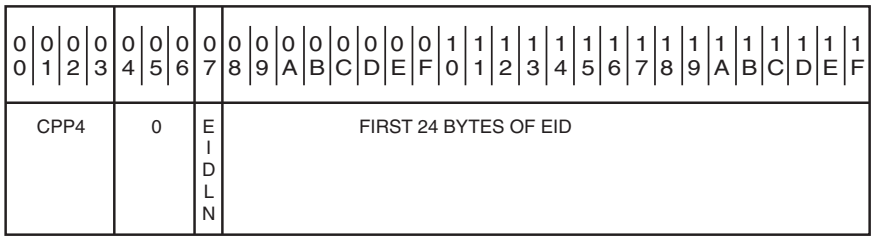
VIT option:
SSCP

Event: CPPURGE or CPPOST macro (Part 3)

VIT processing module:
ISTRACSC

This trace record contains part or all of the event ID (EID) for CPPURGE or CPPOST macroinstruction processing. If an EID is fewer than 24 bytes long, only the bytes in the actual EID will be moved to the corresponding fields in the trace records. The leftover bytes will be set to 0.

Note: This trace record is produced only when the WRE points to an EID.



00 01 02 03	04 05 06	07	08 09 0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
CPP4	0	EIDLN	FIRST 24 BYTES OF EID

Byte (hex)
Contents

00–03 Record ID: C"CPP4"

04–06 0

07 Length of EID

08–1F First 24 bytes of EID

CPRC entry for CPRC (Part 1)

Entry: CPRC

VIT option:
SSCP

Event: CPRC macro (Part 1)

VIT processing module:
ISTRACSC

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced

This trace record gives information about CPRC macroinstruction processing. It is written when a VTAM module issues a CPRC macroinstruction to set a nonzero sense code in an RUPE.

This event is treated as an exception condition and is always traced, whether the SSCP option is in effect or not.

00 01 02 03	04	05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17 18 19	1A 1B 1C 1D 1E 1F
CPRC	ID	0	RUPE ADDRESS OR 0	CPCB OPCODE IN THIS RUPE	SENSE CODE	ORIGIN NETWORK ADDRESS	DESTINATION NETWORK ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"CPRC"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0B Address of RUPE for this macro, or 0

0C–0F CPCB operation code for RUPE that indicates the original request for this RUPE (See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures.)

10–13 Sense code

14–19 Network address at origin (RUPE)

1A–1F Network address at destination (RUPE)

CPR2 entry for CPRC (Part 2)

Entry: CPR2

VIT option:
SSCP

Event: CPRC macro (Part 2)

VIT processing module:
ISTRACSC

This trace record is a continuation of the CPRC entry.

00 01 02 03	04 05 06 07	08 09 0A 0B 0C	0D	0E	0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
CPR2	RETURN ADDRESS	ISSUER NAME	INSTANCE	RTNCD	0

Byte (hex)
Contents

00–03 Record ID: C"CPR2"

04–07 Address of the issuer of the CPRC macro

08–0C Module name field from the register save area for the module that issued the CPRC macro

This field contains the abbreviated name (bytes 4, 5, 6, 7, 8) of the module that issued the CPRC macro. If the issuing module does not have its own save area, for example, modules ISTINCF1 and ISTPUCTI, this field contains the name field from the save area of the caller of the module that issued the CPRC macro.

0D Instance of the CPRC macro in the issuer

0E CPCBRC return code

Note: It is not required that users of the product know the meaning of this internal VTAM return code. When required, the product support organization may use it to assist in internal flow diagnosis.

0F–1F 0

CPR3 entry for CPRC (Part 3)

Entry: **CPR3**

VIT option:
SSCP

Event: CPRC macro (Part 3)

VIT processing module:
ISTRACSC

This trace record is a continuation of the CPRC entry.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CPR3				24 BYTES OF CPCBURC																									0		

Byte (hex)
Contents

00–03 Record ID: C"CPR3"

04–1C First 25 bytes of the user request correlator (CPCBURC) entry

1D–1F 0

CPWT entry for CPWAIT events (Part 1)

Entry: CPWT

VIT option:
SSCP

Event: CPWAIT macro (Part 1)

VIT processing module:
ISTRACSC

Control is returned to:
ISTCPCPW

This trace record gives information about CPWAIT macroinstruction processing. It may help you determine why I/O is outstanding or why an SSCP request is failing.

This entry is eventually followed by a CPPT entry (to resume processing) or a CPPG entry (to purge the waiting task). Use the EID field to match corresponding entries.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CPWT				ID	0	TYPE	0	LQAB ADDRESS				WREDATA IN WRE				WORK ELEMENT ADDRESS				CPCB OPCODE IN WORK EL OR 0				SAVE AREA ID OR 0				SENSE CODE OR 0			

Byte (hex)
Contents

00–03 Record ID: C"CPWT"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Type flags

- B'00000001'=PVI event
- B'00000000'=non-PVI event

07 0

08–0B LQAB address for this CPWAIT macro

0C–0F Data field in ISTWRE when CPWAIT is performed

10–13 Work element address

14–17 CPCB operation code that indicates the original request for this work element or 0 (See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures.)

18–1B For PVI event, caller's save area ID or 0. For non-PVI event, save area ID

1C–1F Sense code or 0

CPW2 entry for CPWAIT (Part 2)

Entry: CPW2

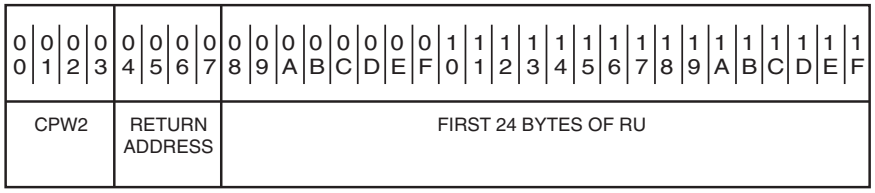
VIT option:
SSCP

Event: CPWAIT macro (Part 2)

VIT processing module:
ISTRACSC

This trace record is a continuation of the CPWT trace record. If an RU is fewer than 24 bytes long, only the bytes in the actual RU will be moved to the corresponding fields in the trace records. The leftover bytes will be set to 0.

Note: This trace record is produced only for PVI events where a RUPE is available.



Byte (hex)
Contents

00–03 Record ID: C"CPW2"

04–07 Return address

08–1F First 24 bytes of RU

CPW3 entry for CPWAIT (Part 3)

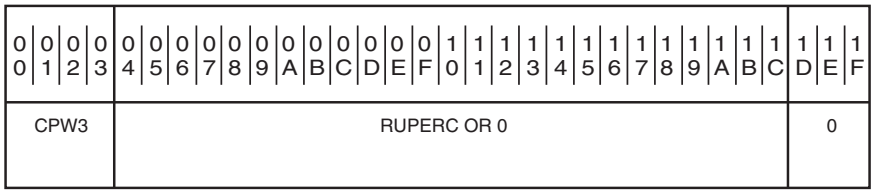
Entry: CPW3

VIT option:
SSCP

Event: CPWAIT macro (Part 3)

VIT processing module:
ISTRACSC

This trace record is a continuation of the CPWAIT trace record.



00 01 02 03	04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C	1D 1E 1F
CPW3	RUPERC OR 0	0

Byte (hex)
Contents

00–03 Record ID: C"CPW3"

04–1C RUPEURC or 0

1D–1F 0

CPW4 entry for CPWAIT (Part 4)

Entry: CPW4

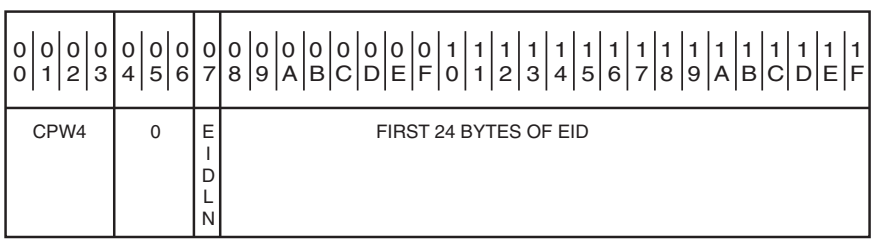
VIT option:
SSCP

Event: CPWAIT macro (Part 4)

VIT processing module:
ISTRACSC

This trace record is a continuation of the CPW3 trace record. If an event ID (EID) is fewer than 24 bytes long, only the bytes in the actual EID will be moved to the corresponding fields in the trace records. The leftover bytes will be set to 0.

Note: This trace record is produced only when the WRE points to an EID event.



00 01 02 03	04 05 06	07	08 09 0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
CPW4	0	EIDLN	FIRST 24 BYTES OF EID

Byte (hex)
Contents

00–03 Record ID: C"CPW4"

04–06 0

07 Length of EID

08–1F First 24 bytes of EID

CPYB entry for COPY_DATA requests

Entry: CPYB

VIT option:
CSM

Event: IVTCSM REQUEST=COPY_DATA

VIT processing module:
ISTITCCS

Control is returned to:
IVTSMCCD

This trace record provides the status of an IVTCSM REQUEST=COPY_DATA macroinstruction.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CPYB				ID	0	FLAG	RECNUM	0				RTN COD		RSN COD		UTILRTN CALLER OR RETURN ADDRESS				NUMBER OF SOURCE BUFFERS				NUMBER OF TARGET BUFFERS				THREAD VALUE OR 0			

Byte (hex)
Contents

00–03 Record ID: C"CPYB"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace record flag:

B'0... ....'
Indicates that this is the last record for this event.

B'1... ....'
Indicates that additional records exist for this event. Use the trace record number from this entry to locate corresponding continuation records.

07 Trace record number to correlate all the entries for this particular event

08–0B 0

0C–0D
Return code

0E–0F Reason code

10–13 Address of utility routine caller or return address of the issuer of the IVTCSM macroinstruction

14–17 Number of buffers containing the data to be copied

18–1B Number of buffers to receive the copied data

1C–1F THREAD value if specified or 0 if THREAD is not specified. The THREAD value is used only to correlate this trace record to a specific IVTCSM macroinstruction.

CPY2 entry for COPY_DATA requests

Entry: CPY2

VIT option:
CSM

Event: IVTCSM REQUEST=COPY_DATA

VIT processing module:
ISTITCCS

This trace record is a continuation of the CPYB trace record. It is an exception record and is generated only when the return code of the macroinstruction is not 0.

00 01 02 03	04 05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
CPY2	0	FLAG	RECNUM	LAST SOURCE BUFFER LIST ENTRY	LAST TARGET BUFFER LIST ENTRY	0

Byte (hex)
Contents

00–03 Record ID: C"CPY2"

04–05 0

06 Trace record flag:

B'0... ....'
Indicates that this is the last record for this event.

B'1... ....'
Indicates that additional records exist for this event. Use the trace record number from this entry to locate corresponding continuation records.

07 Trace record number to correlate all the entries for this particular event

08–0B Last source buffer list entry successfully processed for error return codes

0C–0F Last target buffer list entry successfully processed for error return codes

10–1F 0

CPY3 entry for COPY_DATA requests

Entry: CPY3

VIT option:
CSM

Event: IVTCSM REQUEST=COPY_DATA

VIT processing module:
ISTITCCS

This trace record is a continuation of the CPYB trace record. It contains information about an entry in the source buffer list. There is one CPY3 trace record for each entry in the source buffer list.

00 01 02 03	04 05	06	07	08 09 0A 0B 0C 0D 0E 0F 10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
CPY3	0	FLAG	RECNUM	BUFFER TOKEN	BUFFER ALET	ADDRESS OF DATA BEING COPIED	SIZE OF DATA BEING COPIED

Byte (hex)
Contents

00–03 Record ID: C"CPY3"

04–05 0

06 Trace record flag:

B'0... ....'
Indicates that this is the last record for this event.

B'1... ....'
Indicates that additional records exist for this event. Use the trace record number from this entry to locate corresponding continuation records.

07 Trace record number to correlate all the entries for this particular event

08–13 Buffer token

14–17 ALET

18–1B Address of data being copied

1C–1F Size of data being copied

CPY4 entry for COPY_DATA requests

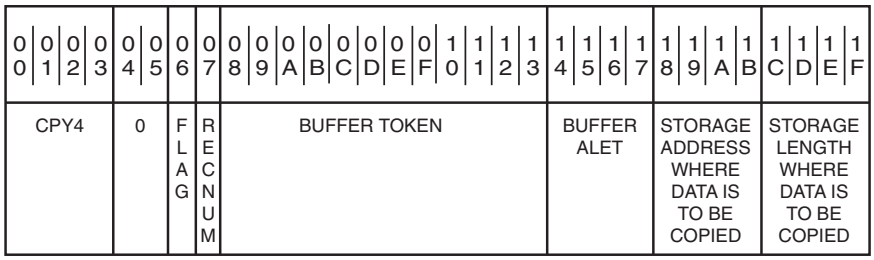
Entry: CPY4

VIT option:
CSM

Event: IVTCSM REQUEST=COPY_DATA

VIT processing module:
ISTITCCS

This trace record is a continuation of the CPYB trace record. It contains information about an entry in the target buffer list. There is one CPY4 trace record for each entry in the target buffer list.



00 01 02 03	04 05	06	07	08 09 0A 0B 0C 0D 0E 0F 10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
CPY4	0	FLAG	RECNUM	BUFFER TOKEN	BUFFER ALET	STORAGE ADDRESS WHERE DATA IS TO BE COPIED	STORAGE LENGTH WHERE DATA IS TO BE COPIED

Byte (hex)
Contents

00–03 Record ID: C"CPY4"

04–05 0

06 Trace record flag:

B'0... ....'
Indicates that this is the last record for this event.

B'1... ....'
Indicates that additional records exist for this event. Use the trace record number from this entry to locate corresponding continuation records.

07 Trace record number to correlate all the entries for this particular event

08–13 Buffer token

14–17 Access List Entry Token (ALET)

18–1B Address of the storage where data is to be copied

1C–1F Length of the storage where data is to be copied

CRx entry for ADD, DELETE, or FIND control block

Entry: CRA, CRD, or CRF

VIT option:
SSCP

Event: CRADD, CRDEL, CRFIND

VIT processing module:
ISTRACSC

The correlate search control block (CR) trace record contains information about a control block add, delete, or find operation in the VTAM control point (CP).

00 01 02	03	04	05	06 07 08 09 0A 0B 0C 0D 0E 0F	10 11 12 13	14 15 16 17 18 19 1A 1B	1C 1D 1E 1F
CRA CRD CRF	TYPE	ID	RC	MODIFIER LIST, SEARCH NUMBER, OR 0	RETURN ADDR	PCID OR 0	CORCB ADDR OR 0

Byte (hex)

00–02 Record ID:

C"CRA" (CRADD):
Add control block

C"CRD" (CRDEL):
Delete control block

C"CRF" (CRFIND):
Find control block

03 Type code

0 Procedure-correlation identifier (PCID) only (6–F contain zeros)

1 PCID and modifier list (6–F contain the modifier list)

2 PCID and search number (6–7 contain the search number, 8–F contain zeros)

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Return code if specified; some FIND calls to this macro do not include a return code but use CORCB ADDR as a return code.

06–0F

- If type code = 0, this field is 0.
- If type code = 1, this field represents the PCID modifier list and is padded on the right with zeros. If search number correlation is used, this field may be 0.
- If type code = 2, this field represents the search number and is padded on the right with zeros.

10–13 Calling module's return address

14–1B PCID of the search being correlated

1C–1F Address of an ISTCORCB; bytes 4–7 of the ISTCORCB contain the address of the control block being correlated (LCB, SITCB). This field is 0 if the entry type is "CRF" and the control block was not found.

Note:

1. A CRF entry is found soon after a DSP entry for LUSS or DSVC. If the CORCB ADDR is 0, the FIND failed.
2. Search number correlation is used with DS only.

CSx entry for resource state change

Entry: CSC, CSD, or CSB

VIT option:
SSCP

Event: Change in resource state

VIT processing module:
ISTRACSC

Control is returned to:
The module that issued the INTRACE macroinstruction

This trace record is written when the current state or required state, or both, of a resource for which tracing has been requested changes. If the network ID of the resource being traced differs from the network ID of the host, the trace record CSC2, CSD2, or CSB2 will follow this entry.

00 01 02	03	04 05	06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
CSC CSD CSB	RPRENTRY	RPRCURST	RPRDESST	RESOURCE NAME	RETURN ADDRESS	RESOURCE ADDRESS	MODULE NAME	RPH ADDRESS

Byte (hex)
Contents

00–02 Record ID:
- C"CSC" for current state change
- C"CSD" for required state change
- C"CSB" for both current and required state change

03 Type of resource

04–05 Resource's current state

06–07 Resource's required state

08–0F Resource name

Note: If the resource RDTE is not available, RDTEPTR is 0, bytes 04–0F will be 0.

10–13 Return address of the module that changed the resource's state

14–17 Address RDTE

18–1B Name of the module that changed the resource's state

1C–1F Request parameter header (RPH) address

CSC2, CSD2, or CSB2 entry for resource state change

Entry: CSC2, CSD2, or CSB2

VIT option:
SSCP

Event: Change in resource state of resource with network ID different from host's network ID

VIT processing module:
ISTRACSC

This trace record is a continuation of the CSx entry and is written when the network ID of the resource being traced differs from the network ID of the host.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
CSC2 CSD2 CSB2				NET ID								0																			

Byte (hex)
Contents

00–03 Record ID:
- C"CSC2" for current state change
- C"CSD2" for required state change
- C"CSB2" for both current and required state change

04–0B Network ID of the resource being traced

0C–1F 0

DAPT entry for HPR out of sequence or received segments queue DAPTR

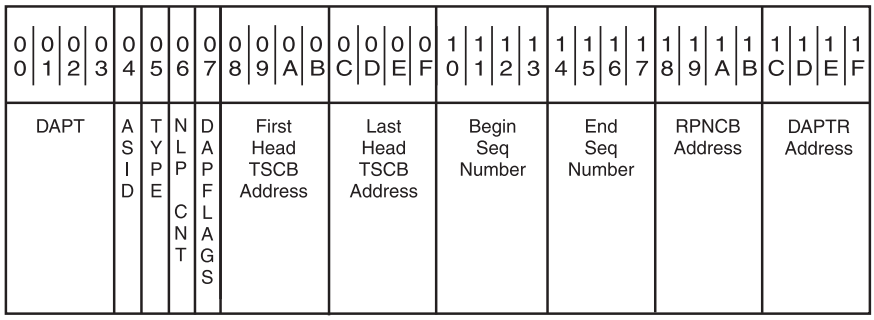
Entry: DAPT

VIT option:
HPR

Event: DAPTR alteration

VIT processing module:
ISTITCHP

This trace record shows most of the DAPTR fields. The DAPTR is used to chain inbound HPR data that arrives out of order or in order but is segmented into pieces. The DAPTR resides either on the RPN_OutOfSeq_Msg_Q or RPN_RCV_Segments_DaPtr queue of the RPNCB that is currently dispatched. The record shows the updated contents of the DAPTR.



Byte (hex)
Contents

00–03 Record ID: C"DAPT"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 DAPTR type

O Out of sequence queue

S Received segments queue

06 NLP count (X'FF' if 255 or greater)

07 DAP_Flags:

Bit **Meaning**

1... ....
DAP_End_Msg

.1.. ....
DAP_Beg_Msg

..1. ....
DAP_Last_Msg

...1 ....
DAP_COB_Ind

.... xxxx
0

08–0B DAP_First_Head_TSCB

0C–0F DAP_Last_Head_TSCB

10–13 DAP_Begin_Seq

14–17 DAP_End_Seq

18–1B RPNCB address

1C–1F DAPTR address

DBx entry for DBDELETE, DBQUERY, and DBUPDATE

Entry: DBD, DBQ, DBU

VIT option:
SSCP

Event: DBDELETE, DBQUERY, DBUPDATE

VIT processing module:
ISTRACSC

This traces an operation on the APPN directory database.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
DBD DBQ DBU			0	ID		RC		FLGS								RESOURCE IDENTIFICATION				RETURN ADDRESS				DECB ADDRESS							
																								NETID OF RESOURCE							

Byte (hex)
Contents

00–02 Record ID: C"DBD", C"DBQ", C"DBU"

03 0

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Return code (RC)

06–07 Database information flags

Bit **Meaning**

1... ....
Registered entry-type indicator

.1.. ....
Cache or dynamic entry-type indicator

..1. ....
Suggestion or defined entry-type indicator

...1 ....
Reserved for entry-type expansion

.... 1...
The VIT error was caused by an error in the cache data processing

.... .1..
The VIT error was caused by an error while loading the directory from storage

.... ..1.
The returned network ID on DBQUERY differs from the one queried

....x
Not used

1... ....
Directed failed indicator copied from directory entry

.1.. ....
Negative cache indicator copied from directory entry

..1. ....
Subarea LU indicator copied from directory entry

...1 ....
Surrogate owner indicator copied from directory entry

.... 1...
Dynamic subarea destination LU indicator copied from directory entry

.... .1..
Wildcard LU indicator copied from directory entry

.... ..1.
Nonnative LU indicator copied from directory entry

....1
Generic name indicator copied from directory entry

08–0F Resource identification

10–13 Caller's return address

14–17 Address of directory entry

18–1F Network identification of resource

DCON entry for discarded container

Entry: DCON

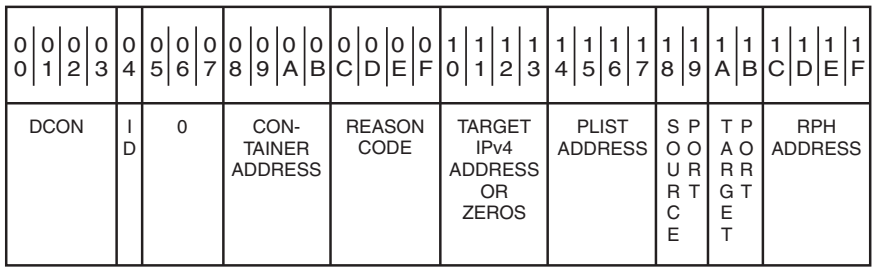
VIT option:
PIU

Event: Discard Container

VIT processing module:
ISTRACOT

Control is returned to:
ISTTSCUA

This trace record is written when the VTAM Enterprise Extender utility discard routine, ISTTSCUA, disposes of a container. The reason code can be used to explain the reason for the discard.



Byte (hex)
Contents

00–03 Record ID: C'DCON'

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0B Container address

0C–0F Reason code

Code	Meaning
X'0000'	VTAM is not able to contact UDP.
X'0002'	Data is sent successfully, but fragmented.
X'0004'	Temporary error. Retry.
X'0008'	Error. Local IP address is not valid.
X'000C'	Error. Local IP address is not a valid VIPA address.
X'0010'	Error. Port cannot be reserved.
X'0014'	Error. Parameter is not valid.
X'0018'	Error. State is not valid.
X'001C'	Error. Destination for datagram is unreachable.
X'0020'	Error. VTAM is not authorized.
X'0024'	Error. Storage unavailable.
X'0028'	Error. Data exceeds maximum.
X'002C'	Error. Stack is not valid.
X'0040'	Permanent error.

10–13 Target IPv4 address or zeros. If zeros, target IPv6 address is reported in DCO2 trace record.

14–17 Parameter list address

18–19 Source port number

1A–1B Target port number

1C–1F Request parameter header (RPH) address

DCO2 entry for discarded container (Part 2)

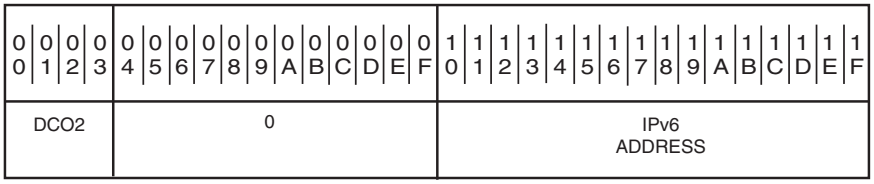
Entry: DCO2

VIT option:
PIU

Event: Discard container

VIT processing module:
ISTRACOT

This trace record is a continuation of the DCON entry. This entry is present only when the discarded container contains an IPv6 address.



Byte (hex)
Contents

00–03 Record ID: C'DCO2'

04–0F 0

10–1F IPv6 Address

DEVx entry for MPNCB device counter update

Entry: DEVD or DEVI

VIT option:
CIA

Event: MPNCB Active device counter update

VIT processing module:
ISTRACCI

Control is returned to:
Modules invoking the INTRACE macro that caused the record to be produced.

This trace record is written when a module is about to update an active device counter in MPNCB. It records the current Read and Write device counters before the change takes place.

- DEVD is generated for a counter decrement.
- DEVI is generated for a counter increment.

See z/OS Communications Server: SNA Data Areas Volume 1 for a description of the NCB fields.

For record types with suffix I,X, or T the CIO events are also captured within the NCB (pointed to by NCBCIOMV). The NCB trace table is mapped by NCBCIOAR.

00 01 02 03	04	05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
DEVD DEVI	ID	0	MODULE NAME	CPNCB ADDRESS	MPN-ARTPH (ACTIVE READ CPNCBs)	0	MNP-AWTPH (ACTIVE WRITE CPNCBs)	RPH POINTER

Byte (hex)
Contents

00–03 Record ID:
C"DEVD" for Device counter decrementation
C"DEVI" for Device counter incrementation

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0B The module name that invokes the INTRACE macro.

0C–0F The CPNCB address of the device that is about to be excluded (DEVD) or included (DEVI) from the MPNCB current active device counter.

10–13 Active Read device counter (MPNARTPH)

14–17 0

18–1B Active Write device counter (MPNAWTPH)

1C–1F RPH address

DLT entry for directory services locate (Part 1)

Entry: DLT

VIT option:
SSCP

Event: Sending out a Locate Search

VIT processing module:
ISTRACSC

Control is returned to:
ISTDRSDL

This trace record is written when VTAM's directory services component forwards a locate search to some adjacent node.

Note: This trace record has been reformatted because of an increase in the size of the task vector field.

00 01 02	03	04	05 06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13	14 15	16	17	18 19 1A 1B	1C 1D 1E 1F
DLT	0	ID	0	TASK VECTOR	RETURN ADDRESS	NODE ROLE	DSME RC	TERM COND	LCB ADDRESS	SENSE CODE

Byte (hex)
Contents

00–02 Record ID: C"DLT"

03 0

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0F The task vector bits indicate the possible tasks for this locate search. The hex values listed below are in the task vector field of this entry and the task vector results field of the DLT2 entry.

08

Vector	Description
X'80'	Null task
X'40'	Directory services management exit
X'20'	Directory services database query
X'10'	Topology and routing services database query
X'08'	Forward to network node server
X'04'	One hop if directory services database is found
X'02'	One hop if control vector X'0E' is received for request
X'01'	Nonverify attempt

09

Vector	Description
X'80'	Directed because of network node destination LU hierarchy received on a search request
X'40'	Directed if directory services database is found
X'20'	Directed if the topology and routing services valid route selection CV is returned
X'10'	Resource Discovery Search
X'08'	Directed to a directory server
X'04'	Directed to a higher function directory server

X'02' Directed to a directory server retry

X'01' Directed to a gateway node

0A

Vector	Description
X'80'	Sequential directed search to alternate directory servers
X'40'	Sequential directed search to interchange nodes
X'20'	Subarea system resolution table (SRT) cache search
X'10'	Subarea search after a positive cache search
X'08'	Subarea search after a positive directory services database query
X'04'	Subarea search after a negative or no cache search
X'02'	Domain broadcast search
X'01'	Originate network broadcast search

0B

Vector	Description
X'80'	Forward network broadcast not originated by this node
X'40'	One-hop search request because of end node destination LU hierarchy received on a search request
X'20'	A cross-subnetwork directed search because of information received on the original request
X'10'	A cross-network directed search because of information found in the directory services database
X'08'	A directed search because of information found in the topology and routing services database
X'04'	Sequential directed search with the intent of finding the resource cross-subnetwork
X'02'	Generic cache search
X'01'	A directed search because of a SEARCH_RPY interprocess signal following a positive CACHE_SEARCH_RPY interprocess signal

0C

Vector	Description
X'80'	A directed search because of a SEARCH_RPY interprocess signal following a positive directory services database query
X'40'	A subarea search because of a SESS_INIT_INFO_RPY interprocess signal
X'20'	Database query after an RDS
X'10'	Sequential directed search to other network nodes in the generic resource configuration
X'08'	Final subarea search after resource not found in APPN with SSEARCH = APPNFRST

0D–0E 0

0F

Vector	Description
X'01'	Post processing

10–13 Caller's return address

14–15 The node role for this search. More than 1 bit can be on.

Code	Description
X'80'	CP originating LU
X'40'	CP destination LU
X'20'	NN originating LU
X'10'	NN destination LU
X'08'	Owning directory server
X'04'	Alternate directory server
X'02'	Intermediate network server
X'01'	Intermediate network node directed

Position Description	
X'80'	Intermediate network node broadcast

16 Return code from the directory services management exit

17 Terminating condition indicates why the search ended

Code	Description
X'00'	Processing can continue.
X'04'	Positive reply can be returned to parent.
X'08'	Gateway reply has been received.
X'0C'	Directory server reply has been received.
X'10'	An error was detected by a task called from the sequencer.
X'14'	Cleanup is pending after all replies are received from the search phase (CP session outage).
X'18'	A directed search was performed because of wildcard information, and a wildcard was returned. No further searching will be done.
X'20'	An alternate directory server had an unknown (neg cache) entry.
X'24'	Directory services management exit routine specified no search for this request.
X'28'	An error was detected during generic cache search task.
X'32'	This search kicked off an RDS which returned a negative reply. No more searching should be done for this search.
X'34'	IOPURGE occurred during verification after RDS found resource.
X'36'	Directed search failed after RDS found resource.

18–1B Address of the locate control block for this search.

1C–1F Sense code.

DLT2 entry for directory services locate (Part 2)

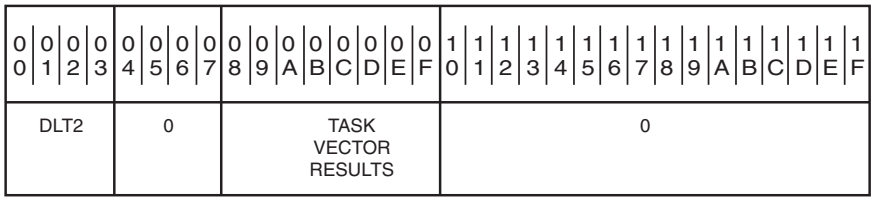
Entry: **DLT2**

VIT option:
SSCP

Event: Sending out a Locate Search

VIT processing module:
ISTRACSC

The DLT2 trace record is a continuation of the DLT trace record.



Byte (hex)
Contents

00–03 Record ID: C"DLT2"

04–07 0

08–0F Task Vector Results

Use the flags in the task vector results field to determine whether the task indicated in bytes 08—0F in the DLT entry were invoked.

B'0' Task was not invoked.

B'1' Task was invoked.

10–1F 0

DRBx entry for invoking a RoCE doorbell operation

Entry: DRBx

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) doorbell operation, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing.

VIT processing module:
ISTITCSH

This trace record is written upon completion of a RoCE doorbell operation.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
DDDD	RRRR	BBBB	CERS	ASID	0	INDEX		DOORBELL DATA								PFCTE ADDRESS								ASSOCIATED CONTEXT CONTROL BLOCK ADDRESS							

Byte (hex)
Contents

00–03 Record ID:
- C'DRBC' for CQ doorbell
- C'DRBE' for EQ doorbell
- C'DRBR' for Receive doorbell
- C'DRBS' for Send doorbell

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06–07 Array index

08–0F Doorbell-related data

10–17 Address of the PFCTE

18–1F Address of the control block that is associated with this doorbell activity

DRPx entry for DLURRTP macroinstruction invocation (Part 1)

Entry: DRPA, DRPC, or DRPD

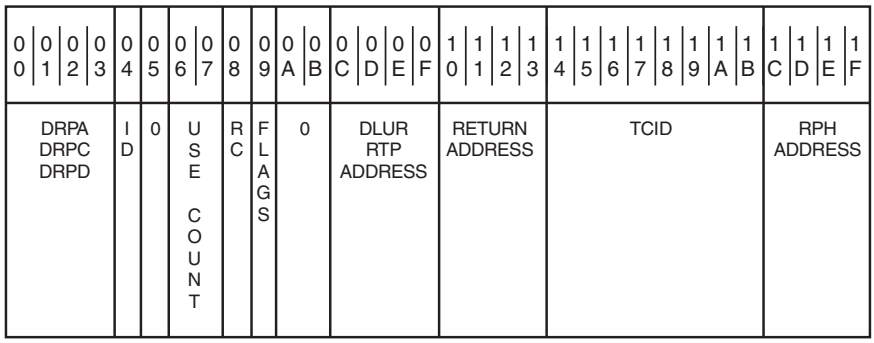
VIT option:
HPR

Event: Invocation of DLURRTP macroinstruction

VIT processing module:
ISTITCHR

Control is returned to:
Module invoking the DLURRTP macroinstruction

This trace record is written when the DLURRTP macroinstruction is issued. It indicates the function being performed, the return code for that function, and the addresses of the parameters involved.



Byte (hex)
Contents

00–03 Record ID:

- C"DRPA" for DLURRTP ADD
- C"DRPC" for DLURRTP CHG
- C"DRPD" for DLURRTP DEL

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06–07 Use count is the number of sessions associated with this DLUR RTP entry.

08 Return code:

00 Success

04 Not found

08 Insufficient storage

16 Operation ended because of major error

09 Flags (as defined in DLURRTP control block)

Bit **Meaning**

1... ....
NetView notified of path switch for this RTP connection.

.1.. ....
RTP connection is in use by at least one session (has meaning during NLDM start processing only).

..1. ....
UNCOND specified (applicable to DLURRTP DEL only).

...1 ....
TCID or CQF information input to macroinstruction is not in a valid format.

.... 1...
RTP RSCV could not be saved.

.... .xxx
Available.

0A–0B 0

0C–0F Address of DLUR RTP control block

10–13 Address of issuer of the DLURRTP macroinstruction

14–1B Data field of the transport connection identifier (TCID) control vector (X'4B')

1C–1F Request parameter header (RPH) address

DRP2 entry for DLURRTP macroinstruction invocation (Part 2)

Entry: DRP2

VIT option:
HPR

Event: Invocation of DLURRTP macroinstruction

VIT processing module:
ISTITCHR

This trace record is a continuation of the DRP entry. It contains the four data fields from the network address control vector, left-aligned in fields of the maximum length allowed.

00 01 02 03	04 05 06 07 08 09 0A 0B	0C 0D 0E 0F 10 11 12 13	14 15 16 17 18 19 1A 1B	1C 1D 1E 1F
DRP2	NETWORK ID	CP NAME	NCE ID	NCE INSTANCE

Byte (hex)
Contents

00–03 Record ID: C"DRP2"

04–0B Network ID of the DLUR

0C–13 CP name of the DLUR

14–1B NCE identifier

1C–1F NCE instance identifier

DRP3 entry for DLURRTP macroinstruction invocation (Part 3)

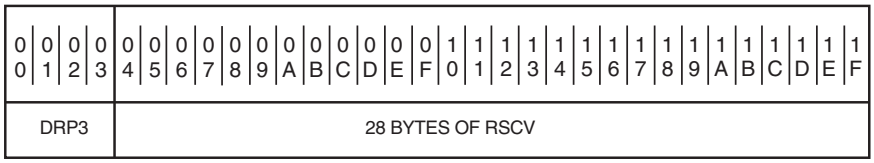
Entry: DRP3

VIT option:
HPR

Event: Invocation of DLURRTP macroinstruction

VIT processing module:
ISTITCHR

This trace record is a continuation of the DRPA and DRPC entries. It is not written for the DRPD entry.



00 01 02 03	04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
DRP3	28 BYTES OF RSCV

Byte (hex)
Contents

00–03 Record ID: C"DRP3"

04–1F 28 bytes of RSCV representing the RTP connection

DSCx entry for discarded TSCBs or TIPAC (Part 1)

Entry: DSCD or DSCO

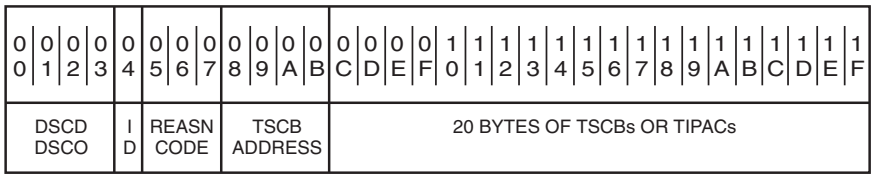
VIT option:
PIU

Event: Discarded TSCB or TIPAC (Part 1)

VIT processing module:
ISTRACOT

Control is returned to:
ISTTSCUD

This trace record is written when VTAM's TSC utility discard routine, ISTTSCUD, disposes of transmission subsystem control blocks (TSCBs) or transport interface parameter access containers (TIPACs) because of an error condition. The reason code and module identifier can be used to explain the reason for the discard. This entry is treated as an exception condition and is always traced if the VIT is active, regardless of the VIT options specified. A DSC2 entry follows a DSCO or DSCD entry. The DSC2 entry includes the ID of the module that is discarding the storage.



00 01 02 03	04	05 06 07	08 09 0A 0B	0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
DSCD DSCO	ID	REASN CODE	TSCB ADDRESS	20 BYTES OF TSCBs OR TIPACs

Byte (hex)
Contents

00–03 Record ID:

- C"DSCD" for discarding from procedural modules

- C"DSCO" for discarding from object-oriented methods

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 Discard reason code

08–0B Address of TSCB

0C–1F First 20 characters of the TSCB or TIPAC.

DSC2 entry for discarded TSCB or TIPAC (Part 2)

Entry: DSC2

VIT option:
PIU

Event: Discarded TSCB or TIPAC (Part 2)

VIT processing module:
ISTRACOT

This trace record is a continuation of the DSCx entry.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
DSC2				24 MORE CHARACTERS OF THE TSCB OR TIPAC																								MODULE ID			

Byte (hex)
Contents

00–03 Record ID: C"DSC2"

04–1B 24 more characters of the TSCB or TIPAC

1C–1F ID of the module that is discarding the TSCB or TIPAC

DSP entry for PAB dispatch

Entry: DSP

VIT option:
PSS

Event: PAB dispatch

VIT processing module:
ISTRACPS

Control is returned to:
ISTAPCPD

The DSP entry marks the beginning of a PAB dispatch, which is the VTAM major unit of work. This unit exists until terminated by an EXIT entry. While processing, it might wait for other events to complete (WAIT). It resumes processing with a RESM entry. The unit might be interrupted by a higher-priority task and continue when that task is finished.

Each PAB is identified by a unique index number. VTAM uses this number to find the called module and then creates a VIT entry for it.

To correlate all events associated with this unit, look for the request parameter header (RPH) address, which is in many trace records, and match it to the request parameter header (RPH) address in the DSP trace record. This unit has exclusive use of that RPH until EXIT.

00 01 02	03	04	05	06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
DSP	0/WEQ	ID	CBID	FLAGS	PST ADDRESS	PAB ADDRESS	LAST WORK ELEMENT ADDRESS	CURRENT WORK ELEMENT ADDRESS	MODULE NAME OR DVT ADDRESS	RPH ADDRESS

Byte (hex)
Contents

00–02 Record ID: C"DSP"

03 0, or, for very extended PABs, PAB work element queue level dispatched

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Control block ID of work element (See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures.)

06 PAB flag field (PABFLAGS)

Bit **Meaning**

1... ....
PAB is unconditionally scheduled.

.1.. ....
PAB closedown is in progress.

..1. ....
PAB is synchronous.

...1 ....
PAB extension is present.

.... 1...
Do not dequeue work element.

.... .1..
Do not detach the request parameter header (RPH).

.... ..1.
Indicates a very extended PAB.

....1
Indicates a slightly extended PAB.

07 PAB flag field (PABFLGS1)

Bit **Meaning**

1... ....
Switch the PST address of the major control block for this PAB to the new PST address contained in DYPNWPST.

.1.. ....
This PAB has a data space extension.

..1. ....
This PAB's major control block is an FMCB.

...1 ....
PAB can be referenced in PSW disable mode.

.... 1...
PAB is persistent.

.... .1..
APSTERM/APSINIT FMCB during PAB dispatch.

.... ..xx
Reserved.

08–0B PST address

0C–0F PAB address

10–13 Address of work element most recently queued to the PAB

14–17 Address of work element currently being dispatched

18–1B Module name abbreviation (bytes 4, 5, 7, and 8 of the module name) or PAB DVT address (high-order bit of X'18' = 0). For an explanation of the module-naming convention, see "Using module names to isolate VTAM problems" on page 25. (The module name might be unavailable if the PAB being scheduled is associated with an address space different from the current one.)

1C–1F Request parameter header (RPH) address

DTSK entry for detach a subtask

Entry: DTSK

VIT option:
PSS

Event: Detach a subtask.

VIT processing module:
ISTRACPS

Control is returned to:
The module that issued the DETACH

This trace record is written when a VTAM module detaches a VTAM subtask.

Some subtasks are detached without generating this entry.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
DTSK				ID	RC	0		TASK NAME OR 0								TCB ADDR				0				ISSUER ADDRESS				0			

Byte (hex)
Contents

00–03 Record ID: C"DTSK"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Return code from the detach macro (ITKRC)

06–07 0

08–0F Name of the subtask being detached, or 0

10–13 TCB address of the subtask being detached

14–17 0

18–1B Address of the issuer of the DETACH macro

1C–1F 0

ENFx entry for ENF exit

Entry: ENFF, ENFN, ENFP, or ENFR

VIT option:
CIA

Event: ENF exit for APPN host-to-host channel dynamics

VIT processing module:
ISTRACCI

Control is returned to:
ISTTSCDY

This trace record is written when MVS schedules the VTAM ENF exit for APPN host-to-host channel dynamics for a subchannel device.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ENFF ENFN ENFP ENFR				ID	RESERVED	0		CUA				SCL ADDRESS				SCL ENF	0	SCL STATES		0								RPH ADDR			

Byte (hex)
Contents

00–03 Record ID:
- C"ENFF" for offline
- C"ENFN" for online
- C"ENFP" for pending offline
- C"ENFR" for reaccessible

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Reserved

06–07 0

08–0B CUA from UCBCHAN or DACH_IORA_DEVN

0C–0F Address of SCL

10 SCL ENF flags

11 0

12–13 SCL states:

12 SCL channel state

13 SCL_SYS_state

14–1B 0

1C–1F Request parameter header (RPH) address

ENR entry for APPN resource registration processing

Entry: ENR

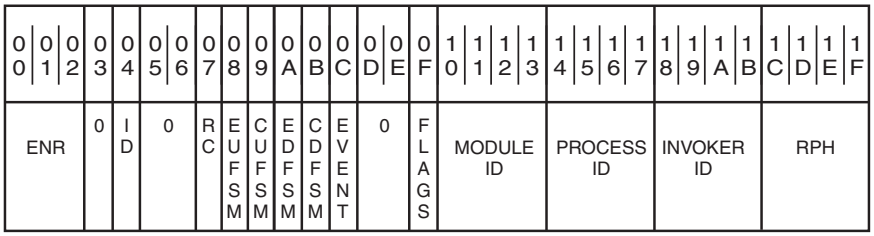
VIT option:
SSCP

Event: An APPN resource registration function is being processed.

VIT processing module:
ISTRACSC

This trace record is written by end nodes when Configuration Services processes an APPN registration. The purpose of the ENR trace record is to record the update and delete FSM states before and after registration. This entry also provides information about which process invoked the registration function and what processing was done.

Note: This trace record is written at the conclusion of the registration process.



Byte (hex)
Contents

00–02 Record ID: C"ENR"

03 0

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–06 0

07 RC is the return code on exit from ISTCSCRE.

08 EUFSM is the UPDATE FSM state upon entry to ISTCSCRE. The FSM states are defined within ISTCSCRE.

09 CUSFM is the changed UPDATE FSM's new value. The changed value may be the same as the entry value.

0A EDFSM is the DELETE FSM state upon entry to ISTCSCRE. The FSM states are defined within ISTCSCRF.

0B CDFSM is the changed DELETE FSM's value after processing by ISTCSCRF. The changed value may be the same as the entry value.

0C EVENT is the registration event code that is being processed. These codes are defined in ISTREVNT.

0D–0E 0

0F Flags

Bit

11.. .... Server Availability Status

00 Not available

01 Available

10 Pending

..11 .... Request type

01 Network node server request

10 Central Resource Registration request

11 Delete request

.... 1... Reply pending because server is not available

.... .1.. Processing USERVAR

10–13 Module issuing the INTRACE macro

14–17 Indicates which processing routine was invoked

18–1B Indicates which module invoked the registration process

1C–1F Request parameter header (RPH) address

ERPx entry for error recovery procedures

Entry: ERPI, ERPL, ERPT, or ERPX

VIT option:
CIO

Event: Error recovery

VIT processing module:
ISTRACCI

Control is returned to:
ISTZBM0J for LDNCB, or ISTZBM0K for ICNCB and RWNCB

This trace record is written during error recovery for channel I/O.

- ERPI is generated for communication controllers and local SNA cluster controllers.
- ERPL is generated for local non-SNA cluster controllers.
- ERPT is generated for IP over channel data link control connections.
- ERPX is generated for channel-to-channel-attached hosts and channel-attached IBM 3172 Interconnect Nways Controllers.

For record types with suffix I, X, or T, the CIO events are also captured within the NCB (pointed to by NCBCIOMV). The NCB trace table is mapped by NCBCIOAR.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ERPI ERPL ERPX ERPT				ID	STATE	0	0	DEVICE				NCB ADDRESS				FLAG BYTES				FLAG	CODE	SENSE OR 0		CSW							

Byte (hex)
Contents

00–03 Record ID:
C"ERPI" for ICNCB
C"ERPL" for LDNCB
C"ERPT" for RWNCB
C"ERPX" for XCNCB

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 For ERPI, ERPL, and ERPT, link station state (NCBLNKST). For ERPX, station state (XCNSSFSM)

06 0

07 0

08–0B Channel device name in EBCDIC (either a device address or device number)

0C–0F NCB address

10–13 Flag bytes (NCBFLAGS)

14 Flag byte as follows:

Bit	Meaning
..1.	Exception condition occurred (IOSEX flag is on)
...1	Error routine is in control (IOSERR flag is on)

15 I/O completion code (IOSCOD)

16–17 For ERPI, ERPL and ERPT, sense data (IOSSNS). For ERPX, 0.

18–1F Channel status word from IOSB

ESC entry for the TPESC macro

Entry: ESC

VIT option:
ESC

Event: TPESC macro

VIT processing module:
ISTRACOT

Control is returned to:
ISTESC01

This trace record identifies the address of the next routine to get control in a destination vector table (DVT). The PAB address identifies the process. Using the request parameter header (RPH) address, you can correlate this trace record to the DSP entry to determine when the process was dispatched.

00 01 02 03	04	05	06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
ESC	ID	0	PABOF	DSP ADDRESS	PAB ADDRESS	RETURN ADDRESS	RPH WORK ELEMENT	MODULE NAME OR DVT ADDRESS	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"ESC"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06–07 PAB offset

08–0B Dispatch address from DVT

0C–0F PAB address

10–13 Address of the issuer of the TPESC macro

14–17 RPH work element

18–1B One of the following items:

- Module name abbreviation (bytes 4, 5, 7, and 8 of the name of the next module to get control)
- PAB DVT address (high-order bit of X'18' = 0)

1C–1F Request parameter header (RPH) address

ETSK entry for exit a subtask

Entry: ETSK

VIT option:
PSS

Event: Exit a subtask

VIT processing module:
ISTRACPS

Control is returned to:
The subtask that is terminating

This trace record is written when a VTAM subtask is about to exit and return to the operating system supervisor.

This is not fully implemented for all subtask events in VTAM. There are a number of subtasks that terminate without this entry being generated.

00 01 02 03	04	05 06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13	14 15 16 17 18 19 1A 1B	1C 1D 1E 1F
ETSK	ID	0	TASK NAME	TCB ADDR	0	REG 15

Byte (hex)
Contents

00–03 Record ID: C"ETSK"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0F Name of the subtask about to end execution

10–13 TCB address of the current subtask

14–1B 0

1C–1F Contents of register 15

EXIT entry for the TPEXIT macro

Entry: EXIT

VIT option:
PSS

Event: TPEXIT macro

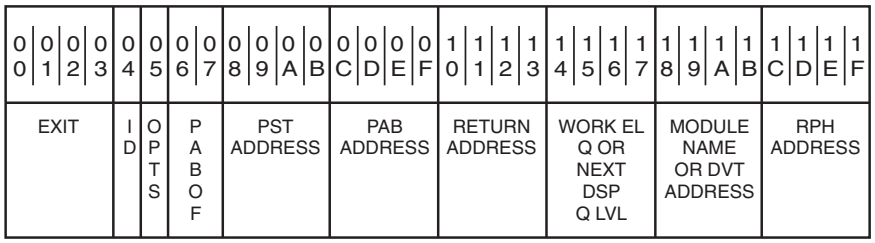
VIT processing module:
ISTRACPS

Control is returned to:
ISTAPCTX

This trace record identifies a VTAM process (PAB) that has finished executing. The PAB is rescheduled if more work elements are waiting to be processed.

In most cases, the request parameter header (RPH), whose address is in location 1C–1F, is freed or reused after this entry. One exception is the SMS dynamic expansion DYPAB (ATCPXPAB in module ISTORFPX), which has a dedicated RPH that is not used for anything else.

This entry is the complement of DSP. An EXIT should eventually follow every DSP. Use the RPH address to correlate the entries.



Byte (hex)
Contents

00–03 Record ID: C"EXIT"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 TPEXIT options

06–07 PAB offset, or 0 if no PAB

Note: There is no PAB if the running process has already freed the major control block that contains the PAB.

08–0B PST address

0C–0F PAB address, or 0 if no PAB

Note: There is no PAB if the running process has already freed the major control block that contains the PAB.

10–13 Address of the issuer of the TPEXIT macro

14–17 One of the following items:

- PAB work element queue
- Next dispatchable queue level for a very extended PAB (see corresponding DSP entry to find the PABFLAGS to determine the PAB type)
- 0, if no PAB

  Note: There is no PAB if the running process has already freed the major control block that contains the PAB.

18–1B Module name abbreviation (bytes 4, 5, 7, and 8 of the module name) or PAB DVT address (high-order bit of X'18' = 0). For an explanation of the module naming convention, see "Using module names to isolate VTAM problems" on page 25. (The module name might be unavailable if the PAB being scheduled is associated with an address space different from the current one.)

1C–1F Request parameter header (RPH) address

Note: There is no PAB if the running process has already freed the major control block that contains the PAB.

EXPN entry for buffer pool expansion

Entry: EXPN

VIT option:
SMS

Event: Buffer pool expansion

VIT processing module:
ISTRACSM

Control is returned to:
ISTORAPX

This trace record is generated whenever VTAM needs to expand a buffer pool. Buffer pool expansion may occur because of a scheduled request.

00 01 02 03	04	05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15	16	17	18 19 1A 1B	1C 1D 1E 1F
EXPN	ID	0	BPCB ADDRESS	PXB ADDRESS	EXTENT ADDRESS	PAGES	CODE	FLAGS	TOTAL NUMBER OF BUFFERS	AVAIL NUMBER OF BUFFERS

Byte (hex)
Contents

00–03 Record ID: C"EXPN"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0B Address of buffer pool control block (BPCB) for which expansion occurred

0C–0F Address of pool expansion block (PXB) that is expanded

10–13 Extent address (PXBSTADR)

14–15 Number of pages for an expansion in this pool. Number of pages for an expansion = (BPCBEXLN divided by 4096).

16 Expansion failure code if expansion failed

Note: VTAM issues codes 4 through 8 when a failure occurs during a deferred expansion.

4 Not enough CSA storage is available for the expansion.

5 VTAM cannot fix pages in storage because of insufficient page frames or some other page locking problem.

7 Storage unavailable. VTAM's CSA limit is exceeded.

8 Expansion would cause the pool to exceed its *xpanlim* specification. See z/OS Communications Server: SNA Network Implementation Guide for additional information about *xpanlim*.

14 Not enough CSA storage is available for the expansion.

15 VTAM cannot fix pages in storage because of insufficient page frames or some other page locking problem.

17 Storage unavailable. VTAM's CSA limit is exceeded.

18 Expansion would cause the pool to exceed its *xpanlim* specification. See z/OS Communications Server: SNA Network Implementation Guide for additional information about *xpanlim*.

See the explanation of IST154I in z/OS Communications Server: SNA Messages for more information about interpreting byte 16.

17 Flag byte

Bit	Meaning
`x... ....`	1=ISTORFBA caused the expansion. 0=ISTORAPX caused the expansion.
`.x.. ....`	1=PXB was allocated by this expansion. 0=PXB existed from prior expansion.
`..x. ....`	1=Failure to obtain or fix storage. 0=Success in obtaining or fixing storage.

18–1B Total number of buffers in pool after this expansion (BPCBTOTL)

1C–1F Total number of available buffers in pool after this expansion

EXPP entry for buffer pool expansion

Entry: **EXPP**

VIT option:
CSM

Event: Pool expansion

VIT processing module:
ISTITCCS

Control is returned to:
IVTSMCEX

This trace record is written when a CSM pool is expanded.

00 01 02 03	04	05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
EXPP	ID	0	POOL ADDRESS	EXTENT ADDRESS	NUMBER OF BUFFERS IN EXTENT	TOTAL BUFFERS AFTER EXPAND	FREE BUFFERS AFTER EXPAND	0

Byte (hex)
Contents

00–03 Record ID: C"EXPP"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0B Pool address

0C–0F Extent address

10–13 Number of buffers in extent

14–17 Total number of buffers in the pool after expansion

18–1B Number of free buffers in the pool after expansion

1C–1F 0

FBLK entry for FREEBLK macro (Part 1)

Entry: **FBLK**

VIT option:
SMS

Event: FREEBLK macro

VIT processing module:
ISTRACSM

Control is returned to:
ISTORCFB or ISTORCDF

This trace record shows the status of each FREEBLK request issued by VTAM components.

The FREEBLK macro is the complement of the GETBLK macro. FREEBLK must release the storage obtained by GETBLK. Each GBLK entry should eventually have a corresponding FBLK entry.

If the return code is nonzero, this entry is generated whether the SMS option is in effect or not. This event is treated as an exception condition and, therefore, is traced whenever the VIT is active.

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
FBLK	ID	RTNCD	POOL	VTALLC	STORAGE ADDRESS OR 0	ADDRESS OF SPTAE OR DSPSP	RETURN ADDRESS	LENGTH OF STORAGE FREED	CALLER OF UTILITY OR 0	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"FBLK"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Return code

06 If FBLK is followed by FBL2:

00 AMUTSCBS

01 AMUTSCBL

02 CMPTAB

03 LNKDSTAB

04 MNPSRECV

05 ICV29CMP

If FBLK is not followed by FBL2, possible storage pool types (in hexadecimal format) follow (see z/OS Communications Server: SNA Network Implementation Guide for more information about storage pools):

```
00 RUPEPRIV      22 UTILCSAL      44 WAR           66 BFRTRFUL
01 RUPECOMM      23 AMU           45 UVRPL         67 SLENT
02 SIB           24 HSICB         46 DCX           68 DYPATH
03 SSCPFMCB      25 LMTABLE       47 PLUSDATA      69 PCDCA
04 NQDAT         26 SAB           48 ADJCP         6A XNINFO
05 EPTDVT        27 RAB           49 ATGB          6B GRINS
06 CDRSC         28 PRIDBLK       4A TGP           6C BSBEXT
07 ACDEB         29 PRIDQAB       4B KEYTOKEN      6D SOCKET
08 HSQH          2A AUTOLOGN      4C TRSINFO       6E MIWKE
09 ERTE          2B CPWACSA       4D COS           6F IAP
0A WREEID        2C PGIOBLK       4E NDREC         70 LIA
0B FMCBEXT       2D PRDLE         4F TGREC         71 IPWKE
0C SIBEXT        2E RIBRANT       50 ACPCB         72 VRDCB
0D (Not used)    2F CANT          51 DECB          73 UNSOL
0E UECB          30 CAB           52 NIDCB         74 COWE
0F IOBLOCK       31 CNSFACUD      53 CPRUPE        75 MARB
```

```
10 SRTE          32 BFRTRACE      54 ANDCB         76 VRRSB
11 ISTTRCEL      33 DMTSQ         55 DISKIO        77 DDEL
12 UTILPVTS      34 FMCB          56 DSERVER       78 SOCCBEXT
13 VRPL          35 PLUSFMCB      57 ADJNODE       79 RTPINFO
14 POWEPRIV      36 PXBFIXED      58 CACHE         7A CMIPPVT
15 POWECOMM      37 PXBPAGED      59 ISTSITCB      7B PVTSTATC
16 PULURDTE      38 PLUSC         5A ISTENDEL      7C PAGBLBSB
17 PAQ           39 NSSCB         5B CORCB         7D TIPACX
18 RAQ           3A (Not used)    5C LCB           7E CMOBJ
19 CPWAPVT       3B (Not used)    5D OSCB          7F CFSPRIV
1A ERICPOOL      3C (Not used)    5E SCCB          80 CFSCSA
1B SIBIX         3D FMH5          5F DSUTIL        81 SPTPOOL
1C CDAJSCP       3E OOBTSCB       60 PLOCB         82 HPRINFO
1D GWNAJSCP      3F SLD           61 TREEBLD       84 IPADDR
1E IOSIB         40 NSRUS         62 IOBLOCKL      85 IOBLOCKP
1F DSSIB         41 NSRUL         63 POWMPRIV
20 UTILPVTL      42 RUCON         64 POWMCOMM
21 UTILCSAS      43 STB           65 POAPRIV
```

07 When set to 1, indicates that storage obtained through GETBLK request and converted to VTALLOC request is returned to system

08–0B Address of block freed (or 0 if FREEBLK failed)

0C–0F Address of storage pool anchor block (SPTAE) or, if FBLK is followed by FBL2, address of DSPSP

10–13 Address of the issuer of the FREEBLK macro

14–17 Length of storage freed not including the 8-byte header

18–1B Caller of utility routine or 0. If the FREEBLK macro was issued from a utility routine, the address of the utility's caller is placed here. A 0 address indicates that the macro was issued directly by the caller (see return address) without a utility routine.

1C-1F Request parameter header (RPH) address

FBL2 entry for FREEBLK macro (Part 2)

Entry: FBL2

VIT option:
SMS

Event: FREEBLK macro

VIT processing module:
ISTRACSM

This trace record is a continuation of the FBLK entry; it is generated only if the storage that is freed is in a data space.

FBL2 returns the address of the data space descriptor control block (DSDCB) and the data space name from the DSDCB. When using IPCS, the data space name is required to look at data in the data space.

00 01 02 03	04 05 06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
FBL2	DSDCB ADDRESS	DATA SPACE NAME	0

Byte (hex)
Contents

00–03 Record ID: C"FBL2"

04—07 Address of DSDCB

08—0F
Data space name from the DSDCB

10—1F
0

FIXB entry for FIX_BUFFER requests

Entry: FIXB

VIT option:
CSM

Event: IVTCSM REQUEST=FIX_BUFFER

VIT processing module:
ISTITCCS

Control is returned to:
IVTSMCBF

This trace record provides the status of an IVTCSM REQUEST=FIX_BUFFER macroinstruction.

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D	0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
FIXB	ID	0	FLAG	RECNUM	0	RTN COD	RSN COD	UTILRTN CALLER OR RETURN ADDRESS	LAST BUFFER LIST ENTRY	NUMBER OF BUFFERS	THREAD VALUE OR 0

Byte (hex)
Contents

00–03 Record ID: C"FIXB"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace record flag:

B'0... ....'
Indicates that this is the last record for this event.

B'1... ....'
Indicates that additional records exist for this event. Use the trace record number from this entry to locate corresponding continuation records.

07 Trace record number to correlate all the entries for this particular event.

08–0B 0

0C–0D
Return code

0E–0F Reason code

10–13 Address of utility routine caller or return address of the issuer of the IVTCSM macroinstruction

14–17 Address of the buffer list entry that was being processed when the error was encountered

18–1B Number of buffers to be fixed

1C–1F THREAD value if specified or 0 if THREAD is not specified. The THREAD value is used only to correlate this trace record to a specific IVTCSM macroinstruction.

FIX2 entry for FIX_BUFFER requests

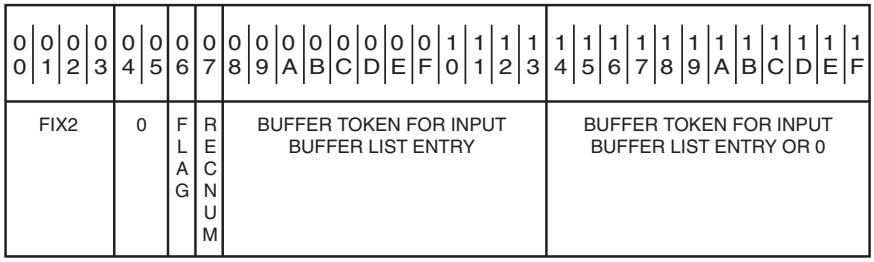
Entry: FIX2

VIT option:
CSM

Event: IVTCSM REQUEST=FIX_BUFFER

VIT processing module:
ISTITCCS

This trace record is a continuation of the FIXB trace record. Each FIX2 record traces, at most, two buffers that were requested to be placed in a fixed state.



Byte (hex)
Contents

00–03 Record ID: C"FIX2"

04–05 0

06 Trace record flag:

B'0... ....'
Indicates that this is the last record for this event.

B'1... ....'
Indicates that additional records exist for this event. Use the trace record number from this entry to locate corresponding continuation records.

07 Trace record number to correlate all the entries for this particular event.

08–13 Buffer token contained in input buffer list entry

14–1F Buffer token contained in input buffer list entry or 0

FRBF entry for FREE_BUFFER requests

Entry: FRBF

VIT option:
CSM

Event: IVTCSM REQUEST=FREE_BUFFER

VIT processing module:
ISTITCCS

Control is returned to:
IVTSMCBF

This trace record provides the status of an IVTCSM REQUEST=FREE_BUFFER macroinstruction.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
FRBF				ID	0	FLAG	RECNUM	0				RTN COD		RSN COD		UTILRTN CALLER OR RETURN ADDRESS				LAST BUFFER LIST ENTRY				NUMBER OF BUFFERS				THREAD VALUE OR 0			

Byte (hex)
Contents

00–03 Record ID: C"FRBF"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace record flags:

B'0... ....'
Indicates that this is the last record for this event.

B'1... ....'
Indicates that additional records exist for this event. Use the trace record number from this entry to locate corresponding continuation records.

07 Trace record number to correlate all the entries for this particular event.

08–0B 0

0C–0D
Return code

0E–0F Reason code

10–13 Address of utility routine caller or return address of the issuer of the IVTCSM macroinstruction

14–17 Address of the buffer list entry that was being processed when the error was encountered

18–1B Number of buffers requested to be freed

1C–1F THREAD value if specified or 0 if THREAD is not specified. The THREAD value is used only to correlate this trace record to a specific IVTCSM macroinstruction.

FRB2 entry for FREE_BUFFER requests

Entry: FRB2

VIT option:
CSM

Event: IVTCSM REQUEST=FREE_BUFFER

VIT processing module:
ISTITCCS

This trace record is a continuation of the FRBF trace record. It contains information about the buffers that were freed. Each FRB2 record traces, at most, two buffers that were freed.

00 01 02 03	04 05	06	07	08 09 0A 0B 0C 0D 0E 0F 10 11 12 13	14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
FRB2	0	FLAG	RECNUM	BUFFER TOKEN FOR INPUT BUFFER LIST ENTRY	BUFFER TOKEN FOR INPUT BUFFER LIST ENTRY OR 0

Byte (hex)
Contents

00–03 Record ID: C"FRB2"

04–05 0

06 Trace record flag:

B'0... ....'
Indicates that this is the last record for this event.

B'1... ....'
Indicates that additional records exist for this event. Use the trace record number from this entry to locate corresponding continuation records.

07 Trace record number to correlate all the entries for this particular event

08–13 Buffer token contained in input buffer list entry

14–1F Buffer token contained in input buffer list entry or 0

FRES entry for FREESTOR macro

Entry: FRES

VIT option:
SMS

Event: Invocation of the FREESTOR macro

VIT processing module:
ISTRACSM

Control is returned to:
Module invoking the FREESTOR macro

This trace record shows the status of each FREESTOR request issued by VTAM components. The FREESTOR macro releases the storage obtained by the GETSTOR macro. Each GETS entry should eventually have a corresponding FRES entry.

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15	16 17	18 19 1A 1B	1C 1D 1E 1F
FRES	ID	0	RTN CODE	INDEX	STORAGE ADDRESS	ADDRESS OF ORGSH	RETURN ADDRESS	ALLOC LEN	0	RETURN ADDRESS OF CALLER	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"FRES"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Return code

07 Pool Index (in hex)

```
00  CFSACCPS     07  NLPDELPD     0E  CSAFXVNE     15  PVTPGVNT
01  CFSACCPD     08  TCPIOCD      0F  CSAFXJFE     16  CFSBUFPS
02  CFSACCCS     09  CSAPGVFE     10  CSAFXJNE     17  CFSBUFPD
03  CFSACCCD     0A  CSAPGVNE     11  PVTPGJFJ     18  CFSBUFCS
```

```
04  RPMNPSPS     0B  CSAPGJFE     12  PVTPGJFT     19  CFSBUFCD
05  HIPOOLPS     0C  CSAPGJNE     13  PVTPGJNT     1A  ALPHCD
06  MRPOOLPS     0D  CSAFXVFE     14  PVTPGVFT     1B  EEHNMIPD
```

08–0B Address of storage freed

0C–0F Address of GETSTOR header (ISTORGSH)

10–13 Address of the invoker of FREESTOR macro

14–15 Size of pool

16–17 0

18–1B Caller of utility routine or 0. If the FREESTOR macro was issued from a utility routine, the address of the utility's caller is placed here. A 0 address indicates that the macro was issued directly by the caller (see return address) without a utility routine.

1C–1F Request parameter header (RPH) address

GBLK entry for GETBLK macro (Part 1)

Entry: GBLK

VIT option:
SMS

Event: GETBLK macro

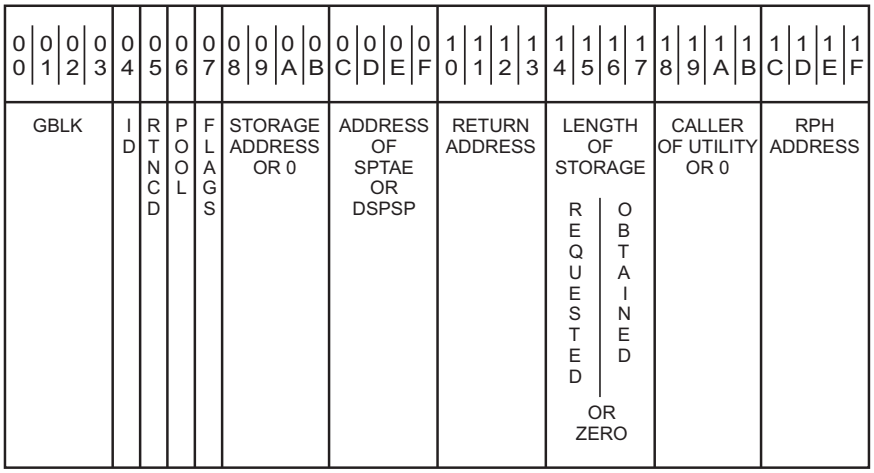
VIT processing module:
ISTRACSM

Control is returned to:
ISTORCDG or ISTORCGB

This trace record shows the status of each GETBLK request issued by VTAM components.

The FREEBLK macro is the complement of the GETBLK macro. FREEBLK must release the storage obtained by GETBLK. Each GBLK entry should eventually have a corresponding FBLK entry.

If the return code is nonzero, this entry is generated whether the SMS option is in effect or not. It is treated as an exception condition and is always traced if the VIT is active, regardless of the SMS option.



Byte (hex)
Contents

00–03 Record ID: C"GBLK"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Return code

06 If GBLK is followed by GBL2:

- **00** AMUTSCBS
- **01** AMUTSCBL
- **02** CMPTAB
- **03** LNKDSTAB
- **04** MNPSRECV
- **05** ICV29CMP

If GBLK is not followed by GBL2, possible storage pool types (in hexadecimal format) follow (see z/OS Communications Server: SNA Network Implementation Guide for more information about storage pools):

```
00 RUPEPRIV      22 UTILCSAL      44 WAR           66 BFRTRFUL
01 RUPECOMM      23 AMU           45 UVRPL         67 SLENT
02 SIB           24 HSICB         46 DCX           68 DYPATH
03 SSCPFMCB      25 LMTABLE       47 PLUSDATA      69 PCDCA
04 NQDAT         26 SAB           48 ADJCP         6A XNINFO
05 EPTDVT        27 RAB           49 ATGB          6B GRINS
06 CDRSC         28 PRIDBLK       4A TGP           6C BSBEXT
07 ACDEB         29 PRIDQAB       4B KEYTOKEN      6D SOCKET
08 HSQH          2A AUTOLOGN      4C TRSINFO       6E MIWKE
09 ERTE          2B CPWACSA       4D COS           6F IAP
0A WREEID        2C PGIOBLK       4E NDREC         70 LIA
0B FMCBEXT       2D PRDLE         4F TGREC         71 IPWKE
0C SIBEXT        2E RIBRANT       50 ACPCB         72 VRDCB
0D (Not used)    2F CANT          51 DECB          73 UNSOL
0E UECB          30 CAB           52 NIDCB         74 COWE
0F IOBLOCK       31 CNSFACUD      53 CPRUPE        75 MARB
10 SRTE          32 BFRTRACE      54 ANDCB         76 VRRSB
11 ISTTRCEL      33 DMTSQ         55 DISKIO        77 DDEL
12 UTILPVTS      34 FMCB          56 DSERVER       78 SOCCBEXT
13 VRPL          35 PLUSFMCB      57 ADJNODE       79 RTPINFO
14 POWEPRIV      36 PXBFIXED      58 CACHE         7A CMIPPVT
```

```
15 POWECOMM      37 PXBPAGED      59 ISTSITCB      7B PVTSTATC
16 PULURDTE      38 PLUSC         5A ISTENDEL      7C PAGBLBSB
17 PAQ           39 NSSCB         5B CORCB         7D TIPACX
18 RAQ           3A (Not used)    5C LCB           7E CMOBJ
19 CPWAPVT       3B (Not used)    5D OSCB          7F CFSPRIV
1A ERICPOOL      3C (Not used)    5E SCCB          80 CFSCSA
1B SIBIX         3D FMH5          5F DSUTIL        81 SPTPOOL
1C CDAJSCP       3E OOBTSCB       60 PLOCB         82 HPRINFO
1D GWNAJSCP      3F SLD           61 TREEBLD       84 IPADDR
1E IOSIB         40 NSRUS         62 IOBLOCKL      85 IOBLOCKP
1F DSSIB         41 NSRUL         63 POWMPRIV
20 UTILPVTL      42 RUCON         64 POWMCOMM
21 UTILCSAS      43 STB           65 POAPRIV
```

07 Flags:

Bit	Meaning
1...	Length of storage requested and length of storage obtained are in GBL2 continuation
.1..	Length of storage requested and length of storage obtained are in GBL3 continuation
..xx xxx.	0
....1	GETBLK request converted to VTALLOC request

08–0B Address of block obtained (or 0 if GETBLK failed)

0C–0F Address of storage pool anchor block (SPTAE) or, if GBLK is followed by GBL2, address of DSPSP

10–13 Address of the issuer of the GETBLK macro

14–15 If byte 07, bits 0 and 1 are 0, length of storage specified by the user. Otherwise, 0.

16-17 If byte 07, bits 0 and 1, are 0, length of storage obtained, rounded to the correct subpool length. Otherwise, 0. This length does not include the 8-byte GETBLK header.

18-1B Caller of utility routine or 0. If the GETBLK macro was issued from a utility routine, the address of the utility's caller is placed here. A 0 address indicates that the macro was issued directly by the caller (see return address) without a utility routine.

1C-1F Request parameter header (RPH) address

GBL2 entry for GETBLK macro (Part 2)

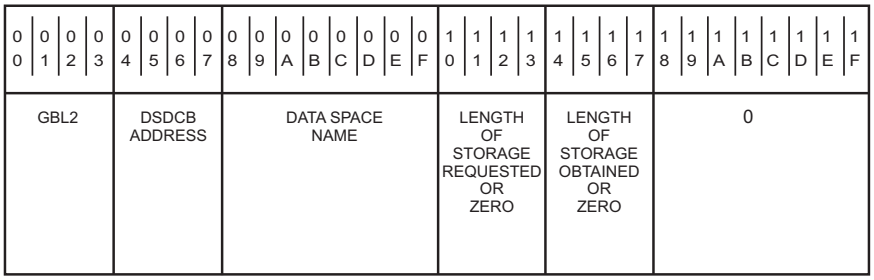
Entry: GBL2

VIT option:
SMS

Event: GETBLK macro

VIT processing module:
ISTRACSM

This trace record is a continuation of the GETBLK entry and provides the address of the data space descriptor control block (DSDCB). This trace record is generated only if the storage that is acquired is in a data space.



00 01 02 03	04 05 06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B 1C 1D 1E 1F
GBL2	DSDCB ADDRESS	DATA SPACE NAME	LENGTH OF STORAGE REQUESTED OR ZERO	LENGTH OF STORAGE OBTAINED OR ZERO	0

Byte (hex)
Contents

00–03 Record ID: C"GBL2"

04–07 Address of DSDCB

08–0F Data space name from the DSDCB. When you are using IPCS, the data space name is required often to look at data in the data space.

10–13 If byte 07, bit 0 of GBLK record is 1, length of storage specified by the user. Otherwise, 0.

14-17 If byte 07, bit 0 of GBLK record is 1, length of storage obtained, rounded to the correct subpool length. Otherwise, 0. This length does not include the 8-byte GETBLK header.

18-1F 0

GBL3 entry for GETBLK macro (Part 2)

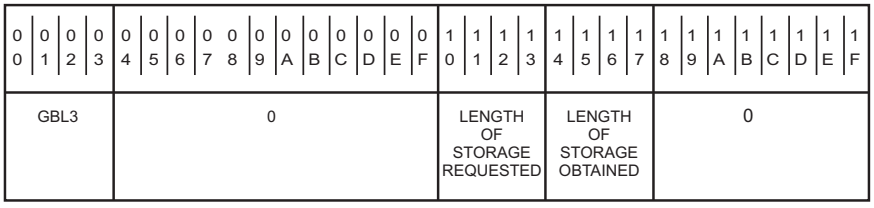
Entry: GBL3

VIT option:
SMS

Event: GETBLK macro

VIT processing module:
ISTRACSM

This trace record is a continuation of the GETBLK entry and provides the length of storage requested and the length of storage obtained if either length is 65 536 or greater. This trace record is generated when needed to provide lengths of that magnitude, but only if the storage that is acquired is not in a data space.



00 01 02 03	04 05 06 07 08 09 0A 0B 0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B 1C 1D 1E 1F
GBL3	0	LENGTH OF STORAGE REQUESTED	LENGTH OF STORAGE OBTAINED	0

Byte (hex)
Contents

00–03 Record ID: C"GBL3"

04–0F 0

10-13 Length of the storage specified by the user.

14-17 Length of storage obtained, rounded to the correct subpool length. This length does not include the 8-byte GETBLK header.

18-1F 0

GCEL entry for Get Cell requests

Entry: GCEL

VIT option:
CIA

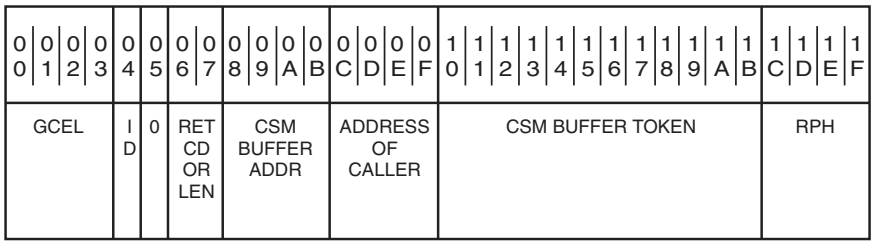
Event: CSM storage acquisition

VIT processing module:
ISTRACCI

Control is returned to:
IUTLLCCC (Module that issued the request)

This trace record shows the status of each (Get Cell) request for a CSM cell. It captures the outcome of the CELLCTL FUNC(GET) macro. This macro is used by DLC components.

There is no corresponding free cell event. The cells are freed directly to CSM using IVTCSM REQUEST=FREE_BUFFER (see "FRBF entry for FREE_BUFFER requests" on page 230) and are normally freed by non-VTAM components.



00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
GCEL				ID	0	RET CD OR LEN		CSM BUFFER ADDR				ADDRESS OF CALLER				CSM BUFFER TOKEN												RPH			

Byte (hex)
Contents

01–03 Record ID: C"GCEL"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06–07 Return code or length

08–0B CSM buffer address

0C–0F Address of caller

10–1B CSM buffer token

1C–1F RPH address

GCEx entry for CSM storage movement

Entry: GCEA or GCER

VIT option:
CIA

Event: CSM storage movement

VIT processing module:
ISTRACCI

Control is returned to:
The module that issued the INTRACE

This trace record is written after GCEL, GCEA and GCER when the trace being cut is for 64-bit addressing mode. This trace record shows the movement of CSM cells between different queues. This macro is used for QDIO and HiperSockets™ devices.

00 01 02 03	04	05	06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19	1A 1B	1C 1D 1E 1F
GCEA GCER	ID	0	CNT	ADDR OF CELL	ADDR OF CALLER	ADDR OF QUEUE ANCHOR	ANCHOR HEAD	MOD EYE	0	RPH OR THREAD

Byte (hex)
Contents

00–03 Record ID:
C"GCEA" for adding CSM cell to queue
C"GCER" for removing CSM cell from queue

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06–07 Count of buffers available on queue

08–0B CSM buffer address

0C–0F Address of caller

10–13 Starting address of the queue that the CSM cell is being added to or removed from

14–17 First 4 bytes of anchor

18–19 Module eye catcher of caller

1A–1B 0

1C–1F RPH address or thread

GETS entry for GETSTOR macro

Entry: GETS

VIT option:
SMS

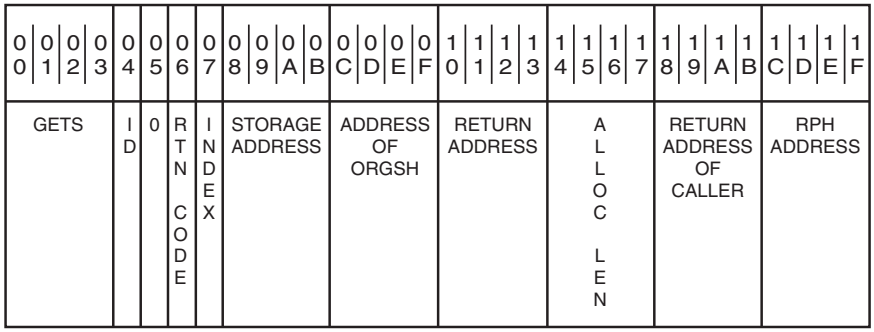
Event: Invocation of the GETSTOR macro

VIT processing module:
ISTRACSM

Control is returned to:
Module invoking the GETSTOR macro

This trace record shows the status of each GETSTOR request issued by VTAM components.

A FREESTOR macro releases the storage obtained by GETSTOR. Each GETS entry should eventually have a corresponding FRES entry.



Byte (hex)
Contents

00–03 Record ID: C"GETS"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Return code

07 Pool Index (in hex)

```
00  CFSACCPS     07  NLPDELPD     0E  CSAFXVNE     15  PVTPGVNT
01  CFSACCPD     08  TCPIOCD      0F  CSAFXJFE     16  CFSBUFPS
02  CFSACCCS     09  CSAPGVFE     10  CSAFXJNE     17  CFSBUFPD
03  CFSACCCD     0A  CSAPGVNE     11  PVTPGJFJ     18  CFSBUFCS
04  RPMNPSPS     0B  CSAPGJFE     12  PVTPGJFT     19  CFSBUFCD
05  HIPOOLPS     0C  CSAPGJNE     13  PVTPGJNT     1A  ALPHCD
06  MRPOOLPS     0D  CSAFXVFE     14  PVTPGVFT     1B  EEHNMIPD
```

08–0B Address of storage returned

0C–0F Address of GETSTOR header (ISTORGSH)

10–13 Address of the invoker of GETSTOR macro

14–17 Allocated storage length

18–1B Caller of utility routine. If the GETSTOR macro was issued from a utility routine, the address of the utility's caller is placed here. A 0 address indicates that the macro was issued directly by the caller (see return address) without a utility routine.

1C–1F Request parameter header (RPH) address

GNAM entry for GNAME macro invoked (Part 1)

Entry: GNAM

VIT option:
SSCP

Event: GNAME macro invocation

VIT processing module:
ISTRACSC

Control is returned to:
ISTCPCGM

This trace record is written when generic mapping information in the generic resource coupling facility structure is created, deleted, or changed using the GNAME macroinstruction.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
GNAM				ID	RTNCD	FUNC	FLAGS	GENERIC RESOURCE NAME								RETURN ADDRESS				CODE	0		RCNT	GENERIC NUMBER				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"GNAM"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Return code from the GNAME macro

X'00' Request completed successfully. This is an existing USERVAR return code.

X'01' Request completed successfully and local data was returned. This is returned from GNAME only if SEARCH is CF&LOCAL.

X'04' Resource specified could not be located. This is an existing USERVAR return code.

X'51' Request failed because of APPC restrictions. This is an existing USERVAR return code.

X'52' Request failed because of a parameter specification that was not valid. This is an existing USERVAR return code.

X'53' The function requested could not be completed because of a storage allocation failure. This is an existing USERVAR return code.

X'54' The real instance of user variable to be deleted could not be located. This is an existing USERVAR return code.

X'55' A conflict was found because of NETIDs.

X'56' A conflict was found because of CPNAMEs.

X'57' VTAM is halting.

X'58' ENDAFFINITY was issued for a session that was VTAM owned.

X'59' RSCTYPE value conflicted between USERVAR and GR.

X'5A' An attempt to change the generic name for a given application failed because SPTEs pertaining to the previous generic name still exist.

X'60' A session pair could not be found in an SPT entry.

X'61' An attempt to change the generic name for a given application failed because either (1) the existing generic name was never deleted, or (2) because SPTEs pertaining to the existing generic name still exist.

X'62' An attempt to repopulate the generic resource coupling facility structure has failed because the local data being used for repopulation is back level compared to data already in the structure.

X'63' An attempt to repopulate the generic resource coupling facility structure has succeeded but backlevel data has been identified in the structure and additional structure cleanup may be required.

X'64' An attempt to increment the session count for an SPTE failed because the name type of the SPTE did not match what was expected.

X'65' Request failed because of TSO mismatched.

X'66' An attempt to register a generic resource with the work load manager failed because of the use of an STOKEN that is not valid.

X'A0' A request made against the generic resources coupling facility structure will complete synchronously.

X'A1' An attempt to update information in the generic resources coupling facility structure failed because that data had changed since it was last read. The data should be re-read and then modified again.

X'A2' An attempt to access the generic resources coupling facility structure failed for an unexpected reason.

X'A3' There is currently no connection to the generic resources coupling facility structure.

X'A4' The buffers provided for reading data from the generic resources coupling facility structure were insufficient for buffering all the data associated with the list entry being read. No data (adjunct or element) is returned.

X'A5' A read from the generic resources coupling facility structure failed because the requested data could not be found in that structure.

X'A6' Data could not be added to the generic resources coupling facility structure because there is insufficient storage in the generic resources coupling facility structure to hold it.

06 Reason macro invoked:

X'01' Find generic resource mapping.

X'02' Find generic resource mapping or USERVAR.

X'03' Add the application program network name to generic mapping.

X'04' Delete the application program network name from generic mapping.

X'05' Write generic mapping to coupling facility structure.

X'06' Free local copy of generic mapping.

X'07' Find a generic resource name for an application program network name.

X'08' Find the generic number for a generic resource name.

07 Event flags:

Bit	Meaning
1...	The addition or deletion of an application program network name is because of a change in CP-CP status.
.1..	The addition or deletion of an application program network name is because of a SETLOGON GNAMEADD or SETLOGON GNAMEDEL.
..1.	Partner is local, a local real instance will be given precedence used for resolution only. See byte 14.
...1	Resolve to this node, the real instance must be on this node used for resolution only. See byte 14.
.... 1...	Update resolution count, the resolution count will be incremented or decremented used for resolution and termination only. See byte 14.
.... .1..	Update session count, the session count will be incremented or decremented used for resolution and termination only. See byte 14.
.... ..1.	Real instance is a subordinate resource.
....x	0

08–0F Generic name

10–13 Address of the invoker of the GNAME macro

14 Reason code (used for reason macros X'01' and X'05')

X'00' Resolution

X'01' Reserved

X'02' Update session counts

X'03' Termination

15–16 0

17 Resolution count or 0

18–1B The generic number if available, otherwise 0

1C–1F Request parameter header (RPH) address

GNA2 entry for GNAME macro invoked (Part 2)

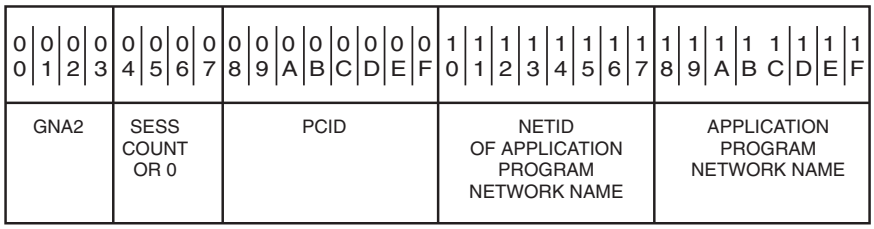
Entry: GNA2

VIT option:
SSCP

Event: GNAME macro invocation

VIT processing module:
ISTRACSC

This trace record is a continuation of the GNAM entry.



00 01 02 03	04 05 06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B 1C 1D 1E 1F
GNA2	SESS COUNT OR 0	PCID	NETID OF APPLICATION PROGRAM NETWORK NAME	APPLICATION PROGRAM NETWORK NAME

Byte (hex)
Contents

00–03 Record ID: C'GNA2'

04–07 Session count or 0

08–0F PCID if associated with a session, otherwise 0

10–17 Network ID of application program network name

18–1F Application program network name

GTBF entry for GET_BUFFER requests

Entry: GTBF

VIT option:
CSM

Event: IVTCSM REQUEST=GET_BUFFER

VIT processing module:
ISTITCCS

Control is returned to:
IVTSMCBF

This trace record provides the status of IVTCSM REQUEST=GET_BUFFER macroinstructions.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
GTBF				ID	0	FLAG	RECNUM	POOL	0			RTN COD		RSN COD		UTILRTN CALLER OR RETURN ADDRESS				LAST BUFFER LIST ENTRY				0				THREAD VALUE OR 0			

Byte (hex)
Contents

00–03 Record ID: C"GTBF"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace record flag:

B'0... ....'
Indicates that this is the last record for this event.

B'1... ....'
Indicates that additional records exist for this event. Use the trace record number from this entry to locate corresponding continuation records.

07 Trace record number to correlate all the entries for this particular event

08 Pool identifier, can be one of the following values:

X'10' 4K ECSA pool

X'20' 16K ECSA pool

X'30' 32K ECSA pool

X'40' 60K ECSA pool

X'60' 180K ECSA pool

X'90' 4K 31-bit backed DSPACE pool

X'98' 4K 64-bit backed DSPACE pool

X'A0' 16K 31-bit backed DSPACE pool

X'A8' 16K 64-bit backed DSPACE pool

X'B0' 32K 31-bit backed DSPACE pool

X'B8' 32K 64-bit backed DSPACE pool

X'C0' 60K 31-bit backed DSPACE pool

X'C8' 60K 64-bit backed DSPACE pool

X'E0' 180K 31-bit backed DSPACE pool

X'E8' 180K 64-bit backed DSPACE pool

09–0B 0

0C–0D
Return code

0E–0F Reason code

10–13 Address of utility routine caller or return address of the issuer of the IVTCSM macroinstruction

14–17 Address of the buffer list entry that was being processed when the error was encountered.

18–1B 0

1C–1F THREAD value if specified or 0 if THREAD is not specified. The THREAD value is used only to correlate this trace record to a specific IVTCSM macroinstruction.

GTB2 entry for GET_BUFFER requests

Entry: GTB2

VIT option:
CSM

Event: IVTCSM REQUEST=GET_BUFFER

VIT processing module:
ISTITCCS

This trace record is a continuation of the GTBF trace record. It contains additional information about the IVTCSM REQUEST=GET_BUFFER macroinstruction.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
GTB2				0		FLAG	RECNUM	TYPE	SOURCE	OWNER	ID	NUMBER OF BUFFERS				FREE ROUTINE ADDRESS				0		POOL TOKEN									

Byte (hex)
Contents

00–03 Record ID: C"GTB2"

04–05 0

06 Trace record flag:

B'0... ....'
Indicates that this is the last record for this event.

B'1... ....'
Indicates that additional records exist for this event. Use the trace record number from this entry to locate corresponding continuation records.

07 Trace record number to correlate all the entries for this particular event

08 Buffer type

X'20' Page-eligible

X'40' Pageable

X'80' Fixed

09 Buffer source

X'40' DSPACE pool

X'80' ECSA pool

0A–0B OWNERID

0C–0F Number of buffers requested

10–13 Free routine address

14–15 0

16–1F Pool token

GTB3 entry for GET_BUFFER requests

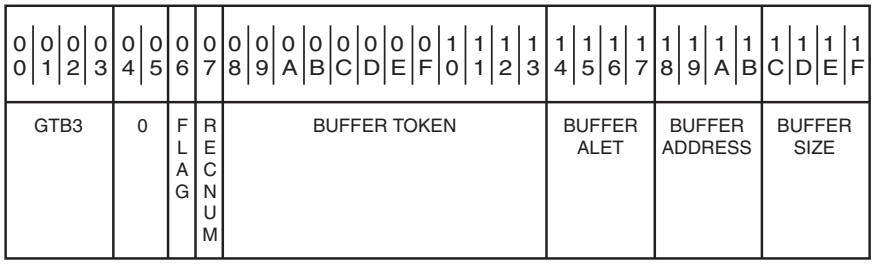
Entry: GTB3

VIT option:
CSM

Event: IVTCSM REQUEST=GET_BUFFER

VIT processing module:
ISTITCCS

This record is written for a CSM buffer allocated as a result of the IVTCSM REQUEST=GET_BUFFER macroinstruction. This trace record corresponds to an entry in the buffer list returned by the IVTCSM macroinstruction.



Byte (hex)
Contents

00–03 Record ID: C"GTB3"

04–05 0

06 Trace record flag:

B'0... ....'
Indicates that this is the last record for this event.

B'1... ....'
Indicates that additional records exist for this event. Use the trace record number from this entry to locate corresponding continuation records.

07 Trace record number to correlate all the entries for this particular event

08–13 Buffer token

14–17 Buffer ALET

18–1B Buffer address

1C–1F Buffer size

HCLK entry for HPR clock event

Entry: HCLK

VIT option:
HPR

Event: HPR clock event

VIT processing module:
ISTITCHP

Control is returned to:
ISTRPCTM

This trace record is written when the clock state changes (approximately every second). This trace record is also written when the clock mode changes.

00	01	02	03	04	05	06	07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
HCLK				ASID	0	OLD STATE	NEW STATE	TIME STAMP	NUMBER OF 25 ms TIMERS ON CLOCK	NUMBER OF LIVENESS TIMERS	NUMBER OF TIMERS ON LATE QUEUE	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"HCLK"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Old HPR clock state

- **P** Pending stop
- **R** Running
- **S** Stopped

07 New HPR clock state

- **P** Pending stop
- **R** Running
- **S** Stopped

08–0F Time stamp of HCLK entry

10–13 Total number of 25 millisecond timers currently on the HPR clock

14–17 Number of liveness timers on the HPR clock

18–1B Number of timers on the late queue

1C–1F Request parameter header (RPH) address

HCL2 entry for HPR clock event (Part 2)

Entry: HCL2

VIT option:
HPR

Event: HPR clock event

VIT processing module:
ISTITCHP

Control is returned to:
ISTRPCTM

This trace record is a continuation of the HCLK entry.

00 01 02 03	04 05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
HCL2	0	CURR RATE	NEXT RATE	NUMBER OF 1ms TIMERS ON CLOCK	NUMBER OF LIVENESS2 TIMERS FOR ONEHOP EE	0	NUMBER OF HPRPST PATH SWITCH TIMERS	NUMBER OF NEW ROUTE PATH SWITCH TIMERS

Byte (hex)
Contents

00–03 Record ID: C'HCL2'

04-05 0

06 Current HPR clock rate

- **H** High mode
- **S** Standard mode

07 Next HPR clock rate

- **H** High mode
- **S** Standard mode

08-0B Total number of 1 millisecond timers currently on the HPR clock

0C-0F Number of one-hop EE liveness timers (Liveness2) on the HPR clock

10-17 0

18-1B Number of HPRPST path switch timers on the HPR clock

1C-1F Number of new route path switch timers on the HPR clock

HCR entry for invoking a RoCE HCR operation (Part 1)

Entry: HCR

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) HCR operation, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing when the IBM 10GbE RoCE Express feature operates in a dedicated environment.

VIT processing module:
ISTITCSH

This trace record is written upon completion of an HCR operation.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
H C R				ASID	OP CODE	MODULE		RETURN		REASON		OP CODE		MODIFIER		PFCTE ADDRESS								HARDWARE		HANDLE		RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C'HCR '

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Operation code

06–07 Module identifier of the module that issued the INTRACE command

08–09 Return code

0A–0B Reason code

0C–0F Operation code modifier

10–17 Address of the PFCTE

18–1B Hardware handle

1C–1F Request parameter header (RPH) address

HCR2 entry for invoking a RoCE HCR operation (Part 2)

Entry: HCR2

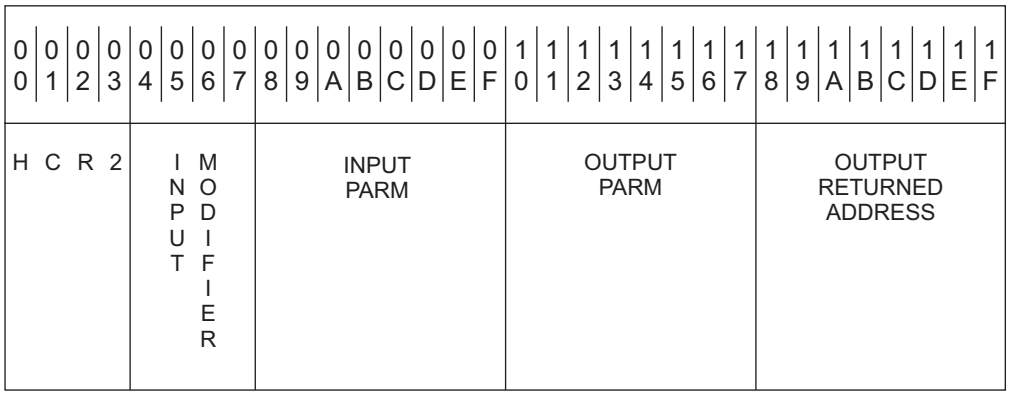
VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged

Ethernet (RoCE) HCR operation, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing.

VIT processing module:
ISTITCSH

This trace record is a continuation of the HCR entry.



Byte (hex)
Contents

00–03 Record ID: C'HCR2'

04–07 Input modifier

08–0F Input parameter area

10–17 Output parameter area

18–1F Output address that command processing returns

HCR3 entry for invoking a RoCE HCR operation (part 3)

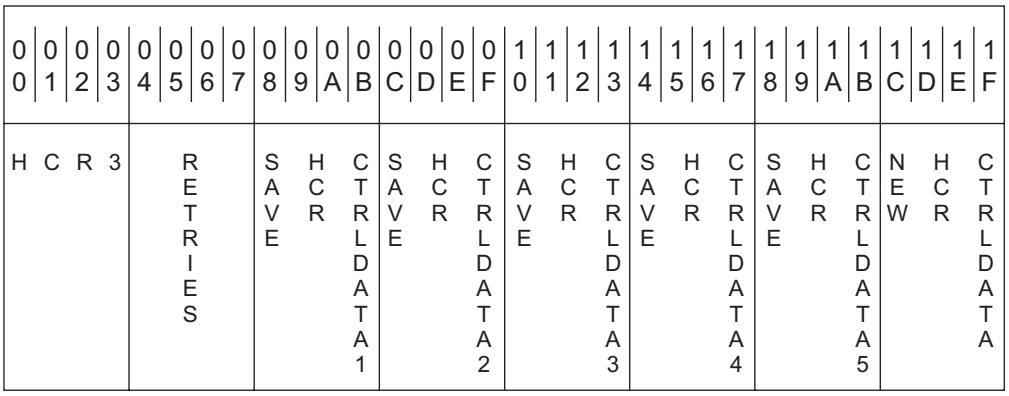
Entry: HCR3

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) HCR operation, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing.

VIT processing module:
ISTITCSH

This trace record is a continuation of the HCR entry.



Byte (hex)
Contents

00–03 Record ID: C'HCR3'

04–07 Command retry counter

08–0B Control operation data

0C–0F Control operation data

10–13 Control operation data

14–17 Control operation data

18–1B Control operation data

1C–1F Control operation data

HCR4 entry for invoking a RoCE HCR operation (part 4)

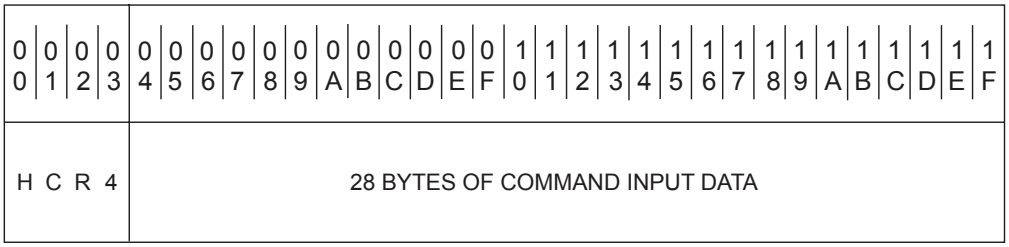
Entry: HCR4

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) HCR operation, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing.

VIT processing module:
ISTITCSH

This trace record is a continuation of the HCR entry, and is generated only when the HCR operation requires command input data. Multiple HCR4 entries can be generated, depending on the length of the command input data.



Byte (hex)
Contents

00–03 Record ID: C'HCR4'

04-1F Command input data

HCR5 entry for invoking a RoCE HCR operation (part 5)

Entry: HCR5

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) HCR operation, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing.

VIT processing module:
ISTITCSH

This trace record is a continuation of the HCR entry, and is generated only when the HCR operation returns command output data. Multiple HCR5 entries can be generated, depending on the length of the command output data returned.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
H	C	R	5	28 BYTES OF COMMAND OUTPUT DATA																											

Byte (hex)
Contents

00–03 Record ID: C'HCR5'

04-1F Command output data

HIOx entry for Halt I/O

Entry: HIOB, HIOD, HIOH, HIOI, HIOT, or HIOX

VIT option:
CIO

Event: Halt I/O

VIT processing module:
ISTRACCI

Control is returned to:
ISTTSCLR

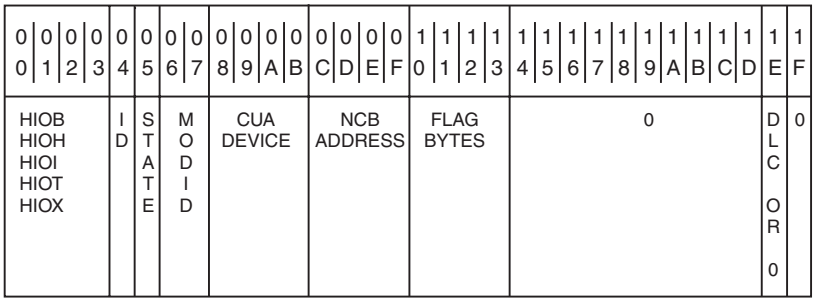
This trace record is written when a Halt I/O SVC is issued to end a currently executing channel program.

- HIOB is generated when an HIO SVC ends a channel program using a BSC line attached to the communication adapter.
- HIOD is generated when an HIO SVC ends a channel program for an OSA-Express QDIO or HiperSockets connection.

- HIOH is generated when an HIO SVC ends a channel program using an SDLC line attached to the communication adapter.
- HIOI is generated when a VM GENIO HALT or an MVS HIO SVC ends a channel program to a local SNA controller as a result of VARY INACT,FORCE processing.
- HIOT is generated when a Halt I/O SVC ends a channel program for a TCP/IP DLC connection.
- HIOX is generated when an HIO SVC ends communication between channel-to-channel-attached hosts.

An HIO entry should be followed shortly by an interrupt (INT) entry. Match the CUAs in the HIO and INT entries to be sure they are for the same device. See z/OS Communications Server: SNA Data Areas Volume 1 for a description of the NCB, ICNCB, and XCNCB fields.

For record types with suffix I, X, or T, the CIO events are also captured within the NCB (pointed to by NCBCIOMV). The NCB trace table is mapped by NCBCIOAR.



Byte (hex)
Contents

00–03 Record ID:
C"HIOB"
C"HIOD"
C"HIOH"
C"HIOI"
C"HIOT"
C"HIOX"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 For HIOB, link station state (BSCLKFSM)

For HIOD, adapter state (DINCB_AFSM)

For HIOH, link station state (HALLFSM)

For HIOI, link state (NCBLNKST)

For HIOX, for a channel-to-channel adapter, station state (XCNSSFSM)

For HIOX, for a LAN channel station, link state (NCBLNKST)

For HIOT, link state (NCBLNKST)

06–07 Module ID (last 2 characters of TSC module name)

08–0B Channel device name in EBCDIC (either a device address or device number)

0C–0F NCB address

10–13 Flag bytes (NCBFLAGS)

14–1D 0

1E For HIOB, HIOD, HIOH, HIOI, and HIOX: 0

For HIOT:

- For the CDLC DLC: C
- For the LCS DLC: L
- For the CLAW DLC: W
- For the CTC DLC: X
- For the HYPERchannel DLC: H

1F 0

HLST entry for subtrace tree

Entry: HLST

VIT option:
SSCP

Subtrace type:
TREE

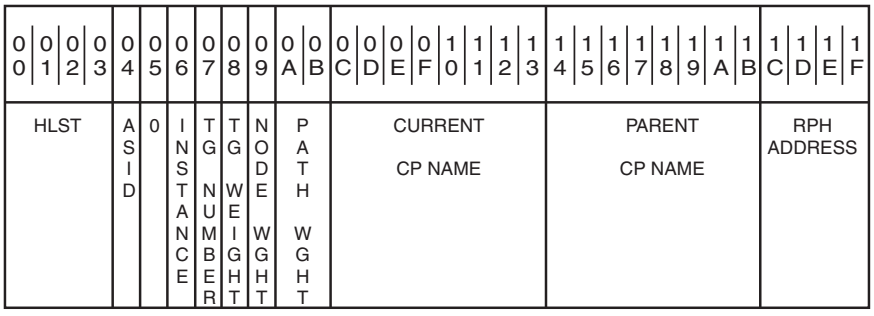
Event: APPN route computation

VIT processing module:
ISTITCAB

Control is returned to:
ISTTRQWC

This record is generated when:

- Subtrace TREE under SSCP trace option is active.
- A candidate hop is processed by TRS in routing tree build or update processing.



Byte (hex)
Contents

00–03 Record ID: C"HLST"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace entry instance

07 TG number for the current hop

08 TG weight

09 Node weight of the current hop

0A–0B Total path weight from the tree root to the current node

0C–13 CP name of the destination node on current hop

14–1B CP name of the origin node on current hop

1C–1F Request parameter header (RPH) address

HLS2 entry for subtrace tree (Part 2)

Entry: HLS2

VIT option:
SSCP

Subtrace type:
TREE

Event: APPN route computation

VIT processing module:
ISTITCAB

Control is returned to:
ISTTRQWC

This record is a continuation of the HLST trace record. HLS2 is generated only if any of the CP names in the HLST record has a different network ID than the local node.

00 01 02 03	04 05 06 07 08 09 0A 0B	0C 0D 0E 0F 10 11 12 13	14 15 16 17 18 19 1A 1B	1C 1D 1E 1F
HLS2	0	CURRENT NODE NETWORK ID	PARENT NODE NETWORK ID	0

Byte (hex)
Contents

00–03 Record ID: C"HLS2"

04–0B 0

0C–13 Network ID of the destination node on current hop

14–1B Network ID of the origin node on current hop

1C–1F 0

HPR entry for HPRCTL macroinstruction (Part 1)

Entry: HPR

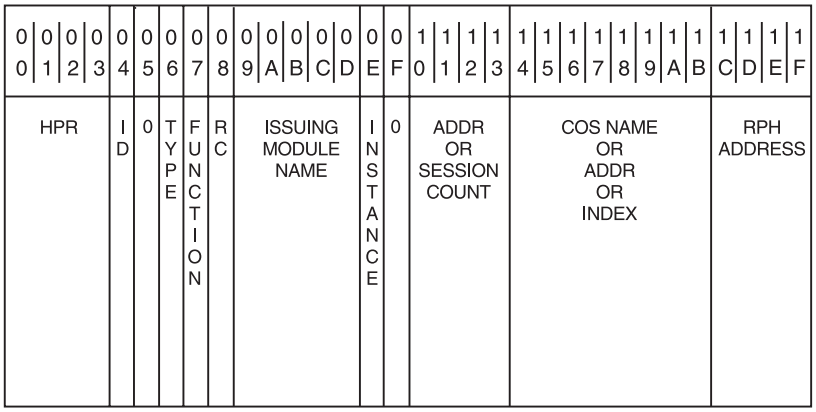
VIT option:
HPR

Event: Invocation of HPRCTL macroinstruction

VIT processing module:
ISTITCHP

Control is returned to:
Module invoking the HPRCTL macroinstruction

This trace record is written when the HPRCTL macroinstruction is issued. It indicates the type of lookup being performed, the return code for that operation, and the addresses of the parameters involved.



Byte (hex)
Contents

00–03 Record ID: C"HPR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Entry type:

F FID5

L LU

M MRSU

P PMI

R RTP

S RSREC

T RTREC

07 Function:

- **A** Add
- **C** Change
- **D** Delete
- **F** Find
- **P** Purge
- **S** Associate

08 Return code:

- **00** Success
- **04** Not found
- **08** Insufficient storage
- **0C** Length value not valid
- **10** Function not supported
- **14** Duplicate FID5
- **18** Token not valid

09–0D Name of module issuing HPRCTL

0E HPRCTL instance within issuing module

0F 0

10–13

- If entry type is FID5, BSB address
- If entry type is LU, session count
- If entry type is PMI and function is Add or Find, CPNRB address
- If entry type is RSREC, RSREC address
- If entry type is RTP, RTP address
- If entry type is RTREC, RTREC address

14–1B

- If entry type is FID5, FID5 address
- If entry type is LU, not applicable
- If entry type is MRSU, the MRSU address is located in bytes X'14' and X'15'
- If entry type is PMI, not applicable
- If entry type is RSREC, element address and element index
- If entry type is RTP, APPN CoS name. It is not written, however, for some cases of FIND FIRST and FIND NEXT.
- If entry type is RTREC, element address and element index

1C–1F Request parameter header (RPH) address

HPR2 entry for HPRCTL macroinstruction (Part 2)

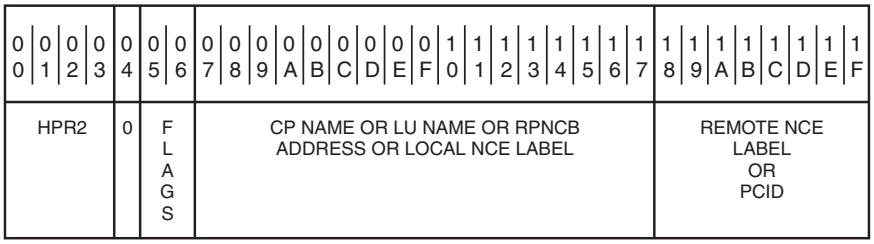
Entry: HPR2

VIT option:
HPR

Event: Invocation of HPRCTL macroinstruction

VIT processing module:
ISTITCHP

This trace record is a continuation of the HPR entry.



Byte (hex)
Contents

00–03 Record ID: C"HPR2"

04 0

05–06 HPRCTL flags:

Byte 1

Bit **Meaning**

xx.. ....
BSB lock level requested (entry type FID5):

00 No lock

01 Shared

10 Exclusive

..1. ....
Decrement LU session count (entry type LU)

FIND FIRST (entry type RTP or PMI)

...1 ....
Increment LU session count (entry type LU)

FIND NEXT (entry type RTP or PMI)

.... 1...
LU entry was deleted (entry type LU)

.... .1..
An unused LU entry was found and deleted (entry type LU)

.... ..1.
Expired entry request (entry type RSREC)

....1
APPN boundary function when RTP ends

Byte 2

Bit **Meaning**

xxx. ....
HPRCTL entry type

000 FID5

001 LU

010 RTP

011 RSREC

100 MRSU

101 PMI

110 RTREC

...x xxxx
Available

07–17

- If entry type is PMI, RSREC, or RTREC, CP name
- If entry type is RTP and HPRCTL flag is FIND FIRST or FIND NEXT, CP name

Byte	Contents
08–0F	Local NCE
10–17	0

- If entry type is LU, LU name
- If entry type is FID5 and function is associate (see HPR entry byte 07)

Byte	Contents
08–0B	RTP address
0C–17	0

18–1F

- If entry type is RSREC, PCID
- If entry type is RTREC, TCID
- If entry type is LU or RTP, remote NCE
- If entry type is FID5, not applicable
- If entry type is PMI, not applicable

HPR3 entry for HPRCTL macroinstruction (Part 3)

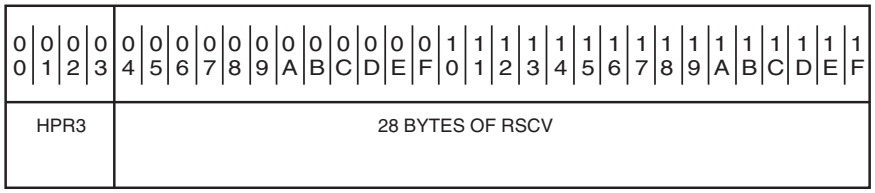
Entry: HPR3

VIT option:
HPR

Event: Invocation of HPRCTL macroinstruction

VIT processing module:
ISTITCHP

This trace record is a continuation of the HPR entry when entry type (byte 06) is RTP. It is not written, however, for some cases of FIND FIRST and FIND NEXT.



Byte (hex)
Contents

00–03 Record ID: C"HPR3"

04–1F 28 bytes of RSCV

HPR4 entry for HPRCTL macroinstruction (Part 4)

Entry: HPR4

VIT option:
HPR

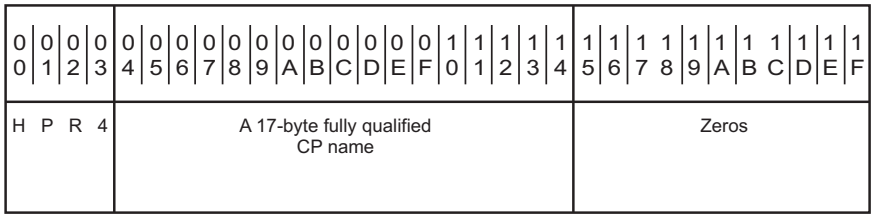
Event: Invocation of HPRCTL macroinstruction

VIT processing module:
ISTITCHP

This trace record is a continuation of the HPR entry and is written when the following conditions are met:

- The HPR entry type is RTP (HPR trace record byte 6 contains R)
- CP name and FIND FIRST or FIND NEXT is specified (HPR2 trace record byte 5 has either bit 2 or bit 3 on)
- NetID or CP name (HPR2 trace record bytes 07-14) contains at least one wildcard variable
- HPRCTL is successful (HPR trace record byte 08 contains 00)

The fully qualified CP name in this record matches the CP name specified with a wildcard value in the HPR2 record.



Byte (hex)
Contents

00–03 Record ID: C"HPR4"

04–14 A 17-byte fully qualified CP name, left-aligned and padded with blanks

15-1F 0

HPRT entry for HPR timer control macroinstruction

Entry: HPRT

VIT option:
HPR

Event: Invocation of HPR timer control macroinstruction

VIT processing module:
ISTITCHP

Control is returned to:
Module invoking the HPRTIMER macroinstruction

This trace record is written when the HPR timer control macroinstruction is issued. It is used to set and cancel the liveness, burst, short request, and refifo timers associated with RTP processing.

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15	16	17 18 19 1A 1B	1C 1D 1E 1F
HPRT	ASID	0	TYPE	SET/CANC	TIMER DURATION	RPNCB ADDRESS	TIMER BLOCK ADDRESS	FLAGS	INSTANCE	ISSUING MODULE NAME	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"HPRT"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Timer type:

B Burst

L Liveness

N New route

P Path switch

R Refifo

S Short request

07 Function:

C Cancel

S Set

08–0B Requested timer duration

- Burst, refifo, and short request timers, in milliseconds

- Liveness, new route, and path switch timers, in seconds

0C–0F RPNCB address

10–13 Timer block address

14-15 Timer block flags:

Byte 1

Bit	Meaning
xxx.	Timer request
000.	Liveness timer
001.	Short request timer
010.	Burst timer
011.	REFIFO timer
100.	HPRPST path switch timer
101.	New route for path switch timer
...1	Timer block is on a CLK slot.
.... 1...	Timer block is on the late queue.
.... .1..	Timer block is marked cancel.
.... ..1.	Timer block is on the live queue.
....1	TPPOST of waiting RPH required for cancel function.

Byte 2

Bit	Meaning
1...	Timer block is on HPR timer block queue.
.1..	Timer block is on the HPRPST queue.
..1.	Timer block is on the new route queue.
...x xxxx	Available.

16 Instance of the trace in the issuing module.

17–1B Name of module issuing HPRTIMER.

1C–1F Request parameter header (RPH) address.

IDXx entry for identification exchange

Entry: IDXI or IDXO

VIT option:
CIA

Event: Identification Exchange (Part 1)

VIT processing module:
ISTRACCI

Control is returned to:
ISTLLCXI or ISTLLCXR

This trace record contains information about inbound or outbound identification exchange processing.

00 01 02 03	04	05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
IDXI IDXO	ID	0	CUA	NCB ADDRESS	BLOCK HEADER	0	RPH

Byte (hex)
Contents

00–03 Record ID:
C"IDXI" for inbound IDX
C"IDXO" for outbound IDX

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0B Channel Unit Address

0C–0F NCB address

10–17 Block header

18–1B 0

1C–1F Request parameter header (RPH) address

IDX2 entry for identification exchange (Part 2)

Entry: IDX2

VIT option:
CIA

Event: Identification Exchange (Part 2)

VIT processing module:
ISTRACCI

This trace record is a continuation of the IDXx entry.

00 01 02 03	04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
IDX2	28 BYTES OF DATA

Byte (hex)
Contents

00–03 Record ID: C"IDX2"

04–0F 28 bytes of additional IDX data

INOP entry for the INOPINFO macro

Entry: INOP

VIT option:
None (Generated by VTAM)

Event: Inoperative state

VIT processing module:
ISTRACOT

Control is returned to:
Module encountering inoperative

This trace record shows the invocation of the INOPINFO macro. It captures various INOP information related to a specific device.

This event is treated as an exception condition and is always traced, whether the CIO option is in effect or not.

For Local SNA Controller devices, TCP/IP DLC devices, or Channel-to-Channel devices, this INOP event is also captured within the NCB (pointed to by NCBCIOMV).

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14	15 16 17 18 19	1A 1B	1C	1D 1E 1F
INOP	ID	0	REASN	TYPE	CUA OR BLANKS	NCB ADDRESS	FLAGS	ID	MODULE EYE CATCHER	SENSE	STATE	0

Byte (hex)
Contents

01–03 Record ID: C"INOP"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Reason code

07 Type field

X'41' Connect INOP

X'42' Signaling connection INOP

X'43' Device INOP

X'44' Soft INOP

X'45' Hard INOP

X'46' SAP INOP

08–0B Channel device name in EBCDIC (either a CUA or device number) or blanks

0C–0F NCB address

10–13 Flags (NCBFLAGS)

14 Product identifier. If the product identifier is S or U, then the product is VTAM. If it is V, the product is Common Storage Manager.

15–19 Module name that detected INOP

1A–1B Sense code

1C Station state

1D–1F 0

INTx entry for channel interrupt

Entry: INTD, INTI, INTL, INTT, or INTX

VIT option:
CIO

Event: Channel interrupt

VIT processing module:
ISTRACCI

Control is returned to:
ISTTSCLC

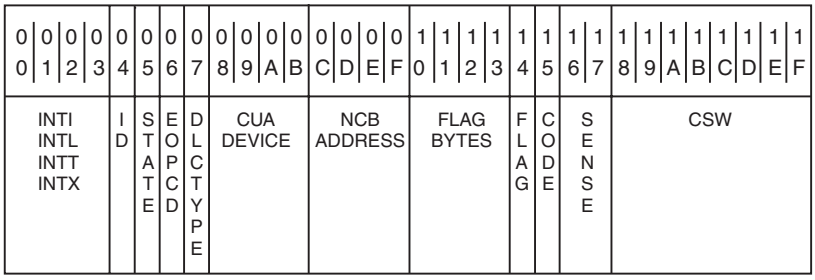
This trace record is written when a channel program interrupt occurs.

- INTD is generated for interrupts from OSA-Express QDIO or HiperSockets adapters.
- INTI is generated for interrupts between communication controllers and local SNA cluster controllers.
- INTL is generated for interrupts from local non-SNA cluster controllers.
- INTT is generated for interrupts between TCP/IP DLC connections.
- INTX is generated for interrupts between channel-to-channel-attached hosts.

Every INT entry has a previously issued SIO entry, although it may have been issued some time ago. Use the CUA device field to correlate SIO and INT entries. The SIO entry provides additional information about this completing channel program.

See for a description of the NCB fields.

For record types with suffix D, I, X, or T, the CIO events are also captured within the NCB (pointed to by NCBCIOMV). The NCB trace table is mapped by NCBCIOAR.



Byte (hex)
Contents

00–03 Record ID:
C"INTD" for DINCB
C"INTI" for ICNCB
C"INTL" for LDNCB
C"INTT" for RWNCB
C"INTX" for XCNCB

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 For INTD, adapter state (DINCB_AFSM)

For INTI, INTL, and INTT, link station state (NCBLNKST)

For INTX, station state (XCNSSFSM)

06 For INTI, the ending operation code; otherwise, 0.

07 DLC type. For INTD, INTI, INTL, and INTX: 0

For INTT:

- For the CDLC DLC: C
- For the LCS DLC: L
- For the CLAW DLC: W
- For the CTC DLC: X
- For the HYPERchannel DLC: H

08–0B Channel device name in EBCDIC (either a device address or device number)

0C–0F NCB address

10–13 Flag bytes (NCBFLAGS)

14 Flag byte as follows:

Bit **Meaning**

1... ....
Running in disabled interrupt exit (IOSDIE is not 0)

.1.. ....
ERP work area address exists (IOSERP is not 0)

..1. ....
Exception condition (IOSEX flag is on)

...1 ....
Error routine in control (IOSERR flag is on)

15 I/O completion code (IOSCOD)

16–17 Sense data in IOSSNS if this was a sense channel program; otherwise, 0

18–1F Channel status word from IOSB

INT2 entry for channel interrupt (Part 2) for INTx

Entry: INT2

VIT option:
CIO

Event: Channel interrupt (Part 2)

VIT processing module:
ISTRACCI

This trace record is a continuation of the INTx entry.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
INT2				SECP		0		FIRST 16 BYTES OF TRANSMIT BUFFER																0							

Byte (hex)
Contents

00–03 Record ID: C"INT2"

04–05 CPNCB_Index_Word

06–07 0

08–17 First 16 bytes of transmit buffer

18–1F 0

IO1 entry for TPIO request (Part 1)

Entry: IO1

VIT option:
API

Event: Application program request (Part 1)

VIT processing module:
ISTRACAP

Control is returned to:
ISTAPCRS or ISTOCCSM

This trace record shows API requests. It also provides the RPL information supplied by a VTAM application program when it issues an RPL-based macroinstruction (such as SEND or OPNDST). The API routine ISTAICIR issues the TPIO SVC. ISTAPCTI gets control from the SVC, does validity checking, and queues the RPL to the PST request PAB. After the PST request PAB is dispatched, ISTAPCRS gets control and writes the entry, or calls ISTOCCSM to write the entry.

See z/OS Communications Server: SNA Programming for an explanation of the RPL fields.

The process that is started with this event will be completed by a post (UP), or an exit (RE or UE). To correlate the two entries, match the RPL addresses.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
IO1			REQTY	ID	EXTDS	OPT4	OPT1	RPL ADDRESS				NIB ADDRESS OR CID				RH3	SRTYP	VTFL1	VTFL2	CHN	RU CNTL CODE			OPTC2				OPTC3			

Byte (hex)
Contents

00–02 Record ID: C"IO1"

03 RPL request type (RPLREQ)

- **X'15'** SETLOGON
- **X'16'** SIMLOGON
- **X'17'** OPNDST
- **X'19'** CHANGE
- **X'1A'** INQUIRE
- **X'1B'** INTRPRET
- **X'1F'** CLSDST
- **X'22'** SEND
- **X'23'** RECEIVE
- **X'24'** RESETSR
- **X'25'** SESSIONC
- **X'27'** SENDCMD
- **X'28'** RCVCMD
- **X'29'** REQSESS
- **X'2A'** OPNSEC
- **X'2C'** TERMSESS

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Exit definition (RPLEXTDS)

06 Option code byte 4 (RPLOPT4)

07 Option code byte 1 (RPLOPT1)

08–0B RPL address

0C–0F NIB address or CID

10 Third byte of RH (RPLRH3)

11 Send/receive type (RPLSRTYP)

12 VTAM flags (RPLVTFL1)

13 Post/respond flags (RPLVTFL2)

14 RU chain position (RPLCHN)

15–17 RU control codes (RPLCNTRL)

18–1B VTAM options (RPLOPTC2)

1C–1F VTAM options (RPLOPTC3)

IO2 entry for TPIO request (Part 2)

Entry: IO2

VIT option:
API

Event: Application program request (Part 2)

VIT processing module:
ISTRACAP

This trace record is a continuation of the IO1 entry. It shows additional information about the request.

00 01 02	03	04 05 06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B 1C 1D 1E 1F
IO2	0	RETURN ADDRESS	LOGON MODE NAME OR 0	APPLICATION LU NAME (IF AVAILABLE)	PARTNER LU NAME (IF AVAILABLE)

Byte (hex)
Contents

00–02 Record ID: C"IO2"

03 0

04–07 Address of the issuer of the macro

08–0F For SIMLOGON, OPNDST, CLSDST, or REQSESS: Logon mode name (NIBLMODE) or 0 if the NIB is not available

For OPNSEC or TERMSESS: 0

10–17 Application LU name if available

18–1F Partner LU name if available

IO3 entry for TPIO request (Part 3)

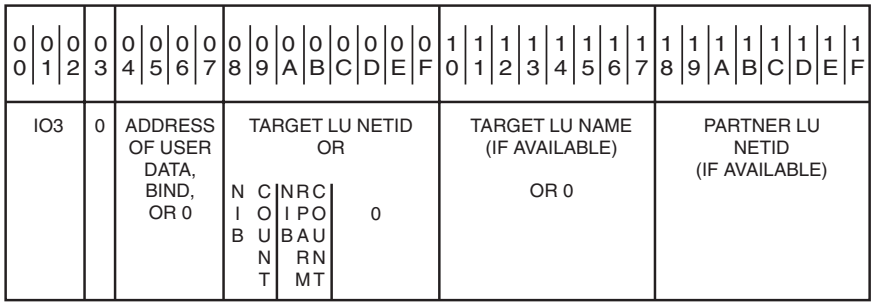
Entry: IO3

VIT option:
API

Event: Application program request (Part 3)

VIT processing module:
ISTRACAP

This trace record is a continuation of the IO2 entry. It shows additional information about the request.



Byte (hex)
Contents

00–02 Record ID: C"IO3"

03 0

04–07 For SIMLOGON, CLSDST, or REQSESS: Address of user data (RPLAREA)

For OPNDST or OPNSEC: Address of BIND (NIBNDAR) or 0 if the NIB is not available

08–0F Target LU network identifier (when for CLSDST PASS)

Byte (hex)
Contents

08–09 Count of node initialization blocks (NIBs) in NIB list (when not for CLSDST PASS)

0A–0B Count of node initialization blocks (NIBs) in NIB list with NIBRPARM=0 (when not for CLSDST PASS)

0C–0F 0

10–17 Target logical unit name, if available, or 0

18–1F Partner LU network identifier, if available

IOSP entry for invoking a Peripheral Component Interconnect Express (PCIe) service (Part 1)

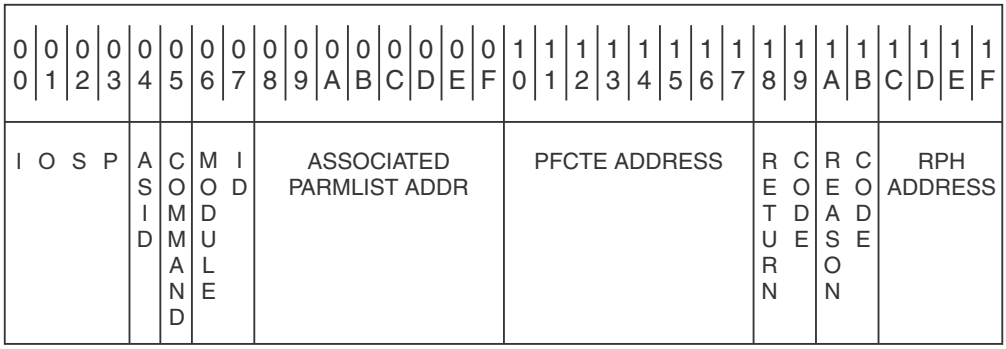
Entry: IOSP

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) Peripheral Component Interconnect Express (PCIe) service, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing.

VIT processing module:
ISTITCSH

This trace record is written upon completion of a PCIe service.



Byte (hex)
Contents

00–03 Record ID: C"IOSP"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 PCIe service identifier:

- 'A' for allocate service (IQP4ALL)
- 'C' for connect service (IQP4CON)
- 'D' for deallocate service (IQP4DEA)
- 'G' for get attribute service (IQP4GDI)
- 'L' for close service (IQP4CLO)
- 'M' for deregistration service (IQP4DMR)
- 'O' for open service (IQP4OPN)
- 'R' for registration service (IQP4RMR)

06–07 Module identifier of the module that issued the INTRACE command

08–0F Input parameter list that is associated with the PCIe service

10–17 Address of the PFCTE

18–19 Return code

1A–1B Reason code

1C–1F Request parameter header (RPH) address

IOS2 entry for invoking a Peripheral Component Interconnect Express (PCIe) service (Part 2)

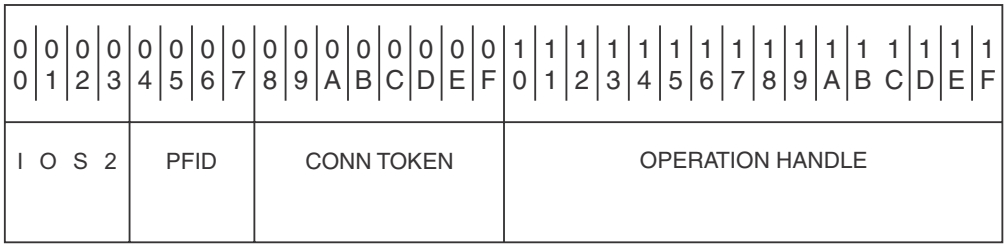
Entry: IOS2

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) Peripheral Component Interconnect Express (PCIe) service, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing.

VIT processing module:
ISTITCSH

This trace record is a continuation of the IOSP record.



Byte (hex)
Contents

00-03 Record ID: C'IOS2'

04-07 The Peripheral Component Interconnect Express (PCIe) function ID (PFID)

08-0F Connection token that is associated with the PCIe service

10-1F Operation handle that is associated with the PCIe service

IOS3 entry for invoking a Peripheral Component Interconnect Express (PCIe) service (Part 3)

Entry: IOS3

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) Peripheral Component Interconnect Express (PCIe) service, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing.

VIT processing module:
ISTITCSH

This trace record is a continuation of the IOSP trace record when the record represents a registered (IQP4RMR) command.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
I	O	S	3	KEY	0			MEMORY REGION ADDRESS								MEMORY REGION LENGTH								DMA ADDRESS OR ZEROES							

Byte (hex)
Contents

00–03 Record ID: C'IOS3'

04 Storage key

05–07 0

08–0F Address of the memory region

10–17 Length of the memory region

18–1F DMA address to be registered, or 0

IPAD entry for Enterprise Extender Address Management

Entry: IPAD

VIT option:
TCP

Event: Enterprise Extender Address Management

VIT processing module:
ISTRACIP

Control is returned to:
The module that issued the INTRACE macroinstruction

This trace record is written when the AUNCB add, remove, find, find first, or find next function is performed.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
IPAD				ASID	0	FUNCTION	RC	INDEX 1	INDEX 2	LSAP	RSAP	IPv4 ADDRESS OR ZEROS				CALLER OF UTILITY				AUNCB ADDRESS				DATA PROVIDER ID OR ZEROS				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C'IPAD'

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Function:

- **A** Add
- **F** Find
- **N** Find next
- **R** Remove
- **S** Scan
- **T** Find first

07 Return code

- **X'00'** Function succeeded
- **X'08'** Function failed
- **X'0C'** Function not supported

08 Index 1

09 Index 2

0A Local SAP value

0B Remote SAP value

0C–0F IPv4 address or 0. If 0, IPv6 address is reported in IPA2 trace record.

10–13 Return address of the module issuing IPTADDRS

14–17 AUNCB address

18–1B Data provider ID or 0

1C–1F Request parameter header (RPH) address

IPA2 entry for Enterprise Extender Address Management (Part 2)

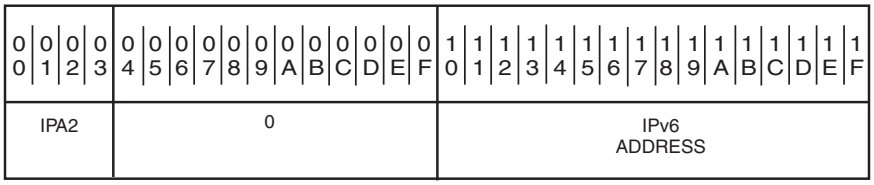
Entry: IPA2

VIT option:
TCP

Event: Enterprise Extender Address Management

VIT processing module:
ISTRACIP

This trace record is a continuation of the IPAD entry. This entry is present only when the Enterprise Extender Address Management function was performed for an IPv6 address.



Byte (hex)
Contents

00–03 Record ID: C'IPA2'

04–0F 0

10–1F IPv6 address

IPGN entry for host name

Entry: IPGN

VIT option:
TCP

Event: Host name converted to an IP address or IP address converted to a host name

VIT processing module:
ISTRACIP

Control is returned to:
The module that issued the INTRACE macroinstruction

The IPGN record is discarded whenever an Enterprise Extender host name is converted to an IP address (either IPv4 or IPv6 address family). This record is generated whenever a host name is converted to an IP address for the origin or destination of an EE connection.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
IPGN				ASID	0	LEN		IPv4 ADDRESS OR ZEROS				0				RETURN ADDRESS				RETURN CODE				MODULE ID				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"IPGN"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 – 07
IP hostname length

08 – 0B
IPv4 address or 0. If 0, IPv6 address is reported in IPG3 trace record.

0C – 0F
0

10 –13 Return address of the module that tried to convert the host name to an IP address.

14–17 Return code

0 Success

1 Host not found

2 Try again

3 No recovery

4 No data or no address

18–1B Identifier for the module that tried to convert the host name

1C–1F RPH address

IPG2 entry for host name (Part 2)

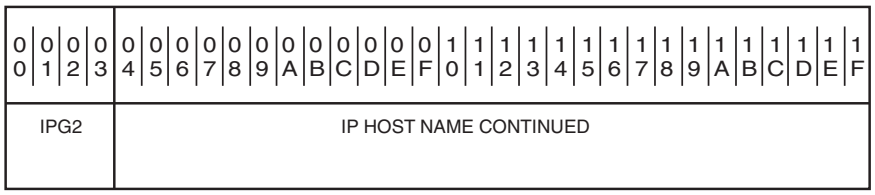
Entry: IPG2

VIT option:
TCP

Event: Host name converted to an IP address or IP address converted to a host name

VIT processing module:
ISTRACIP

This trace record is a continuation of the IPGN entry. This entry may be repeated multiple times to display the entire host name.



Byte (hex)
Contents

00–03 Record ID: C"IPG2"

04 – 1F
IP host name

IPG3 entry for host name (Part 3)

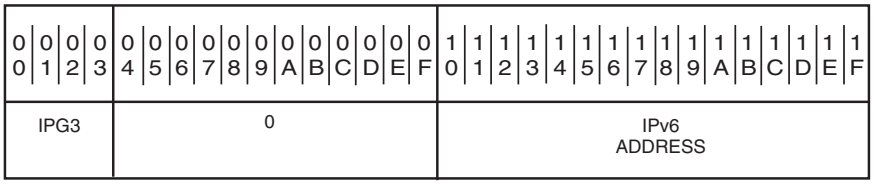
Entry: IPG3

VIT option:
TCP

Event: Host name converted to an IP address or IP address converted to a host name

VIT processing module:
ISTRACIP

This trace record is a continuation of the IPGN entry. This entry appears after the last IPG2 record, and is present only when the hostname resolution returns an IPv6 address.



Byte (hex)
Contents

00–03 Record ID: C'IPG3'

04 – 0F
0

10 – 1F
IPv6 address

IPOG entry for getibmopt call

Entry: IPOG

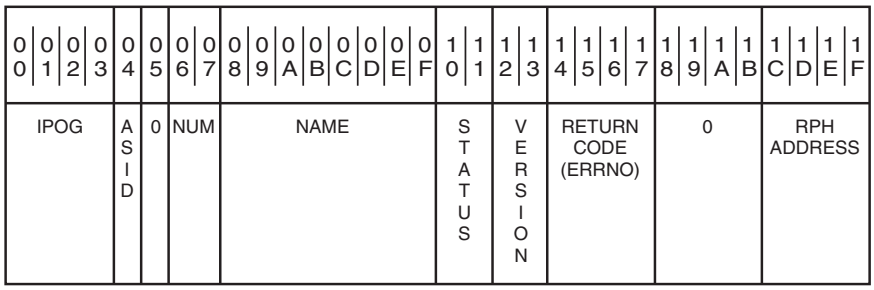
VIT option:
TCP

Event: getibmopt is called

VIT processing module:
ISTRACIP

Control is returned to:
The module that issued INTRACE macroinstruction

This trace record is written when the getibmopt TCP/IP API function is called.



Byte (hex)
Contents

00–03 Record ID: C"IPOG"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06–07 Number of TCP/IP jobs being reported

08–0F TCP/IP job name

10–11 Status of the job (stack)

12–13 Version of the job (stack)

04–17 Return code (ERRNO)

18–1B 0

1C–1F Request parameter header (RPH) address

IPO2 entry for getibmopt call (Part 2)

Entry: IPO2

VIT option:
TCP

Event: getibmopt is called (Part 2)

VIT processing module:
ISTRACIP

This trace record is a continuation of the IPOG entry. It contains information about the additional TCP/IP jobs.

00 01 02 03	04 05 06 07 08 09 0A 0B	0C 0D	0E 0F	10 11 12 13 14 15 16 17	18 19	1A 1B	1C 1D 1E 1F
IPO2	NAME1	STATUS1	VERSION1	NAME2	STATUS2	VERSION2	0

Byte (hex)
Contents

00–03 Record ID: C"IPO2"

04–0B TCP/IP job name 1

0C–0D
Status of the job 1

0E–0F Version of the job 1

10–17 TCP/IP job name 2

18–19 Status of the job 2

1A–1B Version of the job 2

IPTC entry for altering an Enterprise Extender timer FSM state

Entry: IPTC

VIT option:
TCP

Event: Alteration of a timer FSM state

VIT processing module:
ISTRACIP

Control is returned to:
The module that issued the INTRACE macroinstruction

This trace record is written when the current state of an Enterprise Extender timer changes.

00 01 02 03	04	05	06	07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
IPTC	ASID	0	OLD STATE	NEW STATE	TIME STAMP	NUMBER OF TIMERS ON CLOCK	NUMBER OF LIVENESS TIMERS	NUMBER OF TIMERS ON LATE QUEUE	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"IPTC"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Old Enterprise Extender clock state

- **P** Pending stop
- **R** Running
- **S** Stopped

07 New Enterprise Extender clock state

- **P** Pending stop
- **R** Running
- **S** Stopped

08–0F Time stamp of IPTC entry

10–13 Total number of timers currently on the Enterprise Extender clock

14–17 Number of liveness timers on the Enterprise Extender clock

18–1B Number of timers on the late queue

1C–1D
Request parameter header (RPH) address

IPTM entry for Enterprise Extender timer operation

Entry: IPTM

VIT option:
TCP

Event: Timer set or canceled

VIT processing module:
ISTRACIP

Control is returned to:
The module that issued the INTRACE macroinstruction

This trace record is written when an Enterprise Extender timer is set or canceled.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
IPTM				ASID	0	TYPE	S/C	DURATION OR 0				NCB ADDRESS				TIMER BLOCK ADDRESS				FLAGS	0		ISSUING MODULE NAME					RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"IPTM"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Timer type

T1 Short request

TL Liveness

07 Function

S Set

C Cancel

08–0B Request timer duration (seconds)

0C–0F NCB address

10–13 Timer block address

14 Timer block flags:

Bit **Meaning**

xx.. ....
Timer type.

..1. ....
Timer block is on a CLK slot.

...1 ....
Timer block on IP timer block queue.

.... 1...
Timer block is on the late queue.

.... .1..
Timer block is marked cancel.

.... ..xx
Available.

15–16 0

17–1B Name of module setting or canceling the timer

1C–1F Request parameter header (RPH) address

IRBD entry for IRB dispatch

Entry: IRBD

VIT option:
PSS

Event: IRB dispatch

VIT processing module:
ISTRACPS

Control is returned to:
ISTAPCIE

This trace record provides information when an interrupt request block (IRB) is dispatched. See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures to determine what document contains a map of the TCB.

Note: For this trace record to be created, in addition to specifying the PSS option you must specify IRB or BOTH on the PSSTRACE start option.

00 01 02 03	04	05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D	1E 1F
IRBD	ID	0	PST ADDRESS	PST SYNC TPPOSTD QUEUE	PST SYNC NORMAL QUEUE	IRB ADDRESS	TCB ADDRESS	FLG1	0

Byte (hex)
Contents

00–03 Record ID: C"IRBD"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0B PST address

0C–0F PST synchronous TPPOSTed queue anchor (PSTSTPP)

10–13 PST synchronous normal queue anchor (PSTSNRM)

14–17 IRB address (TCBRBP)

18–1B TCB address (PSTTCBA)

1C–1D
PST flags (PSTFLG1)

1E–1F 0

IRBX entry for IRB exit

Entry: **IRBX**

VIT option:
PSS

Event: IRB exit

VIT processing module:
ISTRACPS

Control is returned to:
ISTAPCSD

This trace record provides information about an IRB exit.

Note: For this trace record to be created, in addition to specifying the PSS option you must specify IRB or BOTH on the PSSTRACE start option.

00 01 02 03	04	05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
IRBX	ID	0	PST ADDRESS	NEW TCB ADDRESS	OLD TCB ADDRESS	NEW ASCB ADDRESS	OLD ASCB ADDRESS	IRB ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"IRBX"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0B PST address

0C–0F New TCB address

10–13 Old TCB address

14–17 New ASCB address

18–1B Old ASCB address

1C–1F IRB address

IUTx entry for IUT processing (Part 1)

Entry: IUTC, IUTD, IUTF, IUTI, IUTM, IUTQ, IUTR, IUTS, or IUTX

VIT option:
CIA

Event: IUT processing (Part 1)

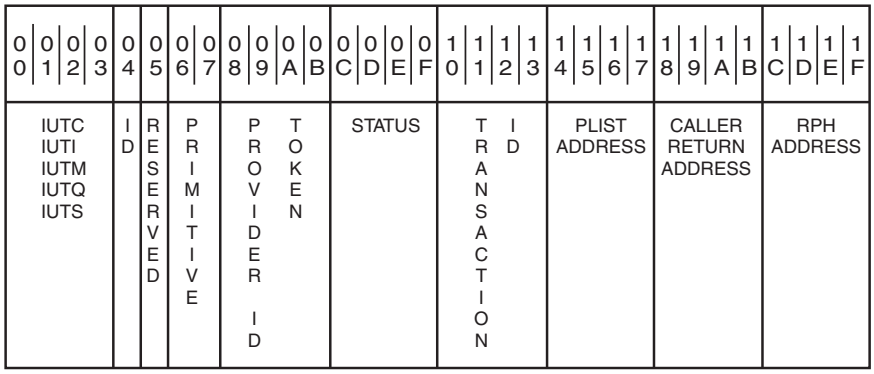
VIT processing module:
ISTRACCI

Control is returned to:

Module invoking the INTRACE macroinstruction that caused the record to be produced.

This trace record is written when an IUT process occurs. All CM-to-CM traffic is traced. On other sessions, only signaling traffic is traced.

IUTC, IUTI, IUTM, IUTQ, and IUTS mapping and field descriptions



Byte (hex)

Contents

00–03 Record ID:

- C"IUTC" for CONFIRM
- C"IUTI" for INDICATE
- C"IUTM" for IMMEDIATE
- C"IUTQ" for REQUEST
- C"IUTS" for RESPONSE

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Primitive type and category

Bit **Primitive Type**

B'0000 ....'
REQUEST

B'0001'
IMMEDIATE

B'1100 ....'
CONFIRM

B'0100 ....'
INDICATE

B'1000 ....'
RESPONSE

Bit **Category**

B'.... 0001'
Connection Manager

B'.... 0011'
Data Manager

07 Primitive Function

- When category in byte 06 is Connection Manager:

  X'0D' Activate SAP

  X'0E' Deactivate SAP

  X'10' Call Setup

  X'11' Call Clear

  X'12' Call Connect

  X'14' Call Status

  X'16' Enable IC

  X'18' Disable IC

  X'1A' Call Control

- When category in byte 06 is Data Manager:

  X'60' DMAct SAP

  X'63' Message Unit Data

  X'67' Message Data

08–0B Provider ID (TOKEN)

0C–0F If REQ or IND, address of PLIST list or 0. If CNF or RSP, status. See z/OS Communications Server: IP and SNA Codes for more information about DLC status codes.

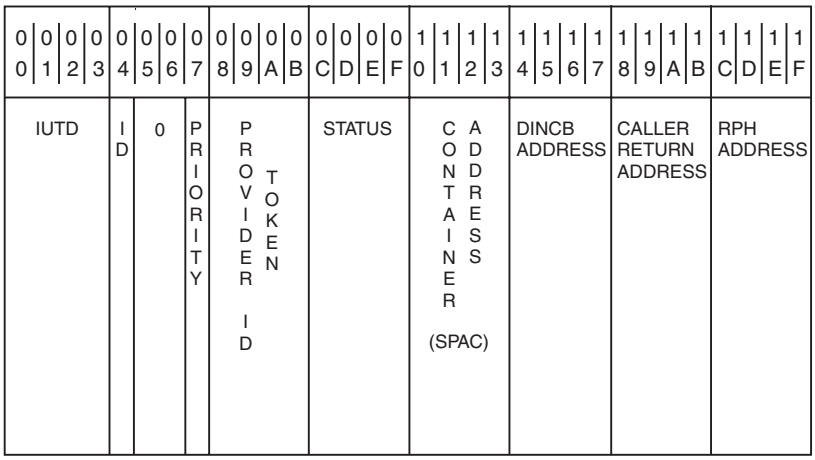
10–13 Transaction ID

14–17 PList (Parameter List) address

18–1B Return address of caller

1C–1F Request parameter header (RPH) address

IUTD mapping and field descriptions



Byte (hex)
Contents

00–03 Record ID: C"IUTD" for OSA-Express QDIO or HiperSockets

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–06 0

07 Priority

08–0B Provider ID (TOKEN)

0C–0F Status. See the z/OS Communications Server: IP and SNA Codes for more information about DLC status codes.

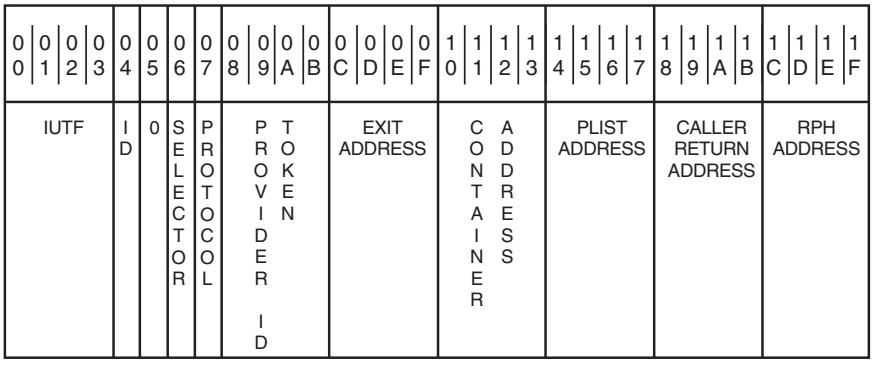
10–13 0

14–17 DINCB address

18–1B Return address of caller

1C–1F Request parameter header (RPH) address

IUTF mapping and field descriptions



Byte (hex)
Contents

00–03 Record ID: C"IUTF" for free PList

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Selector (see IUT2 record for selector values)

07 Protocol (see IUT2 record for protocol values)

08–0B Provider ID (TOKEN)

0C–0F Exit address

10–13 Container address (TIPAC)

14–17 PList (parameter list) address

18–1B Caller of utility routine (caller of ISTTSCUD)

1C–1F Request parameter header (RPH) address

IUTR mapping and field descriptions

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
I U T R				I D	0	S T A T U S		P R O V I D E R		I D T O K E N		RUNCB ADDRESS				CONTAINER ADDRESS								CALLER RETURN ADDRESS				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"IUTR" for IUTIL-R call

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 X'00'

06–07 The low-order 2 bytes of the IUTIL Status field

08–0B Provider ID (TOKEN)

0C–0F RUNCB address

10–17 Container address (PSAC)

18–1B Caller of utility routine

1C–1F Request parameter header (RPH) address

IUTX mapping and field descriptions

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
IUTX				ID	DLC TYPE	FUNCTION		DQA ADDRESS or PLAC ADDRESS or SMRQA ADDRESS				NCB ADDRESS				RETURN ADDRESS				ELEMENT COUNT				CALLED EXIT ADDRESS				THREAD ADDRESS or RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"IUTX" for exit call

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 DLC type:
- C'Q' for QDIO
- C'S' for Shared Memory Communications over Remote Direct Memory Access (SMC-R)

06–07 Function:
- C'WC' for write completion exit
- C'RC' for read completion exit

08–0B DQA address, PLAC address, or SMRQA address:
- If DLC type is 'Q', the DQA address
- If DLC type is 'S' and Function is 'RC', the first PLAC address that is being delivered to the TCP/IP stack
- If DLC type is 'S' and Function is 'WC', the SMRQA address

0C–0F NCB address that is associated with IUTIL processing:
- If DLC type is 'Q', this is a DINCB address
- If DLC type is 'S', this is an RUNCB address

10–13 INTRACE invoker

14–17 Number of elements on queue

18–1B Exit address

1C–1F Thread address or request parameter header (RPH) address:
- If DLC type is 'Q', the thread value or 0
- If DLC type is 'S', the RPH address

IUT2 entry for IUT processing (Part 2)

Entry: IUT2

VIT option:
CIA

Event: IUT process (Part 2)

VIT processing module:
ISTRACCI

This trace record is a continuation of the IUTx trace record. It will not follow IUTD, IUTF, or IUTX records.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
IUT2				SELECTOR		PROTOCOL		INTERPRETER ID				USER ID TOKEN				CONTAINER ADDRESS (TIPAC)								RNAME (TRLE NAME)							
																								REQUEST CORRELATOR							

Byte (hex)
Contents

00–03 Record ID: C"IUT2"

04 Selector

X'00' RM

X'01' PTP

X'02' ATM

X'03' Samehost

X'81' CDLC

X'82' CLAW

X'83' CTC

X'84' LCS

X'85' Hyperchannel

05 Protocol

X'01' APPN

X'03' TCP/IP

X'04' UDP SAP support

X'05' X25

X'07' FastUdp

X'7E' Connection Manager

06–07 Interpreter ID (EBCDIC data)

ID **Interpreter**

SP IUTLLCSP

IO IUTLLCIO

II IUTLLCII

IS ISTALCIS

DP IUTLLCDP

IX IUTLLCIX

IY IUTLLCIY

SR IUTLLCSR

XC IUTLLCXC

XD IUTLLCXD

08–0B User ID token

0C–0F Container address (TIPAC)

10–17 RName (TRLE Name)

18–1F Request correlator

IUT3 entry for IUT processing (Part 3)

Entry: IUT3

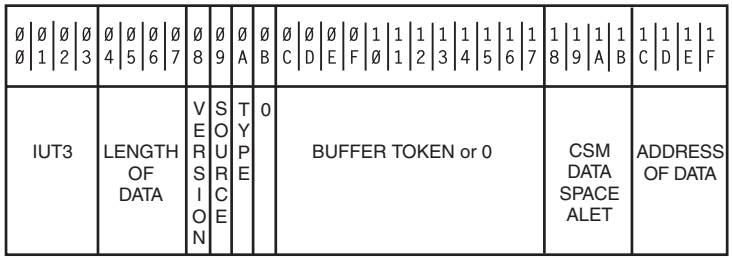
VIT option:
CIA

Event: IUT process (Part 3)

VIT processing module:
ISTRACCI

Control is returned to:
The module that issued the INTRACE macroinstruction

This trace record is a continuation of the IUTx trace record.



Byte (hex)
Contents

00–03 Record ID: C"IUT3"

04–07 Length of data

08 Version of CSM buffer descriptor

09 Buffer Source

80 ECSA

40 Data space

20 User data space

10 User storage other than a data space

0A Buffer type

80 Fixed

40 Pageable

20 Eligible to be made pageable

0C–17 Buffer token or 0

18–1B CSM data space ALET

1C–1F Address of data

LCSx entry for LAN channel station error (Part 1)

Entry: LCSL, LCSP, LCSS, or LCSX

VIT option:
LCS

Event: LAN channel station error (Part 1)

VIT processing module:
ISTRACLS

Control is returned to:
The module that issued the INTRACE

If the LCS trace option is specified, an LCSX trace record is created for *every* data frame VTAM receives from or sends to an IBM 3172 Interconnect Nways Controller.

If the VIT is active and VTAM receives a frame that is not valid from an IBM 3172 Interconnect Nways Controller, an LCSL, LCSP, or LCSS trace record is created depending on the following error conditions.

- The LCSL trace record is created when VTAM receives link-related data that is not valid.
- The LCSP trace record is created when VTAM receives adapter-related data that is not valid.
- The LCSS trace record is created when VTAM receives SAP-related data that is not valid.

Note: These records are created as an exception condition.

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C	1D	1E	1F
LCSL LCSP LCSS LCSX	ID	DIR	ADAP	TYPE	DEVICE	CB ADDRESS	REQUEST MODULE ABBREV NAME	DATA LENGTH	DATA ADDRESS	STATE	CODE	RVI	0

Byte (hex)
Contents

00–03 Record ID:

C"LCSL" for information about a link

C"LCSP" for information about an adapter

C"LCSS" for information about an SAP

C"LCSX" for information about a channel

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Direction

•

Code	Meaning
C"I"	Data received inbound
C"O"	Data sent outbound

06 Adapter number

07 Adapter type

0 = Control communication

2 = 802.5 (token-ring)

4 = CSMA/CD–802.3

5 = 802.4 (token-bus), MAP 3.0

6 = FDDI (fiber distributed data interface)

08–0B Channel device name in EBCDIC (either a device address or device number)

0C–0F Control block address

- For LCSL, address of LSNCB
- For LCSP, address of PRTCB
- For LCSS, address of SAPCB
- For LCSX, address of XCNCB

10–13 Requesting module abbreviated name

14–17 Data length

18–1B Data address

1C FSM state

For LCSL:

00 Nonswitched/switched reset

01 Nonswitched add SAP User

02 Nonswitched delete SAP user

03 Nonswitched pending deallocation

04 Nonswitched link active

05 Nonswitched open station

06 Nonswitched test local

07 Nonswitched test global

08 Nonswitched negotiable

09 Nonswitched primary

0A Nonswitched connect requested

0B Nonswitched pending connect indication

0C Nonswitched station active

0D Nonswitched close station

81 Switched add SAP user

82 Switched delete SAP user

83 Switched pending deallocation

84 Switched link active

85 Switched inbound answer any

86 Switched inbound poll pending

87 Switched inbound XID pending

88 Switched inbound pending contact

89 Switched inbound open station

8A Switched outbound answer specific

8B Switched outbound open station

8C Switched outbound test local

8D Switched outbound test global

8E Switched outbound XID pending

8F Switched outbound XID3 pending

90 Switched outbound pending contact

91 Switched pending abandon connection

92 Switched pending abandon connection out

93 Switched pending abandon connection, no station

94 Switched pending abandon connection out, no station

95 Switched close station

96 Switched answer off

97 Switched negotiable 1

98 Switched negotiable 2

99 Switched negotiable 3

9A Switched primary

9B Switched secondary

9C Switched connect requested

9D Switched pending connect indication

9E Switched station active

9F Switched inbound XID negotiation-preceding pending

For LCSP:

00 Reset

01 Add channel user pending

02 Adapter enable pending

03 Active

04 Adapter disable pending

05 Delete channel user pending

06 Inoperative

07 Blocked

For LCSS:

00 Reset

01 Add port user pending

02 Add SRM entry pending

03 Activate SAP pending

04 Active

05 Deactivate SAP pending

06 Delete SRM entry pending

07 Delete port user pending

08 Inoperative

09 Blocked

For LCSX:

00 Reset state

01 X-side I/O pending

02 Y-SIDE I/O pending

03 Contact wait

04 Contact wait DCM

05 XID7 1 pending

06 XID7 2 pending

07 XID bad pending

08 XID7 1 I/O pending

09 XID7 2 I/O pending

0A XID bad I/O pending

0B Ready

0C Disconnect scheduled

0D HDV pending

0E HDV pending DCM

0F Disconnect pending

1D Reason code

00 Successful.

04 Exit PAB immediately.

08 Entire primitive length is not valid.

0C Buffer allocation failed.

10 Length of primitive header is not valid.

14 Length of data field is not valid.

18 Incorrect target layer identifier.

1C Incorrect identifier type.

24 Correlator ID mismatch.

28 Incorrect parameter list version.

2C Primitive was received in wrong state.

30 Unrecognized primitive code.

34 Incomplete primitive header.

38 User_sap_id provided is not valid.

58 Length of routing vector (if included) is not valid.

5C XID command/response value is not valid.

60 Poll/final indicator is not valid.

64 Unexpected XID type.

68 Negative confirm received.

6C User class is not valid.

70 Flow action value is not valid.

74 SAP is not net manager capable.

78 Not valid for net manager SAP.

7C Vector length field is not valid in adapter-specific overlay.

80 Length of adapter-specific overlay field is not valid.

84 Vector identifier field is not valid.

88 Destination MAC/Destination SAP reporting field is not valid.

8C Identifier (user_sap_id or user_cep_id) is inconsistent with identifier type.

94 Not valid for logon type.

98 Test/XID remote MAC/remote SAP does not match an entry in the SAP user matrix (SUM), and SUM has no “answer any” entries available.

9C Pacing fields are not 0.

A0 Success count not X'FF'.

A4 user_cep_id value not in SAP user matrix (SUM) range or SUM entry not in use or answer mode not specific for SUM entry.

A8 Adapter is inactive.

AC No match in adapter routing table found or incorrect LAN type.

B0 XCNCB 8-byte header error.

B4 XCNCB byte count mismatch.

B8 XCNCB bad primitive offset.

1E RVI

C"N" = route vector not included

C"Y" = route vector included

1F 0

LCS2 entry for LAN channel station error (Part 2)

Entry: LCS2

VIT option:
LCS

Event: LAN channel station error (Part 2)

VIT processing module:
ISTRACLS

This trace record is a continuation of the LCSL, LCSP, LCSS, or LCSX entry.

The VTAM internal trace will generate as many as 31 LCS2 records for the LCSL, LCSP, LCSS, and LCSX entries.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
LCS2				UP TO 28 BYTES OF CHANNEL DATA																											

Byte (hex)
Contents

00–03 Record ID: C"LCS2"

04–1F Up to 28 bytes of channel data

LCSM entry for MACaddress for DATA SEND/RECEIVE

Entry: LCSM

VIT option:
LCS

Event: MACaddress for DATA SEND/RECEIVE

VIT processing module:
ISTRACLS

If the LCS trace option is specified, an LCSM trace record is created for *every* data frame VTAM sends to and receives from an IBM 3172 Interconnect Nways Controller.

The LCSM trace record is created in association with an LCSX entry. However, because these trace entries are created by different component elements, the entries may be separated in the trace by other component traces. For outbound data, the

LCSM entry will appear before the LCSX entry. For inbound data, the LCSM entry will appear following the LCSX entry.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
LCSM				ID	DIR	DESTINATION MACADDRESS						LAN OPR		SOURCE MACADDRESS						INDEX 1				INDEX 2				RPH			ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"LCSM" for information about macaddress

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Direction

Code	Meaning
C"I"	Data received inbound
C"O"	Data sent outbound

06-0B Destination macaddress

0C-0D LAN Operation

Note: It is not required that users of the product know the meaning of this internal VTAM name. When required, the product support organization may use it to assist in internal flow diagnosis.

0E–13 Source MACaddress

14–17 Index 1

Note: It is not required that users of the product know the meaning of this internal VTAM name. When required, the product support organization may use it to assist in internal flow diagnosis.

18–1B Index 2

Note: It is not required that users of the product know the meaning of this internal VTAM name. When required, the product support organization may use it to assist in internal flow diagnosis.

1C–1F Request parameter header (RPH) address

LDLC entry for invoking LDLC

Entry: LDLC

VIT option:
SSCP

Event: Invocation of an LDLC module

VIT processing module:
ISTRACSC

Control is returned to:
The module that issued the INTRACE macroinstruction

This trace record is issued when an LDLC module is invoked.

00 01 02 03	04	05	06	07	08	09 0A 0B 0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
LDLC	ASID	0	DLC TYPE	DESTINATION	CODE	0	RETURN ADDRESS	WORK ELEMENT ADDRESS	MODULE NAME	AUCPL ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"LDLC"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Data length control type:

A ATM

E Enterprise Extender

07 Destination

08 Code

09–0F 0

10–13 Return address of the module that invoked the LDLC

14–17 Work element address

18–1B Name of the LDLC module

1C–1F Address of the ALCPL or AUCPL

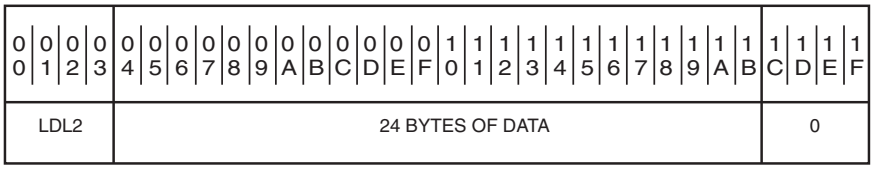
LDL2 entry for invoking LDLC (Part 2)

Entry: LDL2

VIT option:
SSCP

Event: Invocation of an LDLC module Part 2

This trace record is a continuation of an LDLC module. It shows the variable data portion of the control block.



Byte (hex)
Contents

00–03 Record ID: C"LDL2"

04–1B Data

1C–1F 0

LKEX entry for TPLOCK exclusive

Entry: LKEX

VIT option:
LOCK

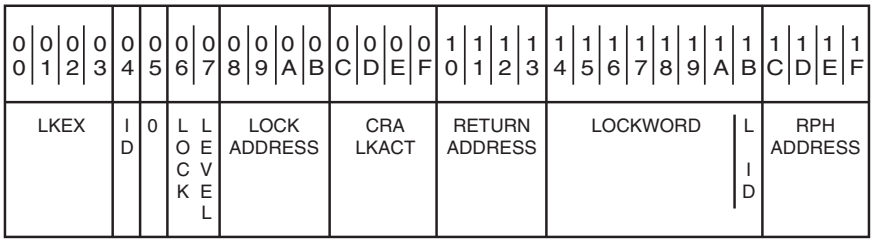
Event: TPLOCK exclusive

VIT processing module:
ISTRACLK

Control is returned to:
ISTAPC36

This trace record identifies a request for exclusive control of a VTAM lock and the status of a lock. Exclusive locks can be held by only one VTAM process. If a WAIT entry immediately follows this entry, it *could* be because a wait-for-lock condition exists. Look at the lockword in the trace output to see if the lock is already held.

Locks obtained by LKEX are eventually released by UNLK or ULKA. See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures for a list of VTAM locks.



Byte (hex)
Contents

00–03 Record ID: C"LKEX"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06–07 Level of lock to be obtained

08–0B Address of lock to be obtained

0C–0F CRA lock account word (CRALKACT)

10–13 Address of the issuer of the TPLOCK macro

14–1A Lockword pointed to by address in bytes 08-0B

1B The LOCK ID field. See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures for a list of VTAM locks.

1C–1F Request parameter header (RPH) address

LKSH entry for TPLOCK shared

Entry: LKSH

VIT option:
LOCK

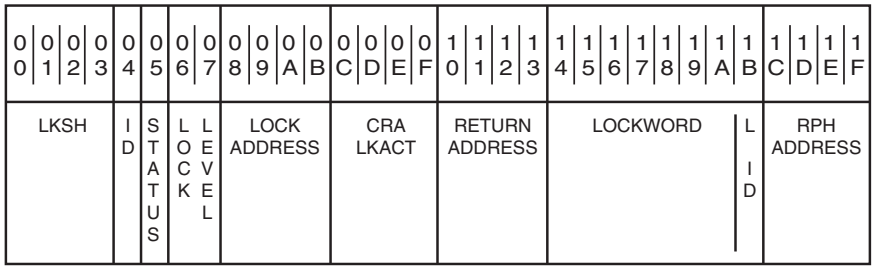
Event: TPLOCK shared

VIT processing module:
ISTRACLK

Control is returned to:
ISTAPC35

This trace record identifies a request for a shared VTAM lock and the status of a lock. Shared locks can be held by more than one VTAM process at a time. If a WAIT entry immediately follows this entry, it may be because a wait-for-lock condition exists. Look at the lockword in the trace output to see if the lock is already held.

Locks obtained by LKEH are eventually released by UNLK or ULKA. See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures for a list of VTAM locks.



Byte (hex)
Contents

00–03 Record ID: C"LKSH"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Indicates lock wait status:

X'00' WAIT

X'80' NOWAIT

06–07 Level of lock to be obtained

08–0B Address of lock to be obtained

0C–0F CRA lock account word (CRALKACT)

10–13 Address of the issuer of the TPLOCK macro

14–1A Lockword pointed to by address in bytes 08-0B

1B The LOCK ID field. See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures for a list of VTAM locks.

1C–1F Request parameter header (RPH) address

LNKx entry

Entry: LNKA, LNKI, LNKL, LNKU, or LNKX

VIT option:
CIA

Event: Change to link use count

VIT processing module:
ISTRACCI

Control is returned to:
The module that issued the INTRACE macroinstruction

This trace record is written when the link use count in the node control block (NCB) is incremented or decremented.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
LNKA LNKI LNKL LNKU LNKX				ID	REASON	ELEMENT	ADDRESS	LINK USE COUNT				NCB ADDRESS				ADDRESS OF CONTROL BLOCK				0				MODULE OR CALLER ADDRESS				NCB	DEPENDENT	DATA	

Byte (hex)
Contents

00–02 Record ID: C"LNK"

03 NCB type:
C"LNKA" for AHNCB
C"LNKI" for ICNCB
C"LNKL" for LDNCB
C"LNKR" for RPNCB

C"LNKU" for AUNCB
C"LNKX" for XCNCB

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Reason for change to use count (DNPFUNC):

- **X'01'** Increment for boundary SLU element address (BLB)
- **X'02'** Increment for boundary PLU element address (BPAT)
- **X'03'** Increment for boundary SNA half-session (BSB)
- **X'04'** Increment for boundary non-SNA half-session (LUST)
- **X'05'** Increment for application half-session (FMCB)
- **X'06'** Increment for rapid transport protocol (RTP) half-session queue
- **X'07'** Increment for rapid-transport protocol (RTP)
- **X'F1'** Decrement for boundary SLU element address (BLB)
- **X'F2'** Decrement for boundary PLU element address (BPAT)
- **X'F3'** Decrement for boundary SNA half-session (BSB)
- **X'F4'** Decrement for boundary non-SNA half-session (LUST)
- **X'F5'** Decrement for application half-session (FMCB)
- **X'F6'** Decrement for line (NCB)
- **X'F7'** Decrement for rapid-transport protocol (RTP) half-session queue
- **X'F8'** Decrement for rapid-transport protocol (RTP)

06–07 Element address (for boundary element address reasons)

08–0B Link use count after the increment or decrement

0C–0F Node control block (NCB) address

10–13 Address of control block associated with the increment or decrement

14–15 0

16–17 Element index value

18–1B Module address or address of the issuer of the TSCDN caller

1C–1F NCB Dependent Data

For LNKU entries:
Represents the number of non-RS (route setup) RTP pipes that originate in this host and traverse this Enterprise Extender connection.

For all other entries:
0

LOST entry for lost trace record

Entry: LOST

VIT option:
None

Event: Lost trace record

VIT processing module:
ISTRACRR

Control is returned to:
The location shown in register 14

This trace record indicates that the internal trace table is incomplete. Information from events that were supposed to be traced was lost because there were not enough save areas available for the tracing routine to record the information.

Byte (hex)
Contents

00–03 Record ID: C"LOST"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0B Register 14 (return address)

0C–1F C"LOST TRACE RECORD"

LSNA entry for local SNA record (Part 1)

Entry: LSNA

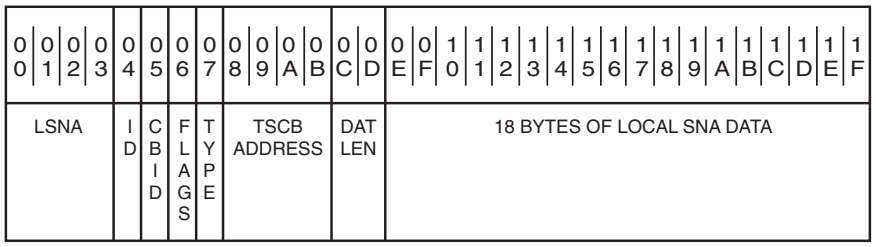
VIT option:
CIA

Event: Read/Write from APPN PU Channel

VIT processing module:
ISTRACCI

Control is returned to:
ISTTSC86

This trace record is written each time data is read or written across an APPN host-to-host channel.



Byte (hex)
Contents

00–03 Record ID: C"LSNA"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Control block ID of work element being written or read across the channel

06 Event Flags

Bit	Meaning
1...	The data unit being traced (FID2 data or control data) is the last data unit in the multipath channel (MPC) transmit block header just received. This bit has meaning only for inbound data.
.1..	This data is control data. If off, this data is normal FID2 data traffic.
..1.	This trace entry contains the beginning of a new PIU/control data. If off, this data unit is the middle or end portion of a PIU. For outbound data, this bit will always be on (only the first part of PIU/Control data outbound is traced).

07 A 1-byte field that indicates the direction of the data unit flow:

•

Code	Meaning
C"I"	Data received inbound
C"O"	Data sent outbound

08–0B TSCB address

0C–0D
Length of data being sent or received

0E–1F This 18-byte field will map as follows:

- For control data
  - The 2-byte QLLC Header (indicating the type of the control data)
  - Up to 16 bytes of the remaining control data
- For FID2 data
  - The 6-byte FID2 TH header
  - A 3-byte RH if it exists
  - Up to 9 bytes of the remaining FID2 data (12 bytes if no RH)

LSN2 entry for local SNA record (Part 2)

Entry: LSN2

VIT option:
CIA

Event: Read/Write from APPN Host PU Channel

VIT processing module:
ISTRACCI

This trace record is a continuation of the LSNA entry. It contains 28 more bytes of data.

Byte (hex)
Contents

00–03 Record ID: C"LSN2"

04–1F Up to 28 more bytes of data

MCO1 entry for MIBConnect (Part 1)

Entry: MCO1

VIT option:
CMIP

Event: MIBConnect called by CMIP application program

VIT processing module:
ISTITCCM

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced

This trace record is generated when a CMIP application program calls the MIBConnect function. The trace record shows the information that is passed from the application program to the MIB controller and from the MIB controller to the application program.

For detailed descriptions of the fields, see z/OS Communications Server: CMIP Services and Topology Agent Guide.

If either the MIBConnect or OPEN ACB return code is not 0, this entry is always traced, regardless of the VIT options specified.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
MCO1				ID	ACBRC	RC		LINK ID				MAXIMIUM OUT-STANDING				APPLICATION NAME OR BLANKS								0				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"MCO1"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Return code from OPEN ACB

06–07 MIBConnect return code

08–0B Link identifier

0C–0F Maximum number of outstanding invoke identifiers

10–17 Application name (padded on the right with blanks) or blanks. This field is blanks if the MIBConnect module cannot obtain storage for local variables.

18–1B 0

1C–1F Request parameter header (RPH) address

MCO2 entry for MIBConnect (Part 2)

Entry: MCO2

VIT option:
CMIP

Event: MIBConnect called by CMIP application program (Part 2)

VIT processing module:
ISTITCCM

This trace record is a continuation of the MCO1 entry and contains additional information that is passed from the application program to the MIB controller and from the MIB controller to the application program.

For detailed descriptions of the fields, see z/OS Communications Server: CMIP Services and Topology Agent Guide.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
MCO2				SMA		SYS OBJ		LEVEL	IDLEN	0		TERMIN EXIT ADDRESS OR 0				READ-Q EXIT ADDRESS OR 0				USER DATA				DATA SPACE NAME							

Byte (hex)
Contents

00–03 Record ID: C"MCO2"

04–05 System management application entity (SMAE) name length on input. This field is X'FFFF' if the value is greater than 65 635.

06–07 System object name length on input. This field is X'FFFF' if the value is greater than 65 635.

08 API level. This field is X'FF' if the value is greater than 255.

09 Local identifier field. This field is X'FF' if the value is greater than 255.

0A–0B 0

0C–0F Termination exit address or 0. If nonzero, this TPEND exit is driven and this field can be used to correlate with the UE1 and UE2 VIT entries.

10–13 Read-queue exit address or 0

14–17 User data

18–1F Data space name, or blanks (if no data space name is provided)

MDEL entry for MIBSendDeleteRegistration

Entry: MDEL

VIT option:
CMIP

Event: MIBSendDeleteRegistration called by CMIP application program

VIT processing module:
ISTITCCM

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced

This trace record is generated when a CMIP application program calls the MIBSendDeleteRegistration function of the CMIP services API to delete the registration of an object. The trace record shows the information that is passed from the application program to the MIB controller and from the MIB controller to the application program.

For detailed descriptions of the fields, see z/OS Communications Server: CMIP Services and Topology Agent Guide.

If the return code is not 0, this entry is always traced, regardless of the VIT options specified.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
MDEL				ID	0	RC		LINK ID				INVOKE ID				LOCAL ID OR 0								DN ADDRESS OR 0				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"MDEL"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06–07 MIBSendDeleteRegistration return code

08–0B Link identifier

0C–0F Invoke identifier. The invoke identifier can be used to correlate this VIT entry with the CMIP message string in the buffer trace.

10–17 Local identifier (padded on the right with zeros) or 0

18–1B Address of distinguished name or 0

1C–1F Request parameter header (RPH) address

MDIS entry for MIBDisconnect

Entry: MDIS

VIT option:
CMIP

Event: MIBDisconnect called by CMIP application program

VIT processing module:
ISTITCCM

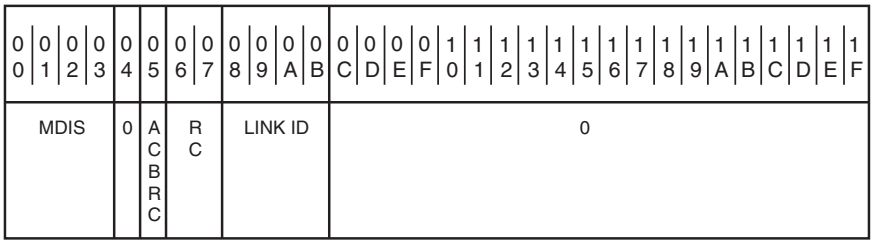
Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced

This trace record is generated when a CMIP application program calls the MIBDisconnect function of the CMIP services API. The trace record shows the information that is passed from the application program to the MIB controller and from the MIB controller to the application program.

Note: If the CMIP application program is internal, such as the VTAM topology agent, the MIBDisconnect function is not traced.

For detailed descriptions of the fields, see z/OS Communications Server: CMIP Services and Topology Agent Guide.

If either the MIBDisconnect or CLOSE ACB return code is not 0, this entry is always traced, regardless of the VIT options specified.



Byte (hex)
Contents

00–03 Record ID: C"MDIS"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Return code from CLOSE ACB

06–07 MIBDisconnect return code

08–0B Link identifier

0C–1F 0

MMG entry for memory management (Part 1)

Entry: MMG

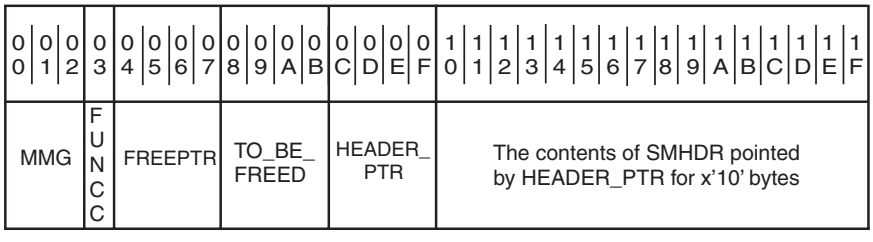
VIT option:
None

Event: ISTORMMG detected an error condition.

VIT processing module:
ISTRACTR

Control is returned to:
ISTORMMG

This entry is written when ISTORMMG detects an overlay in the storage obtain or to be freed queue.



Byte (hex)
Contents

00–02 Record ID: C"MMG"

03 Function code:

1 Running through the single threaded storage obtained queue. The storage management header has invalid information pointed to by FREEPTR.

2 Running through the local TO_BE_FREED queue. The storage management header pointed to by FREEPTR contains invalid information. FREEPTR was copied from TO_BE_FREED.

3 Running through the local TO_BE_FREED queue. The backward pointer has invalid information in its storage management header.

4 Running through the local TO_BE_FREED queue. The forward pointer has invalid information in its storage management header.

04–07 FREEPTR (Address of the storage to be freed)

08–0B Local TO_BE_FREED queue pointer

0C-0F HEADER_PTR (The current storage management header address)

10–1F The contents of SMHDR pointed to by HEADER_PTR

MM2 entry for memory management (Part 2)

Entry: MM2

VIT option:
None

Event: Continuation of MMG trace entry

VIT processing module:
ISTRACTR

00 01 02	03	04 05 06 07 08 09 0A 0B	0C 0D 0E 0F	10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
MM2	FUNCC	0	FREEPTR	The contents of SMHDR pointed by FREEPTR for x'10' bytes OR ZERO

Byte (hex)
Contents

00–02 Record ID: C"MM2"

03 Function code:

1 Running through the single threaded storage obtained queue. The storage management header has invalid information pointed to by FREEPTR.

2 Running through the local TO_BE_FREED queue. The storage management header pointed to by FREEPTR contains invalid information. FREEPTR was copied from TO_BE_FREED.

3 Running through the local TO_BE_FREED queue. The backward pointer has invalid information in its storage management header.

4 Running through the local TO_BE_FREED queue. The forward pointer has invalid information in its storage management header.

04–0B 0

0C-0F FREEPTR (Address of the storage to be freed)

10–1F The contents of SMHDR pointed to by FREEPTR

MNPS entry for MNPS macro

Entry: MNPS

VIT option:
CFS

Event: Multinode persistent session coupling facility access

VIT processing module:
ISTRACCF

Control is returned to:
Module invoking the coupling facility access that caused the record to be produced

This entry is written when VTAM manipulates data in the MNPS coupling facility structure.

00 01 02 03	04	05	06	07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
MNPS	ID	0	FUNCTION	DATA TYPE	MNPS APPLICATION NAME	RETURN ADDRESS	RETURN CODE	ACCESS TOKEN	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"MNPS"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Function request by this invocation of MNPS:

X'01' Read

X'02' Update

X'03' Delete

07 Type of data being updated:

X'01' Application status block (ASB)

X'02' FMCB

X'03' FMCB extension

X'04' BSB

X'05' Inbound CV29

X'06' Outbound CV29

X'07' RTP

X'08' NLP

X'09' LM Table

X'0A' SAB

X'0B' HSICB

08–0F Name of the multinode persistent session application program

10–13 Address of the invoker of the MNPS macro

14–17 Return code from the MNPS macro

18–1B CFS access token

1C–1F Request parameter header (RPH) address

MPDU entry for MPC PDU processing

Entry: MPDU

VIT option:
CIA

Event: Inbound or outbound PDU over high performance data transfer

VIT processing module:
ISTRACCI

Control is returned to:
ISTTSCDP and IUTLLCMB for inbound processing or ISTTSC88 for outbound processing

The MPDU trace record shows outbound and inbound MPC PDU processing of CSM buffers.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
MPDU				ID	0	ML		TLN			F	I	ACT			PDU SEQ				XBUFLST POINTER				PDU HEADER POINTER				RPH POINTER			

Byte (hex)
Contents

00–03 Record ID: C"MPDU"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06–07 PDU moved data length

08–0A PDU total data length

0B PDU header flag byte (See ISTPDHDR - PDHFLAGS)

0C Protocol ID (See ISTPDHDR - PDHPID)

0D–0F PDU route action word

- **OSD** Outbound data
- **IRS** A PDU is routed to MPC DLC user.
- **IRG** A PDU is routed to MPC DLC user with queued PDUs.
- **ICF** The first M2A wait entry is created with the PDU.
- **ICA** A PDU is queued to a new M2A entry. The new M2A entry has a backward chain to an existing M2A entry.
- **ICB** A PDU is queued to a new M2A entry. The new M2A entry has a forward chain to an existing M2A entry.
- **IEE** Enterprise extender input.
- **IQH** A PDU is queued to a head of the M2A entry.
- **IQT** A PDU is queued to a tail of the M2A entry.
- **IQC** A PDU is queued to M2A entry. Two M2A entries are combined into one M2A.
- **IDP** A duplicate PDU is discarded.
- **ICT** Connection termination is requested.
- **OEE** Enterprise extender output.

10–13 PDU sequence number or X'00000000' for CNLS PDU

14–17 Address of the first ISTXBFLST

18–1B Address of the PDU header

1C–1F Address of VTAM RPH

MPD2 entry for MPC PDU processing

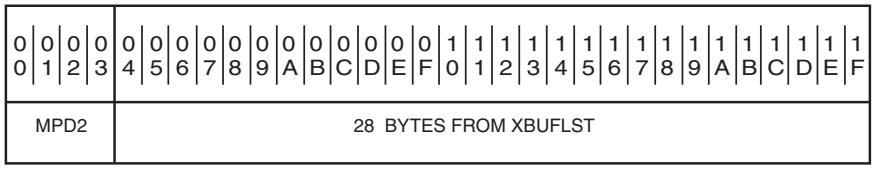
Entry: MPD2

VIT option:
CIA

Event: Inbound or outbound PDU over high performance data transfer

VIT processing module:
ISTRACCI

This trace record is a continuation of the MPDU trace record. Up to three MPD2 trace records follow an MPDU trace record, each containing 28 bytes of data from the extended buffer list (XBUFLST) associated with this PDU.



Byte (hex)
Contents

00–03 Record ID: C"MPD2"

04–1F 28 bytes of data from the extended buffer list (XBUFLST) associated with this PDU

MQRQ or MQRS entry for MIBSendRequest or MIBSendResponse

Entry: **MQRQ** or **MQRS**

VIT option:
CMIP

Event: MIBSendRequest or MIBSendResponse called by CMIP application program

VIT processing module:
ISTITCCM

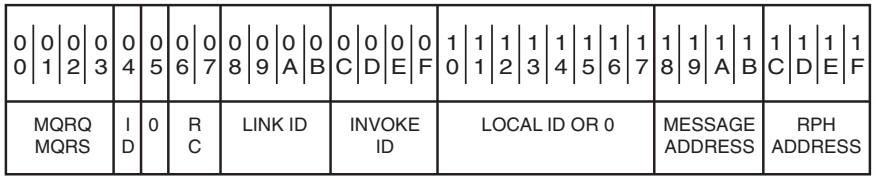
Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced

The MQRQ is generated when a CMIP application program calls the MIBSendRequest function of the CMIP services API to send a request. The MQRS is generated when a CMIP application program calls the MIBSendResponse function of the CMIP services API to send a response. The trace record shows the information that is passed from the application program to the MIB controller and from the MIB controller to the application program.

For detailed descriptions of the fields, see z/OS Communications Server: CMIP Services and Topology Agent Guide.

If the return code is not 0, this entry is always traced, regardless of the VIT options specified.

Note: Calls to MIBSendCmipRequest and MIBSendCmipResponse functions also generate these trace records, but there is not a one-to-one correspondence.



Byte (hex)
Contents

00–03 Record ID:
C"MQRQ" for MIBSendRequest
C"MQRS" for MIBSendResponse

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06–07 MIBSendRequest or MIBSendResponse return code

08–0B Link identifier

0C–0F Invoke identifier. The invoke identifier can be used to correlate this VIT entry with the CMIP message string in the buffer trace.

10–17 Local identifier (padded on the right with zeros) or 0

18–1B Address of the message

1C–1F Request for parameter header (RPH) address

MREG entry for MIBSendRegister

Entry: MREG

VIT option:
CMIP

Event: MIBSendRegister called by CMIP application program

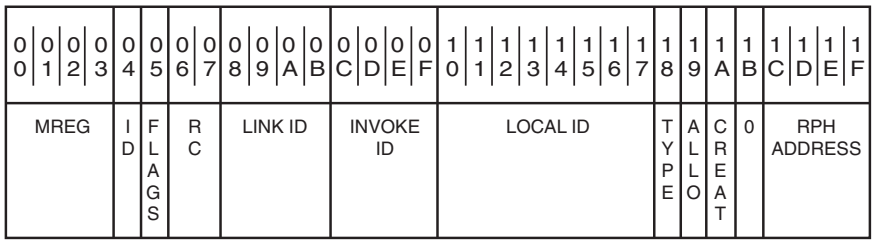
VIT processing module:
ISTITCCM

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced

This trace record is generated when a CMIP application program calls the MIBSendRegister function of the CMIP services API to register an object. The trace record shows the information that is passed from the application program to the MIB controller and from the MIB controller to the application program.

For detailed descriptions of the fields, see z/OS Communications Server: CMIP Services and Topology Agent Guide.

If the return code is not 0, this entry is always traced, regardless of the VIT options specified.



Byte (hex)
Contents

00–03 Record ID: C"MREG"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Capability flags. This field is X'FF' if the value is greater than 255.

Bit **Meaning**

.... ..1.
Reserved

....1
Subtree handler

06–07 MIBSendRegister return code

08–0B Link identifier

0C–0F Invoke identifier. The invoke identifier can be used to correlate this VIT entry with the CMIP message string in the buffer trace.

10–17 Local identifier (padded on the right with zeros)

18 Name type. This field is X'FF' if the value is greater than 255.

19 Allomorphs count. This field is X'FF' if the value is greater than 255.

1A Create handlers count. This field is X'FF' if the value is greater than 255.

1B 0

1C–1F Request parameter header (RPH) address

MRG entry for updates to the VTAM topology agent (Part 1)

Entry: **MRG**

VIT option:
CMIP

Event: Resource updates sent to VTAM topology agent

VIT processing module:
ISTITCCM

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced

This trace record is generated when the VTAM topology agent receives updates from VTAM for changes in VTAM resources.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
MRG			OBJ TYPE	ID		0	FLAGS	0	NAME OF RESOURCE CAUSING THE INCOMING UPDATE							IREASON	PREASON	IAVC	PAVC	IOBJPRE		POBJPRE		NUMMERG	WORKAREA	TYPEREQ	0	RPH ADDRESS			

Byte (hex)
Contents

00–02 Record ID: C"MRG"

03 Object type. The type of resource causing the incoming update.

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Action performed because of the incoming update.

Bit **Meaning**

1... ....
The incoming update is waiting to be merged with older updates before it is sent in a CMIP message.

.1.. ....
The incoming update is merged with older updates for resources that own the resource that caused this incoming update.

..1. ....
The incoming update is merged with older updates for the same resource that caused the incoming update.

...1 ....
The resource causing the incoming update has a different vertex 1 from the older, existing update for the same resource. This bit has meaning only when bit 2 is on.

.... 1...
The vertex 1 or line of the older, existing update is the resource that caused the incoming update. This bit has meaning only when bit 3 is on.

.... .1..
An older, existing update is sent before the incoming update because the incoming update cannot be merged with the older update.

.... ..00
Event report or notification

.... ..01
SNAlocaltopology

.... ..10
LUcollection

.... ..11
SNAnetwork

07 0

08–0F Name of the resource causing the incoming update

10 Reason for the incoming update

11 Reason for the older, existing update, if there is one

12 Change in attribute value caused by the incoming update

13 Change in attribute value caused by the older, existing update, if there is one

14–15 Object flags indicated on the incoming update

16–17 Object flags indicated on the older, existing update, if there is one

18 The number of times resource updates for this particular resource were merged before the incoming update is processed. This number does not include the merges that occurred for resources that own this particular resource.

19 Workarea flags

1A Flags contained in the Agent Support Request Mapping control block

1B 0

1C–1F Request parameter header (RPH) address

MRG2 entry for updates to the VTAM topology agent (Part 2)

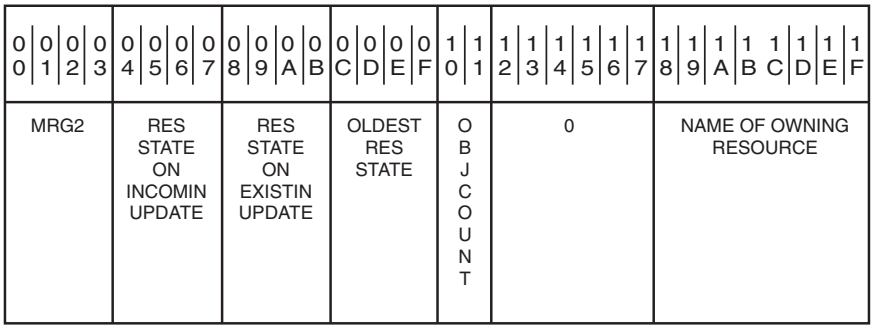
Entry: MRG2

VIT option:
CMIP

Event: Resource updates sent to VTAM topology agent

VIT processing module:
ISTITCCM

This trace record is a continuation of the MRG entry.



Byte (hex)
Contents

00–03 Record ID: C"MRG2"

04–07 New state of the resource that caused the incoming update

08–0B New state of the resource that caused the incoming update, as indicated on the older, existing update, if there is one

0C–0F Oldest state of the resource causing the incoming update. If there is an older, existing update, this is the old state specified on the update that is waiting. Otherwise, this is the old state of the resource causing the incoming update.

10–11 Object count on the incoming update

12–17 0

18–1F Value depends on type of update:

Type of Update
Value

Event report or notification
0

SNAnetwork
Name of the vertex 1

LUcollection
Name of the PU for which LUcollection is requested

SNAlocaltopology
Name of the vertex 1. If the incoming update is merged with an older, existing update for a resource that owns the resource causing the incoming update, this is the name of the owning resource.

MSG entry for message issued

Entry: MSG

VIT option:
MSG

Event: Message issued (Part 1)

VIT processing module:
ISTRACOT

Control is returned to:
ISTCFCTM

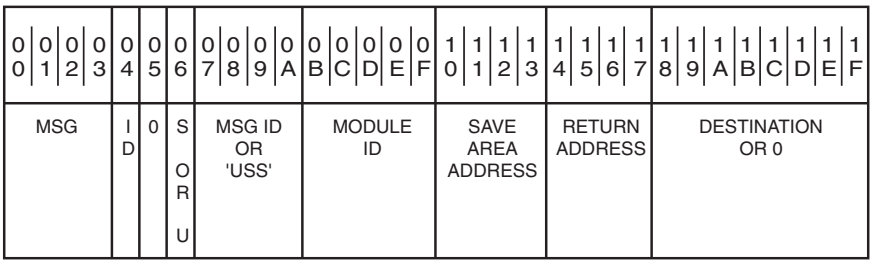
This trace record is written each time a message is issued by a VTAM module. You can use it to find the originator of a message and to see whether the message was solicited or unsolicited.

MSG trace entries are generated for all messages, even those that are suppressed by message-flooding prevention. MSG trace entries thus provide information that may be missing from the operator's console.

See z/OS Communications Server: SNA Messages for information about the message flooding prevention. For information about the MODIFY SUPP command, see z/OS Communications Server: SNA Operation. For information about the SUPP start option, see z/OS Communications Server: SNA Resource Definition Reference.

The VTAM Internal Trace (VIT) does not trace the following messages:

- Logon manager messages (beginning with ELM)
- TSO/VTAM messages (beginning with IKT)



Byte (hex)
Contents

00–03 Record ID: C"MSG"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 'S' if the message was solicited (issued in response to a VTAM command); 'U' if the message was unsolicited

07–0A Message ID or 'USS'. If USS, the message ID appears in the variable text field in the MSG2 entry. If message ID, the 4-digit message number (or 3-digit message number and 1-character type code) appears in this field.

0B–0F Issuing module ID (4th, 5th, 6th, 7th, and 8th characters of the issuing module name). See "Using module names to isolate VTAM problems" on page 25 for information about determining the module name from the module ID.

10–13 Save area address

14–17 Address of the CPMSG macro

- If the high-order bit in the return address field is on, CPMSG has been issued from a utility module. The module name and return address are that of the caller of the utility module.
- If the high-order bit in the return address field is off, CPMSG has not been issued from a utility module. The module name and return address are that of the module that issued the CPMSG.

18–1F Destination

- If byte 06 is **S**, this field contains one of the following items:

  SYSTEM*xx*
  xx is the ID of the system console.

  NLDM
  Message is destined for the session monitor component of the NetView program or NLDM.

  URC Message is to be sent to the system console using routing codes, instead of to one console in particular.

  POA Message is to be sent to a program operator application (POA) and the POA name is not available yet.
- If byte 06 is **U**, this field is 0

MSGS entry for message sent (Part 1)

Entry: MSGS

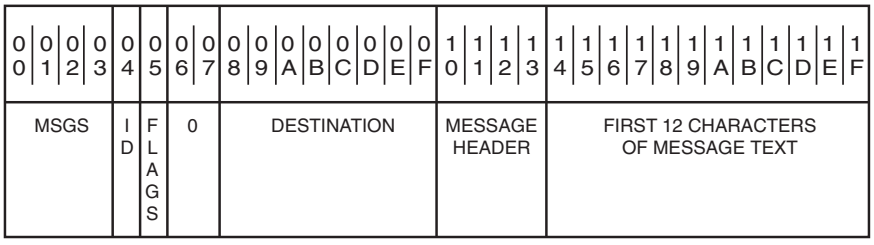
VIT option:
MSG

Event: Message sent (Part 1)

VIT processing module:
ISTRACOT

Control is returned to:
ISTLUCRC or ISTMSCCN

This trace record is written each time VTAM sends a message to its destination. It can be used to correlate the console log with the internal trace. The destination may indicate that the message was sent to a system console (by way of a WTO macro) or to a program operator application, such as the NetView program (by way of an RCVCMD macro).



Byte (hex)
Contents

00–03 Record ID: C"MSGS"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Message suppression indicator

0 Message not suppressed.

1 Message was suppressed.

06–07 0

08–0F Destination. If **SYSTEMxx**, the message was sent to system console **xx**, by a WTO macro. If an application name, the message was sent to a program operator application, by an RCVCMD macro.

10–13 Message header (in hex). If destination is **SYSTEMxx**, this will be the WPL header. If destination is a program operator application, this will be a program operator header (ISTDPOHD).

14–1F First 12 characters of the message text. If the message text is longer than 12 characters, it will continue in the MSG2 entry.

MSG2 entry for message sent (Part 2)

Entry: MSG2

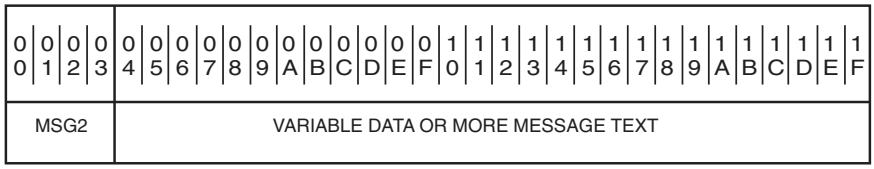
VIT option:
MSG

Event: Message issued or message sent (Part 2)

VIT processing module:
ISTRACOT

This trace record is a continuation of the MSG or MSGS trace record. It contains variable data for the MSG entry, or more message text for the MSGS entry.

Up to two MSG2 entries can follow the MSG entry; however, only one MSG2 entry can follow the MSGS entry.



Byte (hex)
Contents

00–03 Record ID: C"MSG2"

04–1F Variable data, or more message text

MT entry for module trace

Entry: MT

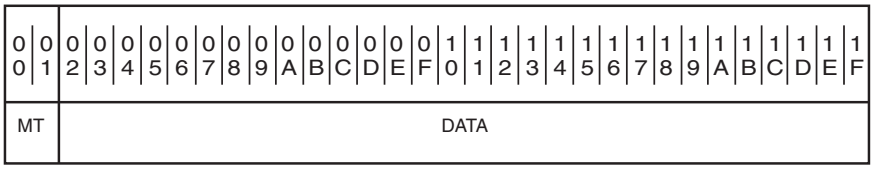
VIT option:
SSCP

Event: Module trace detects full data buffer

VIT processing module:
ISTRACOT

Control is returned to:
ISTITCTR

This trace record is written when the module trace detects a full data buffer.



Byte (hex)
Contents

00–01 Record ID: C"MT"

02–1F Data

MU1 entry for LU 6.2 message unit (Part 1)

Entry: MU1

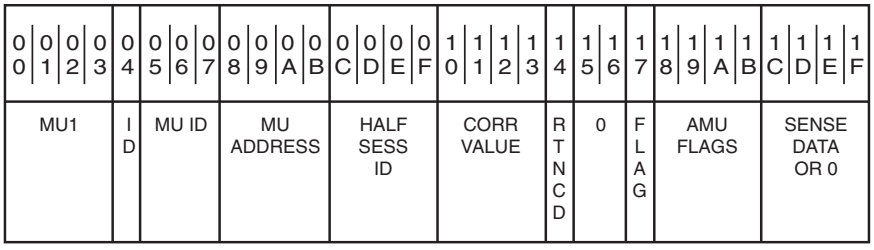
VIT option:
APPC

Event: LU 6.2 message unit (Part 1)

VIT processing module:
ISTRACAC

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced

This trace record shows information about an LU 6.2 message unit. It is generated whenever a message unit is queued to another component.



Byte (hex)
Contents

00–03 Record ID: C"MU1"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 Message unit ID

X'010101' (END_CONVERSATION)
X'010102' (SESSION_FLOW_RESUMED)
X'010103' (FLUSH_DATA)
X'010104' (RESUME_PS_HS_FLOW)
X'010201' (PS_COPR_FMH5_RCVD)
X'010301' (SEND_EXPEDITED_DATA)
X'010302' (CONFIRMED)
X'010303' (REQUEST_TO_SEND)
X'010304' (SEND_DATA_RECORD)
X'010305' (SEND_ERROR)
X'010306' (SEND_PACING_RSP)
X'010307' (RSP_TO_EXPEDITED_DATA)
X'010501' (ALLOCATE_RCB)
X'010502' (DEALLOCATE_RCB)
X'010503' (GET_SESSION)
X'010504' (UNBIND_PROTOCOL_ERROR)
X'010505' (REJECT_SESSION)
X'010506' (SUSPEND_SESSION)
X'010507' (RESUME_SESSION)
X'010701' (ATTACH_TP)
X'010702' (END_XP)
X'020101' (CNOS_ABORT)
X'020201' (CNOS_CLEANUP)
X'020501' (CNOS_COMPLETE)
X'020502' (CHANGE_SESSIONS)
X'030101' (RECEIVE_EXPEDITED_DATA)
X'030102' (CONFIRMED)
X'030103' (REQUEST_TO_SEND)
X'030104' (RECEIVE_DATA)
X'030105' (RECEIVE_ERROR)
X'030106' (PACING_RSP_RCVD)
X'030107' (RSP_TO_REQUEST_TO_SEND)
X'030108' (INITIAL_PACING_COUNT)
X'030109' (DEALLOCATE_ABEND_REJECTED)
X'030401' (ABORT_HS)
X'030501' (ATTACH_HEADER)
X'030502' (FREE_SESSION)
X'030503' (BID)
X'030504' (BID_RSP)
X'030505' (BIS_RQ)
X'030506' (BIS_REPLY)
X'030507' (RTR_RQ)
X'030508' (RTR_RSP)
X'030509' (SECURITY_HEADER)
X'040101' (RESTORE_SESSION)
X'040401' (LOAD_PROFILES)
X'040402' (RSP_LOAD_PROFILES)
X'040403' (DELETE_PROFILES)
X'040501' (SESSION_ACTIVATED)
X'040502' (SESSION_DEACTIVATED)
X'040503' (ACTIVATE_SESSION_RSP)

X'040504' (CTERM_DEACTIVATE_SESSION)
X'040505' (LNS_LRM_FREE_AMU)
X'050101' (RCB_ALLOCATED)
X'050103' (SESSION_ALLOCATED)
X'050104' (ATTACH_RECEIVED)
X'050105' (CONVERSATION_FAILURE)
X'050106' (SESSION_REJECTED)
X'050107' (SESSION_SUSPENDED)
X'050108' (SESSION_RESUMED)
X'050109' (RESUME_SESSION_FLOW)
X'050301' (HS_PS_CONNECTED)
X'050302' (YIELD_SESSION)
X'050303' (BID_WITHOUT_ATTACH)
X'050304' (BID_RSP)
X'050305' (BIS_RQ)
X'050306' (BIS_REPLY)
X'050307' (RTR_RQ)
X'050308' (RTR_RSP)
X'050309' (ENCIPHERED_RD2)
X'050401' (ACTIVATE_SESSION)
X'050402' (DEACTIVATE_SESSION)
X'060201' (MODIFY_CNOS)
X'060202' (MODIFY_DEFINE)
X'060203' (DISPLAY_CNOS)
X'060204' (DISPLAY_LUS)
X'060205' (DISPLAY_MODES)
X'060206' (DISPLAY_CONVS)
X'060401' (MODIFY_PROFILES)
X'070101' (TERMINATE_TP)
X'070301' (SEND_1WAY_FASTPATH)
X'080401' (REQ_LOAD_PROFILES)

08–0B Message unit address

0C–0F Half session ID

10–13 Address of correlator value

14 LU 6.2 message unit return code (AMURETCD)

15–16 0

17 Flag byte to indicate that the message unit contains an extended buffer list (bit 7)

18–1B LU 6.2 message unit flags (AMUFLAGS)

1C–1F LU 6.2 message unit sense data (AMUSENSE) or 0

MU2 entry for LU 6.2 message unit (Part 2)

Entry: MU2

VIT option:
APPC

Event: LU 6.2 message unit (Part 2)

VIT processing module:
ISTRACAC

This trace record is a continuation of the MU1 trace record.

00 01 02 03	04	05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15	16 17	18 19 1A 1B	1C 1D 1E 1F
MU2	0	MU ID	DATA ADDRESS OR 0	DATA LENGTH OR 0	RAB ADDRESS OR 0	SES CNT OR 0	SES LIM OR 0	CONV ID OR 0	VARIABLE OVERLAY FIELD

Byte (hex)
Contents

00–03 Record ID: C"MU2"

04 0

05–07 Message unit ID shown in MU1 entry

08–0B Data address or 0. If the message unit contains an extended buffer list, this field points to the address of the first extended buffer list entry that contains RU data.

0C–0F AMUDATLN (data length) or 0. If the message unit contains an extended buffer list, this field contains the length of all RU data represented in that extended buffer list.

10–13 Resource allocation block address or 0

14–15 For MU ID X'020502': Session count. For all other MU IDs: 0.

16–17 For MU ID X'020502': Session limit. For all other MU IDs: 0.

18–1B For MU IDs associated with an active conversation (X'010102', X'010201', X'010506', X'030108', X'050107', X'050109', X'050301'): Conversation ID. For all other MU IDs: 0.

1C–1F Variable overlay field

For MU ID X'020201': COPR control block address

For MU ID X'020502':

1C–1D
Change in the CNOS value

1E–1F 0

For MU IDs X'030106' and X'030108': Pacing count increment

For MU IDs X'030501', X'030503', X'030504', and X'030507': RPH address for inbound half session

For MU IDs X'040402' and X'040403': ACEE address

For MU IDs X'010701': Address of the associated data for the MU

For all other MU IDs: 0

MU3 entry for LU 6.2 message unit (Part 3)

Entry: MU3

VIT option:
APPC

Event: LU 6.2 message unit (Part 3)

VIT processing module:
ISTRACAC

This trace record is a continuation of the MU2 trace record. It is generated for only those message units which contain the following MU IDs:

X'010102'
X'010201'
X'010501'
X'010505'
X'010506'
X'020502'
X'030509'
X'040401'
X'040402'
X'040403'
X'040501'
X'050106'
X'050107'
X'050108'
X'050109'
X'050309'
X'050401'
X'060201'
X'060202'
X'060203'
X'060204'
X'060205'
X'060206'
X'060401'
X'080401'

00 01 02 03	04	05 06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B 1C 1D 1E 1F
MU3	0	MU ID	MODE NAME OR SESSION ID OR 0	LOCAL LU NAME	PARTNER LU NAME

Byte (hex)
Contents

00–03 Record ID: C"MU3"

04 0

05–07 Message unit ID shown in the MU1 and MU2 entries

08–0F Mode name for the following MU IDs:

X'020502'
X'040501'
X'050401'
X'060202'
X'060203'

Mode name or 0 for the following MU IDs:

X'010501'
X'060201'
X'060205'
X'060206'

Session instance identifier for the following MU IDs:

X'010102'
X'010506'
X'010507'
X'050106'
X'050107'
X'050108'
X'050109'

Session instance identifier or 0 for the following MU ID:

X'010505'

0 for all other MU IDs

10–17 Local logical unit name

18–1F Partner logical unit name or 0; for X'060204', 0

MU4 entry for LU 6.2 message unit (Part 4)

Entry: MU4

VIT option:
APPC

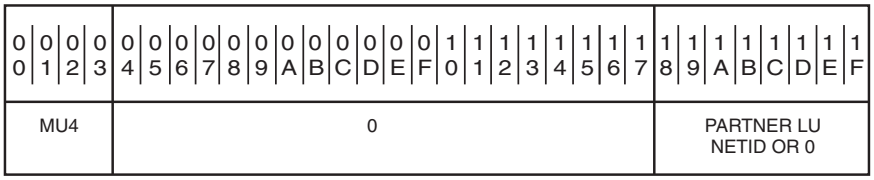
Event: LU 6.2 message unit (Part 4)

VIT processing module:
ISTRACAC

This trace record is a continuation of the MU3 trace record. It is generated for only those message units that contain the following MU IDs:

X'010102'
X'010201'
X'010501'
X'010505'
X'010506'
X'020502'
X'030509'
X'040401'

X'040402'
X'040403'
X'040501'
X'050106'
X'050107'
X'050108'
X'050109'
X'050309'
X'050401'
X'060201'
X'060202'
X'060203'
X'060204'
X'060205'
X'060206'
X'060401'
X'080401'



Byte (hex)
Contents

00–03 Record ID: C"MU4"

04–17 0

18–1F Partner network identifier or 0; for X'060204', 0.

NIPx entry for IP characteristics list add, delete, or find

Entry: NIPA, NIPD, NIPI, or NIPN

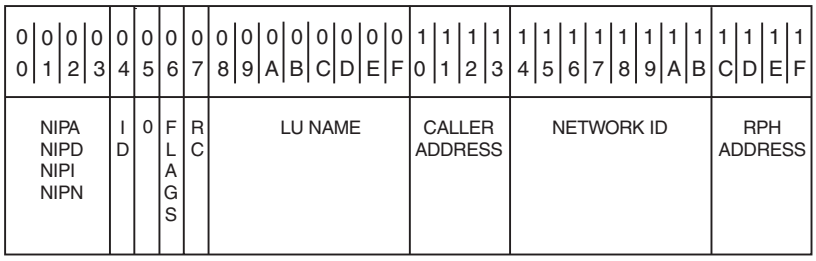
VIT option:
NRM

Event: Call to module ISTNRCIP

VIT processing module:
ISTRACNR

Control is returned to:
ISTNRCIP

This trace record contains information about IP characteristics being added, deleted, or found.



Byte (hex)
Contents

00–03 Record ID:
C"NIPA" (add)
C"NIPD" (delete)
C"NIPI" (find by IP address)
C"NIPN" (find by name)

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Flags

Bit	Meaning
1111 11..	0
.... ..1.	LU is an APPL
....1	LU is TN3270 client supporting definite response mode

07 Return code

08–0F LU name

10–13 Address of the caller of ISTNRCIP

14–1B Network ID of the LU

1C–1F RPH Address

NIP2 entry for IP characteristics list add, delete, or find (Part 2)

Entry: NIP2

VIT option:
NRM

Event: Call to module ISTNRCIP

VIT processing module:
ISTRACNR

This trace record is a continuation of the NIPx entry.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
NIP2				IP ADDRESS																PORT		0		IPADR ADDRESS				RDTE ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C'NIP2'

04–13 IP address

14–15 Port number

16–17 0

18–1B Address of IP address structure (ISTIPADR)

1C–1F RDTE address

NLPx entry for network layer packet (Part 1)

Entry: NLP

VIT option:
HPR

Event: Network layer packet (NLP) sent or received

VIT processing module:
ISTITCHP

Control is returned to:
The module that issued the INTRACE macro

This trace record is written when a network layer packet (NLP) is sent or received at the DLC layer. The NLPI and NLPO entries provide, respectively, inbound and outbound information about the NLPs, including the FID5 PIU and information about the network layer header (control block ISTNLH) and the rapid transport protocol (RTP) transport header (control block ISTTHDR). The NLP record is 32 bytes in length, with up to 31 additional NLP2 continuation records, each 32 bytes in length.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
NLPI OR NLPO				ID	0	TSCILNG		TSCB ADDR				DLC NCB ADDR				RPNCB ADDR				RELATED TSCB ADDR				ISSUING MODULE NAME				RPH ADDR			

Byte (hex)
Contents

00–03 Record ID:

C"NLPI" for inbound

C"NLPO" for outbound

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06–07 Length of data (TSCILNG)

08–0B TSCB address

0C–0F DLC NCB address

10-13 RPNCB address

14–17 Related TSCB address:

Continuation TSCB for inbound (0 if no continuation TSCB exists).

Data TSCB for outbound (first TSCB in chain with TSCNLP off, 0 if no data TSCB exists).

18–1B Name of the module that issued this trace entry

1C–1F RPH address

NLP2 entry for network layer packet (Part 2)

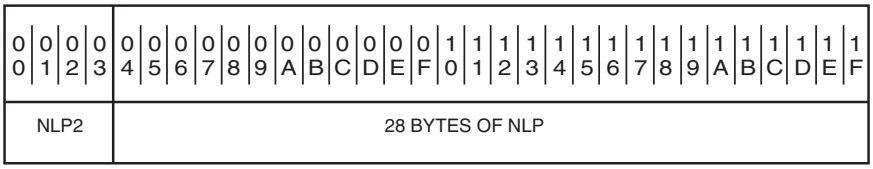
Entry: NLP2

VIT option:
HPR

Event: Network layer packet (NLP) sent or received

VIT processing module:
ISTITCHP

This trace record is a continuation of the NLP entry.



Byte (hex)
Contents

00–03 Record ID: C"NLP2"

04–1F 28 bytes of the network layer packet (NLP), including the network layer header (NHDR), the RTP transport header (THDR), and the PIU

NRSP entry for negative response to PIU request (Part 1)

Entry: NRSP

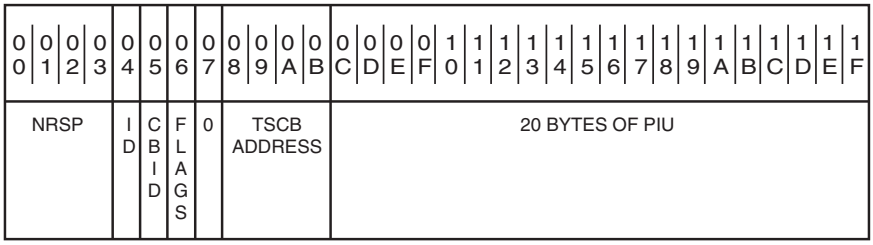
VIT option:
PIU

Event: Negative response to PIU request (Part 1)

VIT processing module:
ISTRACOT

Control is returned to:
ISTTSCGR

This trace record is written when VTAM generates a negative response to a PIU request. Because this entry is associated with an event failure, it is treated as an exception condition and is always traced, regardless of the VIT options specified, if the VIT is active.



Byte (hex)
Contents

00–03 Record ID: C"NRSP"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Control block ID

06 Flag field (TSCFLAG1)

07 0

08–0B Address of TSCB

0C–1F First 20 bytes of the PIU

NRS2 entry for negative response to PIU request (Part 2)

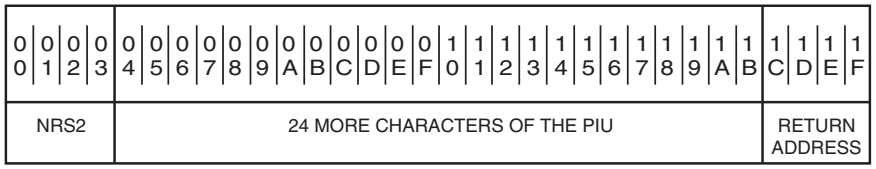
Entry: **NRS2**

VIT option:
PIU

Event: Negative response to PIU request (Part 2)

VIT processing module:
ISTRACOT

This trace record is a continuation of the NRSP entry.



Byte (hex)
Contents

00–03 Record ID: C"NRS2"

04–1B 24 more characters of the PIU

1C–1F Return address of the issuer

NSD entry for NSIND exit

Entry: NSD

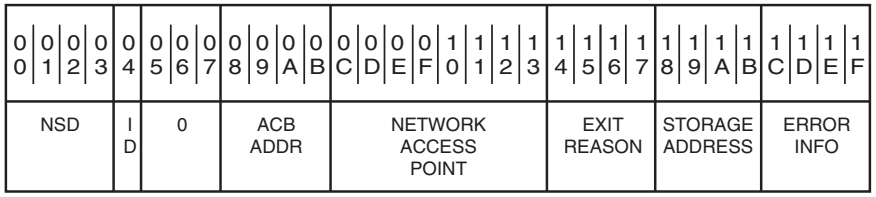
VIT option:
VCNS

Event: NSIND exit scheduled

VIT processing module:
ISTRACNS

Control is returned to:
ISTAPCUE

This trace record is written when the NSIND exit routine is scheduled. The exit is scheduled when VTAM receives a VCNSCMD CONTROL=LOGON request from a VCNS user. This trace record shows information about the exit invocation.



Byte (hex)
Contents

00–03 Record ID: C"NSD"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0B Address of the ACB associated with the NSIND exit

0C–13 Symbolic name of the network access point, defined with USER=VCNS in the interconnect major node, representing a line to which the application program is logged on

14–17 Reason the exit was scheduled:

0 As a result of a network management-related event

4 As a result of a termination of the VCNS line

8 As a result of an error detected by VTAM that resulted in the termination of the LOGON request (for example, an abend)

18–1B If exit reason in bytes 14–17 is 0, address of storage area containing specific error information about the exit event; otherwise, 0.

1C–1F If bytes 18–1B contain a storage area address, first 4 bytes of specific error information from the storage area.

ODPK entry for OSA-Express QDIO or HiperSockets packets (Part 1)

Entry: ODPK

VIT option:
CIA

Event: Inbound or outbound data

VIT processing module:
ISTITCOD

Control is returned to:
ISTLLCHI, ISTLLCIE, ITSLLCWI, IUTLLCIZ

This trace record is written when packets are read from or written to an OSA-Express QDIO or HiperSockets adapter.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ODPK				ID	DEVICE TYPE	DIRECTION	PRIORITY/QID	SPAC ADDRESS								NCB ADDRESS				0	SBAL	START INDEX	END	PACKET	LENGTH	MODULE	IDENTIFIER	RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ODPK"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Device type:

- If byte 6 is C"R":
  - C"I" for HiperSockets (iQDIO)
  - C"Q" for QDIO
- Else:

– C"*" when device type is not applicable

06 Direction:
- C"D" for discarded
- C"I" for inbound
- C"O" for outbound
- C"R" for routed (accelerated), outbound

07 Write queue priority/Read queue identifier/0
- if byte 6 is C"D"
  – 0
- if byte 6 is C"I"
  – Read queue identifier
- if byte 6 is C"O" or C"R"
  – Write queue priority

08–0B ShortPAC address

0C–0F DINCB address

10–13 XBUFLST entry address

14 0

15 SBAL index

16 Start SBALE index (within SBAL)

17 End SBALE index (within SBAL)

18–19 Total length of packet

1A–1B Module identifier for the module that issued the INTRACE.

1C–1F Request parameter header (RPH) address.

ODP2 entry for OSA-Express QDIO or HiperSockets packets (Part 2)

Entry: ODP2

VIT option:
CIA

Event: Inbound or outbound data

VIT processing module:
ISTITCOD

This trace record is written after ODPK and may be written after another ODP2 depending on the amount of data to be traced.

Tip: The number of ODP2 records captured for each packet is limited. When running an IO trace, the number of ODP2 records will vary with the length specified on the MODIFY TRACE command. For a data path channel used for capturing OSA-Express network traffic analyzer traces, only one ODP2 record will be captured.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ODP2				28 BYTES OF PACKET DATA																											

Byte (hex)
Contents

00–03 Record ID: C"ODP2"

04–1F If preceded by ODPK, first 28 bytes of packet.

If preceded by ODP2, next 28 bytes of packet.

ODTE entry for outbound DLC timer events

Entry: ODTE

VIT option:
CIA

Event: OSA-Express QDIO, Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing, or HiperSockets timer

VIT processing module:
ISTITCOD

Control is returned to
ISTLLCWD, ISTLLCWT, ISTSRIWD, ISTSRIWT

This trace record is written when the OSA-Express QDIO, Shared Memory Communications over Remote Direct Memory Access (SMC-R), or HiperSockets write completion timer is started or restarted.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ODTE				ID	FUNCTION	RETURN CODE		CURRENT TIME OF DAY								INTERVAL or TIMER CONTROL WORD								MODULE IDENTIFIER				NCB ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"ODTE"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Function:

- C"D" for dispatch of the timer task
- C"S" for start timer
- C"R" for restart timer

06-07 STIMERM return code

Code value
Meaning

X'0000'
STIMERM service completed successfully.

X'000C'
Program error: Interval exceeds 2400 hours.

X'0010'
Program error: Parameters that are not valid are passed to STIMERM.

X'001C'
Program error: STIMERM SET limit for task exceeded.

X'0024'
Program error: STIMERM ID was not valid.

X'0028'
Program error: Interval plus TOD exceeds maximum clock comparator value.

08–0F Current Timer of Day (in TOD format)

10–17 Interval or timer control information

- When Function is 'S' or 'R', the timer interval (in TOD format)
- When Function is 'D', the timer control fields for CDS processing

18–1B Module identifier for the module that issued the INTRACE

1C–1F NCB address

- If module identifier is 'LLWD' or 'LLWT', this is a DINCB address
- If module identifier is 'SRWD' or 'SRWT', this is an RUNCB address

ONLP entry for orphaned Network Layer Packet

Entry: ONLP

VIT option:
HPR

Event: Orphaned NLP

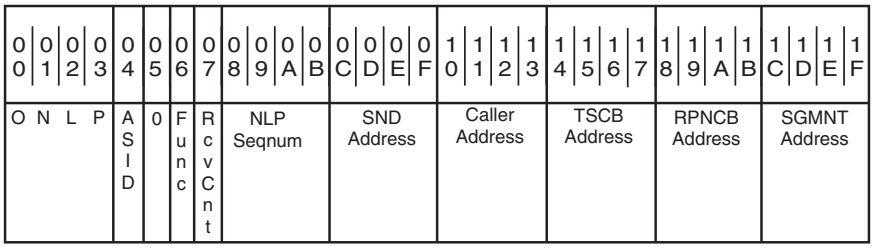
VIT processing module:
ISTITCHP

Control is returned to:
Module issuing INTRACE

An orphaned NLP is an NLP that appears to have been lost by the DLC.

This trace record is written when an orphaned NLP is detected, recovered, or freed. There are two types of orphaned NLPs, acknowledged and

unacknowledged.



Byte (hex)
Contents

00–03 Record ID: C"ONLP"

04 ID is the primary address spaced ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 ONLP function:

- **A** Acknowledged orphaned NLP detected
- **F** Free acknowledged orphaned NLP from Garbage_SNDs queue
- **R** Recover unacknowledged orphaned NLP
- **S** Segment recovered NLP
- **U** Unacknowledged orphaned NLP detected

07 Recovery count

08–0B NLP sequence number

0C-0F ISTSND address

10–13 Address of INTRACE issuer

14–17 ISTTSCB address

18–1B ISTRPNCB address

1C-1F ISTSGMNT address or zeros

OON entry for module trace

Entry: OON

VIT option:
N/A

Event: Method has been entered.

VIT processing module:
ISTRACOT

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced

This trace record is written when a method is entered.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
OON			0	MODULE NAME					METHOD NAME																			RPH or Reg1			

Byte (hex)
Contents

00–02 Record ID: C"OON"

03 0

04–08 Name of the module containing the invoked method

09–1B Method name

1C-1F RPH address or register 1

OON2 entry for module trace

Entry: OON2

VIT option:
N/A

Event: Method has been entered

VIT processing module:
ISTRACOT

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced

This trace record is a continuation record of the OON trace record. Multiple OON2 records are present if the OO method being traced has more than six input parameters.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
OON2				PARM ADDR or 0				PARM ADDR or 0				PARM ADDR or 0				PARM ADDR or 0				PARM ADDR or 0				PARM ADDR or 0				RETN ADDR or PARM ADDR or 0			

Byte (hex)
Contents

00–03 Record ID: C"OON2"

04–1B Addresses of the parameters passed to the OO method or 0

1C-1F Return or invocation address of the requester of the OO method or address of the parameter passed to the OO method or 0

Note: One word for each parameter passed to the OO method will be listed in the trace entry. If the parameter is not present, it will have the value of 0. The first OON2 trace entry has the structure address at offset 4 and has the return or the invocation address of the OO method at offset X'1C'. Additional OON2 trace entries will have a parameter address at offset X'1C', instead of the return or invocation address.

OOSQ entry for HPR out of sequence queue sequence numbers

Entry: OOSQ

VIT option:
HPR

Event: Out of sequence queue sequence numbers

VIT processing module:
ISTITCHP

This trace record shows the HPR sequence numbers in all the DAPTRs on the HPR out of sequence queue. Each sequence number pair represents the sequence numbers that have been received and queued. The first gap is between the LAST BYTE RCVD (see "RTP entry for RTP PAB dispatch" on page 404) and the begin sequence number of the first sequence number pair. Additional gaps exist between the end sequence number of one pair and the begin sequence number of the next pair. If there are more than 2 gaps, this record is followed by as many OOS2 records as required to show all the sequence numbers on the RPNCB out of sequence queue.

The OOSQ record is written at the start of an RTP PAB dispatch when at least one DAPTR is on the out of sequence queue. OOSQ is also written at the end of an RTP PAB dispatch when at least one of the DAPTRs on the out of sequence queue has been altered during the dispatch.

00 01 02 03	04	05	06	07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
OOSQ	ASID	0	FLAG1	FLAG2	SEQUENCE NUMBER PAIR 1	SEQUENCE NUMBER PAIR 2 (OR ZEROS)	RPNCB ADDRESS	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"OOSQ"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 DAP_Flags for sequence number pair 1

07 DAP_Flags for sequence number pair 2 (zeros if only a single pair exists)

08–0F First sequence number pair
- Word 1 Begin Sequence number
- Word 2 End Sequence number

10–17 Second sequence number pair (zeros if only a single pair exists)
- Word 1 Begin Sequence number
- Word 2 End Sequence number

18–1B RPNCB address

1C–1F Request parameter header (RPH) address

OOS2 entry for HPR out of sequence queue sequence numbers (Part 2)

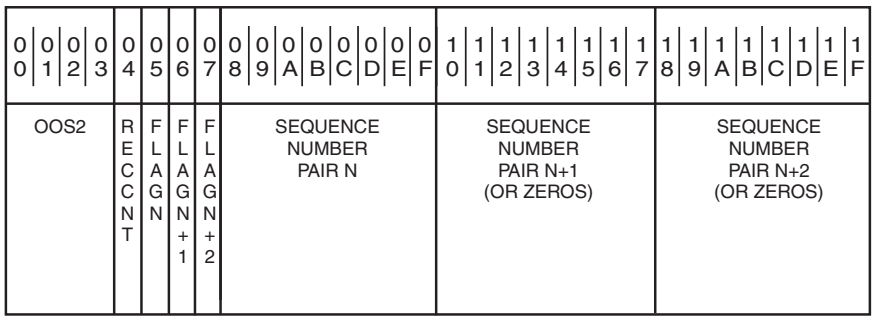
Entry: OOS2

VIT option:
HPR

Event: Out of sequence queue sequence numbers (Part 2)

VIT processing module:
ISTITCHP

Any number (including 0) of OOS2's may follow the OOSQ, depending on the number of DAPTRs on the HPR out of sequence queue.



00 01 02 03	04	05	06	07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B 1C 1D 1E 1F
OOS2	RECCNT	FLAGN	FLAGN+1	FLAGN+2	SEQUENCE NUMBER PAIR N	SEQUENCE NUMBER PAIR N+1 (OR ZEROS)	SEQUENCE NUMBER PAIR N+2 (OR ZEROS)

Byte (hex)
Contents

00–03 Record ID: C'OOS2'

04 OOS2 record counter

05 DAP_Flags for sequence number pair n

06 DAP_Flags for sequence number pair n +1 (zeros if pair does not exist)

07 DAP_Flags for sequence number pair n +2 (zeros if pair does not exist)

08–0F Next sequence number pair
- Word 1 Begin sequence number
- Word 2 End sequence numbers

10–17 Next sequence number pair (zeros if pair does not exist)
- Word 1 Begin sequence number
- Word 2 End sequence number

18–1F Next sequence number pair (zeros if pair does not exist)

- Word 1 Begin sequence number
- Word 2 End sequence number

OOX entry for module trace

Entry: OOX

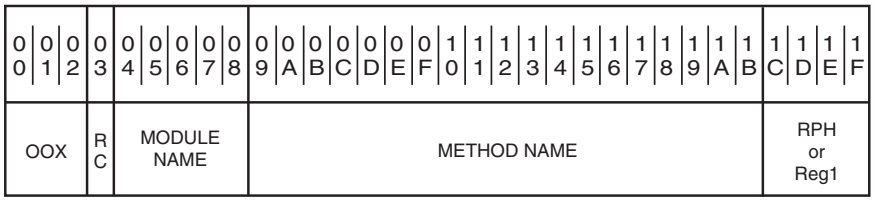
VIT option:
N/A

Event: Method has been exited.

VIT processing module:
ISTRACOT

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced

This trace record is written when a method is exited.



Byte (hex)
Contents

00–02 Record ID: C"OOX"

03 Return code

04–08 Name of the module containing the invoked method

09–1B Method name

1C-1F RPH address or register 1

OPER entry for operator command (Part 1)

Entry: OPER

VIT option:
MSG

Event: Operator command (Part 1)

VIT processing module:
ISTRACOT

Control is returned to:
ISTLUCMD, ISTCFF3D, ISTINCF9

This trace record is written each time a VTAM command is issued at the operator console. This can help you match the console log to a surge of activity shown in

the VIT. This trace record is also useful when the console log is unavailable. Additionally, it provides a record of POA commands that have been issued. These do not appear on the console log.

The variable data in bytes 08–1F is the command text, with minor modifications. If this data is longer than 24 characters, it will continue in the OPE2 entry. The command always appears in abbreviated form:

D DISPLAY command

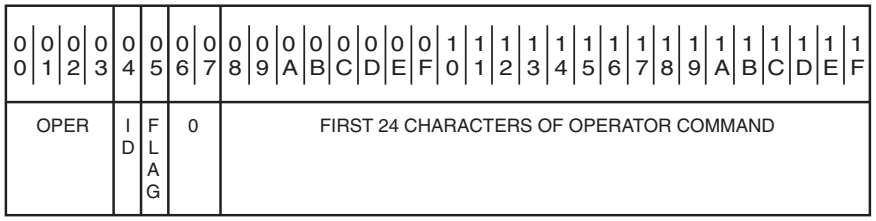
F MODIFY command

V VARY command

Z HALT command

? Unknown command passed to VTAM

NET and procname are excluded from the command text. Because the VTAM internal trace is not active when VTAM is started, the START command is not traced.



Byte (hex)
Contents

00–03 Record ID: C"OPER"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Flag byte

Bit **Meaning**

1... ....
A POA command was issued.

0... ....
Not a POA command.

.1.. ....
A POA needs the command complete message.

.0.. ....
No command complete message for POA.

06–07 0

08–1F First 24 characters of the operator command

OPE2 entry for operator command (Part 2)

Entry: OPE2

VIT option:
MSG

Event: Operator command (Part 2)

VIT processing module:
ISTRACOT

This trace record is a continuation of the OPER entry.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
OPE2	UP TO 28 MORE CHARACTERS OF THE OPERATOR COMMAND																														

Byte (hex)
Contents

00–03 Record ID: C"OPE2"

04–1F Up to 28 more characters of the operator command

ORMG entry for storage management

Entry: ORMG

VIT option:
SMS

Event: ISTORMMG Processing

VIT processing module:
ISTRACSM

Control is returned to:
ISTORMMG

This trace record records various storage management values at critical points in ISTORMMG.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
ORMG				ID	0	INST	0	BPD-OBFOR				BPD-OBACK				ATC-OROBT				ATC-ORTBF				ATC-CSAFR				ATC-CSAFI			

Byte (hex)
Contents

00–03 Record ID: C"ORMG"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 The instance of the trace record in the module

07 0

08–0B BPDOBFOR–Double-threaded obtained storage queue forward pointer

0C–0F BPD0BACK–Double-threaded obtained storage queue backward pointer

10–13 ATCOROBT–Single-threaded obtained storage queue pointer

14–17 ATCORTBF–To be freed queue pointer

18–1B Free CSA bytes on the obtained queue

1C–1F ATCCSAFI–Free CSA requests on the obtained queue

P64Q entry for 64-bit PLO queue manager events (IUTP64QM macro) (Part 1)

Entry: P64Q

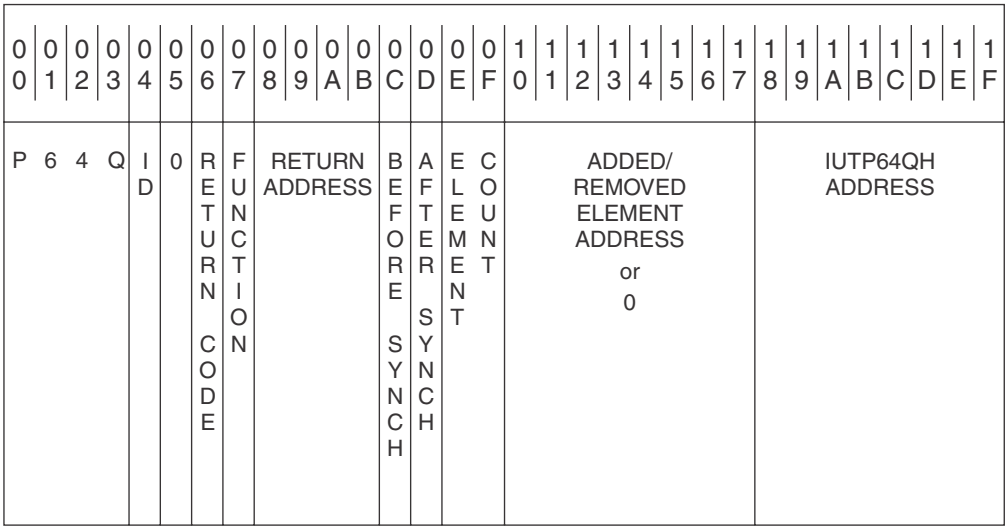
VIT option:
CIA

Event: Queue management using IUTP64QM

VIT processing module:
ISTITCSH

Control is returned to:
IUTP64QM issuer

This trace record is written when the IUTP64QM macro is run. The record is primarily used to identify the addition or removal of elements to or from a queue header by using the perform locked operation (PLO) assembler instruction.



Byte (hex)
Contents

00–03 Record ID: C'P64Q'

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 IUTP64QM return code

- Add_Chain return codes:

  Code value
  Meaning

  X'00' Add_Chain successful and Synch_Byte mask operation was performed (if specified).

  X'04' Add_Chain successful but Synch_Byte mask operation was not performed (LE|GE failed).

- Remove_Element return codes:

  Code value
  Meaning

  X'00' Remove_Element successful and Synch_Byte mask operation was performed (if specified).

  X'04' Remove_Element successful but Synch_Byte mask operation was not performed (LE|GE failed).

  X'08' Remove_Element unsuccessful but Synch_Byte mask operation was performed (if specified).

  X'0C' Remove_Element unsuccessful and Synch_Byte mask operation was not performed (LE|GE failed).

- Synch_Byte return codes:

  Code value
  Meaning

  X'00' Synch_Byte mask operation was performed.

  X'04' Synch_Byte mask operation was not performed (LE|GE failed).

07 Function:

C'A' For Add_Chain

C'R' For Remove_Element

C'S' For Synch_byte_only

08–0B Address of caller (within IUTP64QM expansion)

0C Contents of synch byte before the PLO assembler instruction

0D Contents of synch byte after the PLO assembler instruction

0E–0F Contents of count field after the PLO assembler instruction

10–18 Element address:

- For Add_Chain, address of first element in chain
- For Remove_Element, address of element removed
- For Synch_byte_only, 0

19–1F PLO queue manager header address (IUTP64QH)

P642 entry for 64-bit PLO queue manager event (IUTP64QM macro) (Part 2)

Entry: P642

VIT option:
CIA

Event: Queue management using IUTP64QM

VIT processing module:
ISTITCSH

This trace record is a continuation of the P64Q entry.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
P	6	4	2	0				HEAD POINTER AFTER PLO								TAIL POINTER AFTER PLO								0				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C'P642'

04–07 0

08–0F Address of first element on the queue after the perform locked operation (PLO) assembler instruction

10–17 Address of last element on the queue after the PLO assembler instruction

18–1B 0

1C–1F Request parameter header (RPH) address

PAGB entry for PAGE_BUFFER requests

Entry: **PAGB**

VIT option:
CSM

Event: IVTCSM REQUEST=PAGE_BUFFER

VIT processing module:
ISTITCCS

Control is returned to:
IVTSMCBF

This trace record provides the status of an IVTCSM REQUEST=PAGE_BUFFER macroinstruction.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
PAGB				ID	0	FLAG	RECNUM	TYPE	0			RTN COD		RSN COD		UTILRTN CALLER OR RETURN ADDRESS				LAST BUFFER LIST ENTRY				NUMBER OF BUFFERS				THREAD VALUE OR 0			

Byte (hex)
Contents

00–03 Record ID: C"PAGB"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace record flag:

B'0... ....'
Indicates that this is the last record for this event.

B'1... ....'
Indicates that additional records exist for this event. Use the trace record number from this entry to locate corresponding continuation records.

07 Trace record number to correlate all the entries for this particular event.

08 Type or state of buffers allocated

X'80' Fixed

X'20' Eligible to be made pageable

09–0B 0

0C–0D
Return code

0E–0F Reason code

10–13 Address of utility routine caller or return address of the issuer of the IVTCSM macroinstruction

14–17 Address of the buffer list entry that was being processed when the error was encountered.

18–1B Number of buffers

1C–1F THREAD value if specified or 0 if THREAD is not specified. The THREAD value is used only to correlate this trace record to a specific IVTCSM macroinstruction.

PAG2 entry for PAGE_BUFFER requests

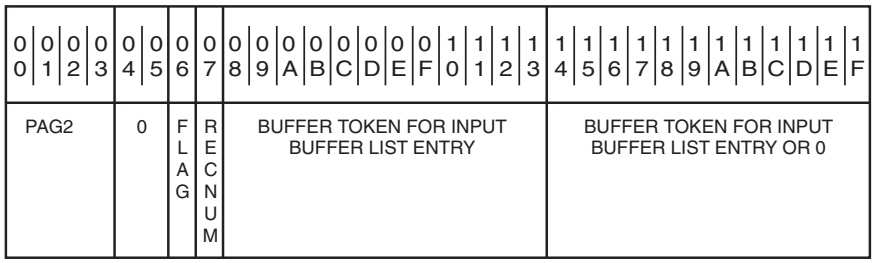
Entry: PAG2

VIT option:
CSM

Event: IVTCSM REQUEST=PAGE_BUFFER

VIT processing module:
ISTITCCS

This trace record is a continuation of the PAGB trace record. Each PAG2 record traces, at most, two buffers that were requested to be placed in a pageable state.



Byte (hex)
Contents

00–03 Record ID: C"PAG2"

04–05 0

06 Trace record flag:

B'0... ....'
Indicates that this is the last record for this event.

B'1... ....'
Indicates that additional records exist for this event. Use the trace record number from this entry to locate corresponding continuation records.

07 Trace record number to correlate all the entries for this particular event.

08–13 Buffer token contained in input buffer list entry

14–1F Buffer token contained in input buffer list entry or 0

PCIx entry for program-controlled or suspend interrupt

Entry: PCID, PCIR, PCIT, or PCIX

VIT option:
PCID and PCIR: CIA

PCIT and PCIX: CIO

Event: Program-controlled or suspend interrupt

VIT processing module:
ISTITCOD

Control is returned to:
ISTTSCIE, ISTLLCIE, ISTSRRIE

This trace record is written when a program-controlled interrupt occurs.

This interrupt occurs for a CLAW channel-to-channel attached host, for HPDT read and write devices, or for the OSA-Express QDIO, Shared Memory Communications over Remote Direct Memory Access (SMC-R), or the HiperSockets adapter read queue.

The PCID entry is recorded when the OSA-Express QDIO or HiperSockets adapter has completed a read operation. The PCID entry may or may not be preceded by a SIGA (read) operation for the same device.

The PCIT and PCIX entries are correlated to the SIOx, RIOx, and INTx entries for the same device using the CUA field. The combination of the information provided by these entries describe the channel program management and I/O operations for the device.

The PCIR entry is recorded when the IBM 10Gbe RoCE Express feature completes a read operation or encounters an error condition. The PCIR entry is followed by the RPLE, RPLP, and RPLA (optional) entries. These entries include information that describes the type and destination of the data received or the type of the error encountered.

See for a description of the NCB fields.

The PCIT and PCIX entries are also captured within the NCB (pointed to by NCBCIOMV). The NCB trace table is mapped by NCBCIOAR.

PCID mapping and field descriptions

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
PCID				ID	0		Func	CUA Address				NCB Address				Next	Last	Count	Stat	Count	Stat	Count	Stat	Count	Stat	Count	Stat	Count	Stat	Count	Stat

Byte (hex)
Contents

00–03 Record ID: C"PCID" for DINCB

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–06 0

07 Function:
- C"R" for real PCI interrupt
- C"V" for virtual PCI interrupt

08–0B Device address in EBCDIC (as specified in the TRL deck)

0C–0F DINCB address

10 Content of DINCB_Q_Data_Index_Next (Next Empty Read)

11 Content of DINCB_Q_Data_Index_Last (Last Empty Read)

12–13 Start of Count/Status Pairs

Starting at SLSB(1), these fields represent the number of consecutive SLSBs containing the same status, and what the status value is. See SLS_SLSB_Status constants for status values.

14–15 Continuation Count/Status pairs (if applicable)

16–17 Continuation Count/Status pairs (if applicable)

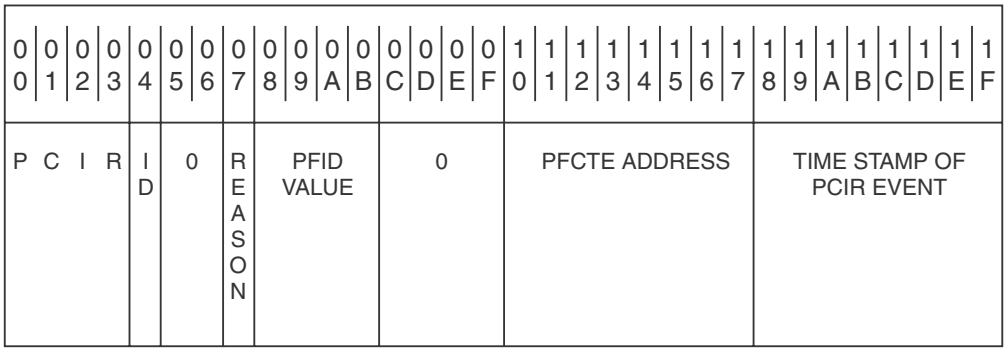
18–19 Continuation Count/Status pairs (if applicable)

1A–1B Continuation Count/Status pairs (if applicable)

1C–1D
Continuation Count/Status pairs (if applicable)

1E–1F Continuation Count/Status pairs (if applicable)

PCIR mapping and field descriptions



Byte (hex)
Contents

00–03 Record ID: C'PCIR' for SRNCB

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05-06 0

07 Interrupt reason

- C'C' when the interrupt is driven as a result of a completed work request
- C'D' when the interrupt is driven as a result of device deallocation
- C'E' when the interrupt is driven as a result of a device error

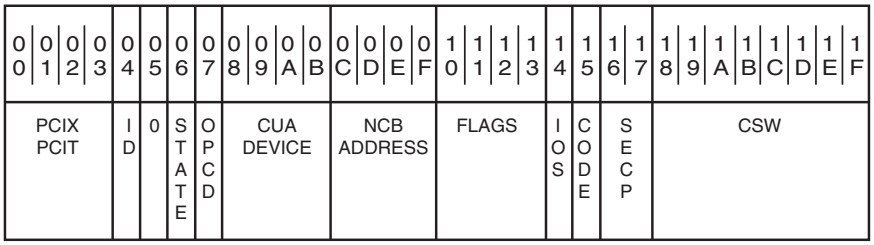
08–0B Peripheral Component Interconnect Express (PCIe) function ID (PFID) that is associated with the 10GbE RoCE Express feature

0C–0F 0

10–17 Address of the PFCTE

18–1F The time stamp that is taken when the 10GbE RoCE Express feature interrupt occurs

PCIX and PCIT mapping and field descriptions



Byte (hex)
Contents

00–03 Record ID: C"PCI"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Reserved

06 Link station state (NCBLNKST)

07 Operation code

08–0B Channel device name in EBCDIC (either a device address or device number)

0C–0F NCB address

10–13 Flag bytes (NCBFLAGS)

14 IOS Bit 1 IOSSSPND

X'80' IOS suspended

15 I/O completion code (IOSCOD)

16–17 CPNCB_Index_Word

18–1F Channel status word from IOSB.

PIU entry (Part 1)

Entry: PIU

VIT option:
PIU

Event: PIU record (Part 1)

VIT processing module:
ISTRACOT

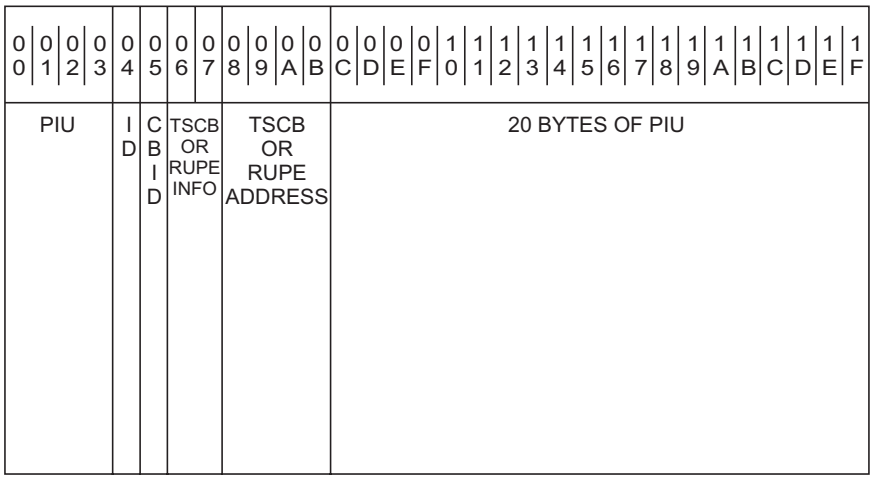
Control is returned to:
ISTLSC6V ISTTSCPR, ISTTSCLS, ISTTSCRI, ISTTSCSC, ISTTSCSR, ISTTSCWS, ISTTSCPD, ISTTSCLE, ISTTSCXS (or ISTINCF1 and INTINCS1 for RUPE)

This trace record provides information about external and internal FID4 PIUs.

For most PIUs, only the first 48 bytes are traced (a 26-byte TH, a 3-byte RH, and the first 19 bytes of RU). However, certain classes of PIUs, such as session control RUs and VTAM RUs, are traced in their entirety.

If the control block is a RUPE, the TH is reconstructed by the internal trace using what information is available. For TSCB entries, the PIU is recorded as is.

If the PIU is a response with sense data, this entry is generated whether the PIU option is in effect or not. It is treated as an exception condition and is always traced if the VIT is active, regardless of the VIT options specified.



Byte (hex)
Contents

00–03 Record ID: C"PIU"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Control block ID: X'54'=RUPE, X'99'=TSCB

06-07 The control block identifier in byte 05 determines the meaning of this field.

TSCB or RUPE information:

- If byte 05 indicates a TSCB, use the following values:
  - Byte 06 contains flags (TSCFLAG1).
  - Byte 07 contains a unique instance identifier.
- If byte 05 indicates a RUPE, use the following value:
  - Bytes 06-07 contain the index for a network element address.

08–0B TSCB or RUPE address (see byte 05)

0C–1F 20 bytes of PIU

PIU2 entry (Part 2)

Entry: PIU2

VIT option:
PIU

Event: PIU record (Part 2)

VIT processing module:
ISTRACOT

This trace record is a continuation of the PIU entry and contains 28 more bytes of FID4 PIU.

The VTAM internal trace will generate as many as 31 PIU2 records in the following situations:

- For PIUs that are formatted and contain session control RUs
- For RUs to or from the SSCP or PUs
- When the VIT LCS option was specified and the PIU contains LCS data

The number of records generated depends on the data count field in the transmission header (TH).

Byte (hex)
Contents

00–03 Record ID: C"PIU2"

04–1F Up to 28 more bytes of the FID4 PIU (padded at right with zeros)

PKI or PKO entry for TCP/IP packet sent or received

Entry: PKI or PKO

VIT option:
CIA

Event: TCP/IP packet sent or received

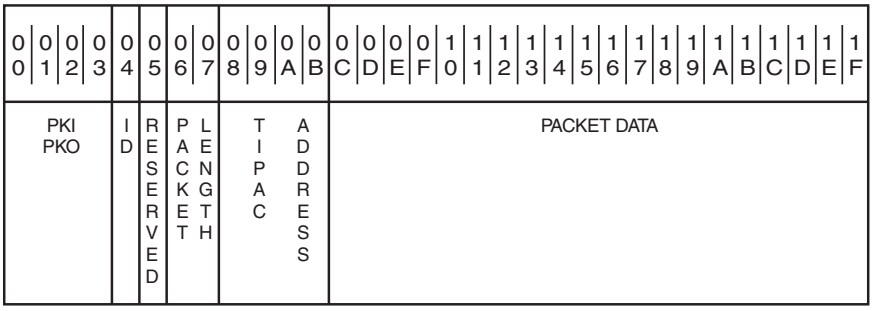
VIT processing module:
ISTRACCI

Control is returned to:
ISTTCCXD, ISTTCCXB, ISTTCCWD, ISTTCCWB, ISTTCCLB, ISTTCCLD, ISTTCCCB, ISTTCCCD

This trace entry provides information about packets received by or sent from TCP/IP data link control (DLC).

A PKI trace record is written whenever the buffer control channel program completes with packets received.

A PKO trace record is written whenever a packet is transferred to the telecommunications subsystem or communication adapter by inserting it into the buffer control channel program.



Byte (hex)
Contents

00–03 Record ID:
C"PKI" for inbound packet data
C"PKO" for outbound packet data

04 ID is the primary address space ID (ASID). This field is 0 if the ID is greater than X'FF'.

05 RESERVED

06–07 Total length of the packet

08–0B TIPAC address

0C–1F First 20 bytes of packet data

PKI2 or PKO2 entry for TCP/IP packet sent or received

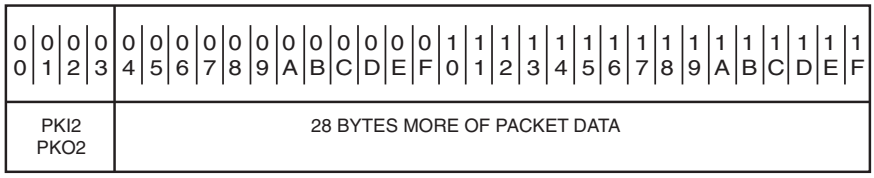
Entry: PKI2 or PKO2

VIT option:
CIA

Event: TCP/IP packet sent or received

VIT processing module:
ISTRACCI

This trace entry is a continuation of PKI and PKO.



Byte (hex)
Contents

00–03 Record ID:
C"PKI2" for inbound packet data
C"PKO2" for outbound packet data

04–1E Next 28 bytes of packet data

Note: There is a maximum of seven PKI2 or PKO2 records.

PLOQ entry for PLO queue manager event (IUTPLOQM macro)

Entry: PLOQ

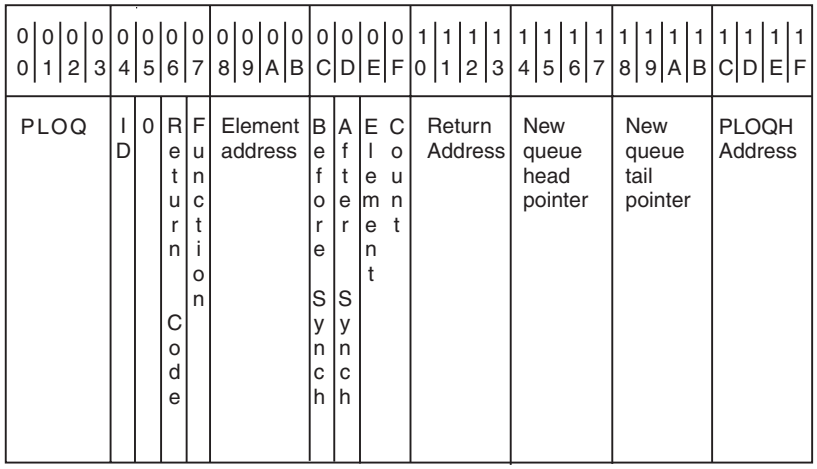
VIT option:
CIA

Event: Queue management using IUTPLOQM

VIT processing module:
ISTITCOD

Control is returned to
IUTPLOQM issuer

This trace record is written when the IUTPLOQM macro is run. It is primarily used to identify the addition or removal of elements to or from a queue header.



00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
PLOQ				ID	0	Return Code	Function	Element address				Before Synch	After Synch	Element Count		Return Address				New queue head pointer				New queue tail pointer				PLOQH Address			

Byte (hex)
Contents

00–03 Record ID: C"PLOQ"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 IUTPLOQM return code

Add_Chain return codes:

Code Value
Meaning

X'00' Add_Chain successful and Synch_Byte mask operation was performed (if specified).

X'04' Add_Chain successful but Synch_Byte mask operation was not performed (LE|GE failed).

Remove_Element return codes:

Code Value
Meaning

X'00' Remove_Element successful and Synch_Byte mask operation was performed (if specified.)

X'04' Remove_Element successful but Synch_Byte mask operation was not performed (LE|GE failed).

X'08' Remove_Element unsuccessful but Synch_Byte mask operation was performed (if specified).

X'0C' Remove_Element unsuccessful and Synch_Byte mask operation was not performed (LE|GE failed).

Synch_Byte return codes:

Code Value
Meaning

X'00' Synch_Byte mask operation was performed.

X'04' Synch_Byte mask operation was not performed (LE|GE failed).

07 Function:
- C"A" for Add_Chain
- C"R" for Remove_Element
- C"S" for Synch_byte_only

08–0B Element address:
- For Add_Chain, address of first element in chain
- For Remove_Element, address of element removed
- For Synch_byte_only, 0

0C Contents of synch byte before PLO

0D Contents of synch byte after PLO

0E–0F Contents of count field after PLO

10–13 Address of caller (within IUTPLOQM expansion)

14–17 Address of first element on queue after the PLO

18–1B Address of last element on queue after the PLO

1C–1F PLO Queue manager Header address (IUTPLOQH)

POOF entry for freeing storage from GETBLK pool

Entry: POOF

VIT option:
SMS

Event: POOLFREE macro called to free all storage in a GETBLK pool

VIT processing module:
ISTRACSM

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced

This trace record is generated when the POOLFREE macro uses the VTFREE macro to free all storage that was allocated with GETBLK. This trace record helps the VIT analysis tool determine that storage is freed.

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
POOF	ID	0	POOL	RC	0	0	RETURN ADDRESS	LENGTH FREED	0	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"POOF"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Pool type. The value X'7A' indicates the CMIPPVT storage pool type. For other possible storage pool types, see “FBLK entry for FREEBLK macro (Part 1)” on page 225 or “GBLK entry for GETBLK macro (Part 1)” on page 233. For more information about storage pools, see z/OS Communications Server: SNA Network Implementation Guide.

07 Return code from the POOLFREE macro

08–0F 0

10–13 Address of the issuer of the POOLFREE macro

14–17 Length of storage freed, including the GETBLK headers. (Because the headers are not included in GBLK length fields, the length of storage freed in the POOF VIT entry will be larger than the amount of storage reported in the GBLK VIT entries.)

18–1B 0

1C–1F Request parameter header (RPH) address

POST entry for post waiting event

Entry: POST

VIT option:
PSS

Event: Post waiting event

VIT processing module:
ISTRACPS

Control is returned to:
ISTAPCTP

This trace record identifies an RPH that is being posted (using the TPPOST macro) for restart after a TPWAIT macro. The POST entry is followed sometime later by a RESM entry. However, when a TPPOST precedes the TPWAIT, the TPWAIT returns

to the caller immediately without waiting. Then POST is not followed by RESM.

00	01	02	03	04	05	06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
POST	ID	0	PABOF	PST ADDRESS	PAB ADDRESS	RETURN ADDRESS	WORK ELEMENT ADDRESS	DVT ADDRESS	RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"POST"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06–07 PAB offset

08–0B PST address

0C–0F PAB address

10–13 Address of the issuer of the TPPOST macro

14–17 Work element address (from RPHWEA)

18–1B PAB DVT address

1C–1F Address of the RPH being posted

PROA or PROD entry for Profile Add or Delete

Entry: **PROA** or **PROD**

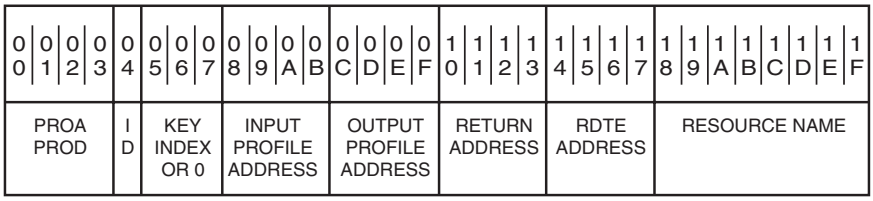
VIT option:
NRM

Event: Profile Add or Delete

VIT processing module:
ISTRACNR

Control is returned to:
ISTSDCPM

This trace record gives information about PROFILE macroinstruction processing. It is written when a VTAM module issues a PROFILE macroinstruction to add or delete an RDTE profile.



Byte (hex)
Contents

00–03 Record ID:

- C"PROA": Add a profile
- C"PROD": Delete a profile

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 Key index into the RDTE profile table or 0. Note that an index value of 0 is valid and represents the first slot in the profile table. The index might also be 0 for PROA entries created when a profile is first associated with an RDTE during SYSDEF processing.

08–0B Input profile address

0C–0F Output profile address

10–13 Return address of the module calling the ISTSDCRP module or the address of the module issuing PROFILE macro

14–17 RDTE address

18–1F Resource name

QAPL entry for OSA-Express QDIO or HiperSockets accelerator parameter list

Entry: QAPL

VIT option:
CIA

Subtrace Type:
DIO

Event: Parameter list upon return from accelerator exit (EZBIFQDR)

VIT processing module:
ISTITCOD

Control is returned to:
IUTLLCIE

This trace record is written to show partial contents of the accelerator list.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
Q	A	P	L	ID		0		QID		INSPAC COUNT		OUTSPAC COUNT		0		0				SLOWPATH RSN		0		THREAD ID				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"QAPL"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–06 0

07 Inbound queue identifier

08–09 Number of SPacs on the InSPac queue

0A–0B Number of SPacs on the OutSPac queue

0C–0F Address of first SPac on the InSPac queue

10–13 Address of first SPac on the OutSPac queue

14 Last reason accelerator exit took slowpath

15–17 0

18–1B Thread (interrupt) identifier

1C–1F Request parameter header (RPH) address

QDIP entry for QDIO performance statistics

Entry: QDIP

VIT option:
CIA

Subtrace Type:
DIO

Event: QDIO performance statistics

VIT processing module:
ISTITCOD

Control is returned to:
IUTLLCDQ

This trace record is written during data transmission to and from OSA-Express adapters operating in QDIO mode. Its purpose is to report performance statistics about the adapter.

00	01	02	03	04	05	06	07	08 09	0A	0B	0C D	0E	0F	10 11	12	13	1A	1B	1C	1D	1E	1F
QDIP				ID	0	DIRECTION	0	DEVICE ADDRESS			NCB ADDRESS			INITIAL ITERATION CTR		ULP RETURN ITERATION CTR			MODULE IDENTIFIER				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"QDIP"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Direction:
- C'O' for outbound
- C'I' for inbound

07 0

08–0B Device address in EBCDIC (as specified in the TRL deck)

0C–0F DINCB address

10–11 The number of iterations performed looking for data during initial inbound processing.

12–13 The number of iterations performed looking for data after return from the ULP

14–19 0

1A–1B Module identifier for the module that issued the INTRACE

1C–1F Request parameter header (RPH) address

QREQ entry for queued REQSTORE

Entry: QREQ

VIT option:
SMS

Event: Queued storage request

VIT processing module:
ISTRACSM

Control is returned to:
ISTORFBQ

This trace record identifies a REQSTORE request that was waiting for one or more buffers and is now satisfied.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
QREQ				ID	CBID	0		PST ADDRESS				BUFFER ADDRESS				0				NUM BUF REQ		0						RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"QREQ"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Control block ID index value

06–07 0

08–0B PST address

0C–0F Address of buffer obtained

10–13 0

14–15 Number of buffers requested

16–1B 0

1C–1F Request parameter header (RPH) address

QRE2 entry for queued REQSTORE

Entry: **QRE2**

VIT option:
SMS

Event: Queued storage request

VIT processing module:
ISTRACSM

This trace record is a continuation of QREQ entry. It is generated when a queued REQSTORE macro is processed for more than one buffer. The number of records generated depends on the number of buffers obtained by the REQSTORE request.

VTAM generates up to 31 QRE2 trace records. Each QRE2 entry contains addresses for up to seven buffers. If more than 218 buffers are requested, the last 4 bytes (1C–1F) in the last QRE2 entry are set to X'FFFF', indicating that not all of the requested buffers are traced.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
QRE2				SEVEN WORDS OF BUFFER ADDRESSES																											

Byte (hex)
Contents

00–03 Record ID: C"QRE2"

04–1F Up to seven more words of buffer addresses (padded on the right with zeros)

QRYL entry for query language

Entry: QRYL

VIT option:
MSG

Event: Query language error

VIT processing module:
ISTRACOT

Control is returned to:
ISTINCUL

This trace record is generated when a nonzero return code is received from the QRYLANG macro. When the return code and reason code indicate that the MVS message service is not active, no QRYL trace record is generated.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
QRYL				ID	0			LANG QUERY BLOCK ADDRESS				LANG QUERY BLOCK LENGTH				RETURN CODE				REASON CODE				FIRST 8 BYTES OF LANGUAGE NAME USED IN QUERY									

Byte (hex)
Contents

00–03 Record ID: C"QRYL"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0B Language query block address

0C–0F Language query block length (LQBSIZE)

10–13 Return code

14–17 Reason code

18–1F First 8 bytes of language name used in query (LQBINLNG)

QSRB entry for Queue Service Request Block (SRB) events

Entry: QSRB

VIT option:
CIA

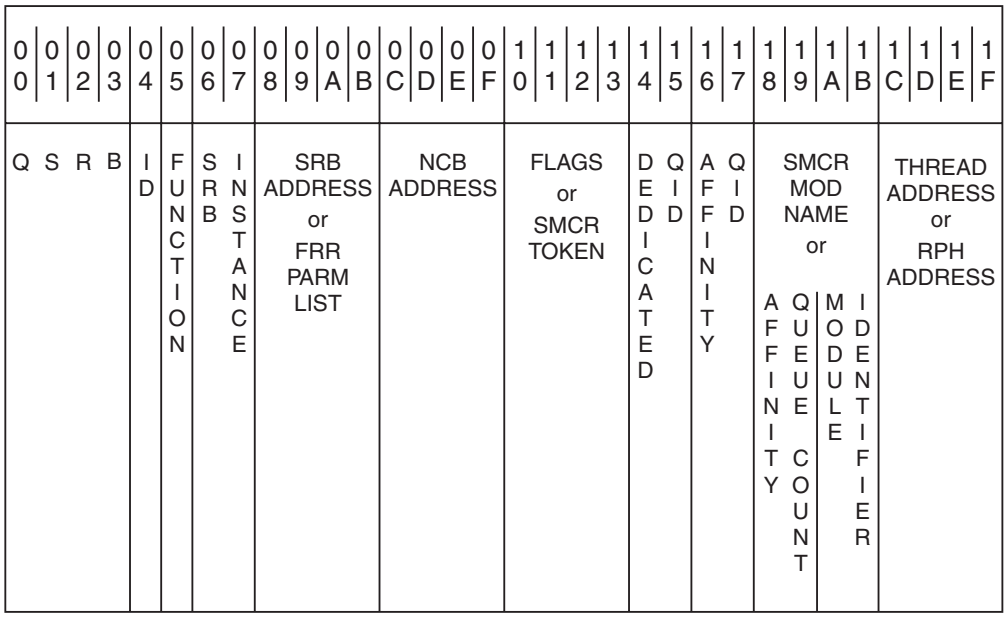
Subtrace Type:
DIO

Event: Schedule, dispatch, return, or exit of an SRB that is associated with the OSA-Express QDIO, Shared Memory Communications over Remote Direct Memory Access (SMC-R), or a HiperSockets read operation

VIT processing module:
ISTITCOD

Control is returned to:
IUTLLCIE, ISTLLCWC, IUTLLCDQ

This trace record is written to show the scheduling, dispatching, returning, and exiting of inbound OSA-Express QDIO, SMC-R, or HiperSockets processing.



Byte (hex)
Contents

00–03 Record ID: C"QSRB"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Function:

- C"D" for Dispatch
- C"E" for Exit
- C"R" for Return to IUTLLCD
- C"S" for Schedule

06–07 SRB instance field that is used to correlate QSRB events

08–0B Service Request Block (SRB) address or FRR parameter list address

- If bytes 18–19 are 'SR', this is the FRR parameter list address for function Dispatch, and 0 for all other functions.
- If bytes 18–19 are not 'SR', this is the SRB address.

0C–0F NCB address that is associated with this SRB event

- If bytes 18–19 are 'SR', this is an RUNCB address
- Otherwise, this is a DINCB address

10–13 If bytes 18–19 are not 'SR", this field contains processing flags. See the *proc_flags* definitions in the module that is identified by bytes 1A-1B.

If bytes 18–19 are 'SR', this field contains the input token that is related to the SMC-R event.

14–15 Dedicated queue identifier, or zeros if bytes 18–19 are 'SR'.

16–17 Affinity queue identifier, or zeros if bytes 18–19 are 'SR'.

18–1B If this event is associated with an SMC-R event, this field is a 4-character module identifier, where the first 2 characters are 'SR'. Otherwise:

- Bytes 18–19 are the affinity queue element count, or zeros if bytes 16–17 are zeros.
- Bytes 1A-1B are a 2-character module identifier for the module that issued the INTRACE.

1C–1F Request parameter header (RPH) address.

QSR2 entry for Queue Service Request Block (SRB) event (Part 2)

Entry: QSR2

VIT option:
CIA

Subtrace Type:
DIO

Event: Schedule, dispatch, return, or exit of an SRB that is associated with the OSA-Express QDIO, Shared Memory Communications over Remote Direct Memory Access (SMC-R), or a HiperSockets read operation

VIT processing module:
ISTITCOD

Control is returned to:
IUTLLCIE, ISTLLCWC, IUTLLCDQ

This trace record is written following the QSRB entry.

00 01 02 03	04 05 06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
QSR2	0	TIME STAMP OF QSRB EVENT	0

Byte (hex)
Contents

00–03 Record ID: C"QSR2"

04–07 0

08–0F Time stamp of QSRB event.

10–1F 0

QUE entry for work element queued to PAB

Entry: QUE

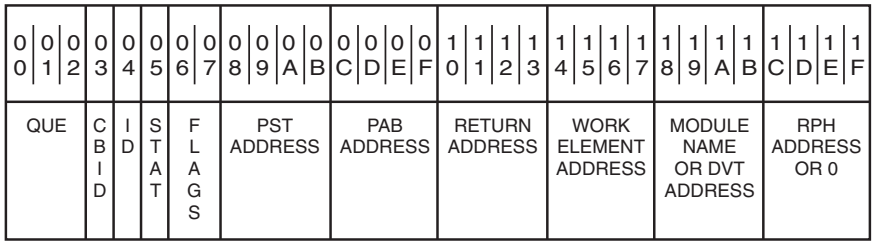
VIT option:
PSS

Event: Work element queued to PAB

VIT processing module:
ISTRACPS

Control is returned to:
ISTAPCTQ

This trace record shows a work element queued to a PAB to allow another VTAM routine to do further processing with the work element. This entry may be followed shortly by a DSP entry, representing the PSS dispatch of this PAB. However, if the PAB is already running, it might not be dispatched again. In this case, no DSP entry follows the TPQUE.



Byte (hex)
Contents

00–02 Record ID: C"QUE"

03 Control block ID of work element (See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures.)

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Status

Bit **Meaning**

xx.. ....
Type of scheduling request

Bit **Meaning**

00 TPQUE none

01 TPQUE normal

10 TPQUE delay

..x. ....
0

...1 ....
Queue is in last-in-first-out (LIFO) order.

...0 ....
Queue is in first-in-first-out (FIFO) order.

.... 1...
Registers are saved in the RPH control block.

.... .x..
0

.... ..1.
PAB work element queue gate bit (PABWEQG).

....0
PAB change bit (PABCHNG). PAB *is not* scheduled to run.

....1
PAB *is* scheduled to run.

06 PAB flag field (PABFLAGS)

Bit **Meaning**

1... ....
PAB is unconditionally scheduled.

.1.. ....
PAB closedown is in progress.

..1. ....
PAB is synchronous.

...1 ....
PAB extension is present.

.... 1...
Do not dequeue work element.

.... .1..
Do not detach the RPH.

.... ..1.
Indicates a very extended PAB.

....1
Indicates a slightly extended PAB.

07 PAB flag field (PABFLGS1)

Bit **Meaning**

1... ....
Switch the PST address of this PAB's major control block to the new PST address contained in DYPNWPST.

.1.. ....
This PAB has a data space extension.

..1. ....
This PAB's major control block is an FMCB.

...1 ....
PAB can be referenced in PSW disable mode.

.... 1...
PAB is persistent.

.... .1..
APSTERM/APSINIT FMCB during PAB dispatch.

.... ..xx
Reserved

08–0B PST address

0C–0F PAB address

10–13 Address of the issuer of the TPQUE macro

14–17 Address of work element to be queued

18–1B Module name abbreviation (bytes 4, 5, 7, and 8 of the module name) or PAB DVT address (high-order bit of X'18' = 0). For an explanation of the module naming convention, see "Using module names to isolate VTAM problems" on page 25. (The module name might be unavailable if the PAB being scheduled is associated with an address space different from the current one.)

1C–1F Request parameter header (RPH) address or 0

QUEN entry for work element queued to any control block

Entry: QUEN

VIT option:
PSS

Event: Work element queued to any control block

VIT processing module:
ISTRACPS

Control is returned to:
ISTAPCTQ

This trace record shows a work element queued to any control block (not just a PAB) to allow another VTAM routine to further process the work element.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
QUEN				ID	CBID	0		PST ADDRESS OR 0				QUEUE ADDRESS				RETURN ADDRESS				WORK ELEMENT ADDRESS				0				RPH ADDRESS OR 0			

Byte (hex)
Contents

00–03 Record ID: C"QUEN"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Control block ID of work element (See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures.)

06–07 0

08–0B Address of PST or 0

0C–0F Address of the control block field to which the work element is queued

10–13 Address of the issuer of the TPQUE NONE macro

14–17 Address of work element to be queued

18–1B 0

1C–1F Request parameter header (RPH) address or 0

RACR entry for LU 6.2 invocation of RACROUTE

Entry: RACR

VIT option:
APPC

Event: Resource access control

VIT processing module:
ISTRACAC

Control is returned to:
ISTNSCSI

This trace record shows information about the completion of a RACROUTE macro. This trace record is written during security processing for session establishment.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
RACR				ID	REQ	TYPE	0	ACEE ADDRESS				HALF SESS ID				0				RACR COMPLET CODE				REQUEST RETURN CODE				REQUEST REASON CODE			

Byte (hex)
Contents

00–03 Record ID: C"RACR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 RACROUTE request

X'01' AUDIT

X'02' EXTRACT

X'03' LIST

X'04' VERIFY

06 RACROUTE type

For AUDIT: 0

For EXTRACT, LIST, or VERIFY:

X'01' CREATE

X'02' DELETE

X'03' ENCRYPT

X'04' EXTRACT

07 0

08–0B Address control environment element (ACEE) address

0C–0F Half-session ID

10–13 0

14–17 RACROUTE completion code

X'00' Request successfully completed

X'04' Request completed with nonzero return/reason code

X'08' RACROUTE failure

18–1B Request return code from security management product. See the appropriate manual for your security management product for an explanation of the return/reason codes.

1C–1F Request reason code from security management product. See the appropriate manual for your security management product for an explanation of the return/reason codes.

RAPB entry for invoking a RoCE anchor pool operation (Part 1)

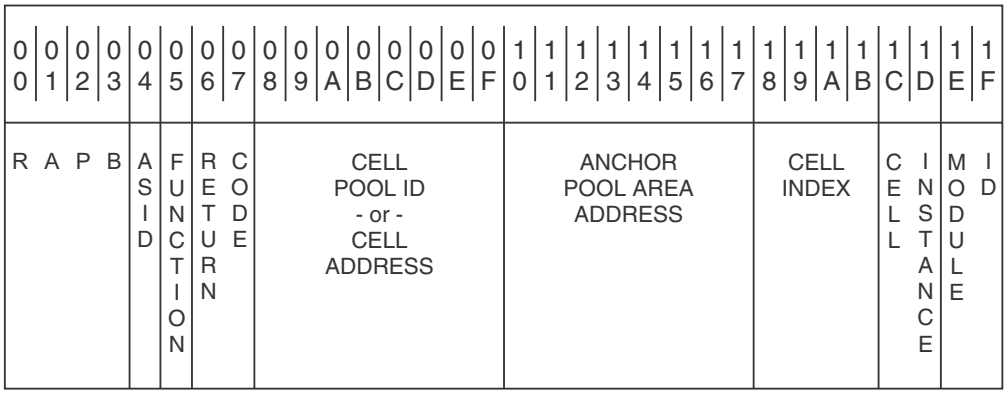
Entry: RAPB

VIT option:
SMS

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) 64-bit anchor pool operation, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing.

VIT processing module:
ISTITCSH

This trace record is written upon completion of an anchor pool operation.



Byte (hex)
Contents

00–03 Record ID: C'RAPB'

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Function identifier:

- 'D' for Delete
- 'F' for Free
- 'G' for Get
- 'I' for Init
- 'T' for Traverse
- 'X' for GetIndex

06–07 Return code

08–0F Cell pool identifier or address:

- If this entry represents a Delete function, this field is 0.
- If this entry represents an Init function, this field is the cell pool identifier.
- Otherwise, this field is the cell pool address.

10–17 Anchor cell pool block address

18–1B When this entry represents a Traverse or GetIndex function, this field is the cell index number; otherwise, 0

1C–1D
When this entry represents a GetIndex function, this field is the cell instance number; otherwise, 0.

1E–1F Module identifier of the module that issued INTRACE.

RAP2 entry for invoking a RoCE anchor pool operation (Part 2)

Entry: RAP2

VIT option:
SMS

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged

Ethernet (RoCE) 64-bit anchor pool operation, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing.

VIT processing module:
ISTITCSH

This trace record is a continuation of the RAPB trace record when an Init function is processed for an anchor pool.

00 01 02 03	04 05 06 07	08 09 0A 0B	0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
R A P 2	ANCHOR BLOCK LENGTH	CELL SIZE	CELL POOL ID (20 OF 28 CHARS)

Byte (hex)
Contents

00–03 Record ID: C'RAP2'

04–07 Length of the anchor block

08–0B Length of the anchor cell

0C–0F The first 20 characters of the cell poll identification string

RCEx entry for RCE macroinstruction

Entry: RCEA, RCEC, RCED, or RCEF

VIT option:
NRM

Event: RCE macroinstruction

VIT processing module:
ISTRACNR

Control is returned to:
The module that issued the RCE macroinstruction

This trace record contains information about an RCEADD, RCECHG, RCEDEL, or RCEFIND macroinstruction issued by a VTAM module.

00 01 02 03	04	05	06	07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
RCEA RCEC RCED RCEF	ID	RTNCD	TYPE	MODE	KEY VALUE	RETURN ADDRESS	OUT1 OR NEW TABLE NAME	OUT2 OR NEW TABLE NAME	DATA ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"RCEA" (RCEADD), C"RCEC" (RCECHG), C"RCED" (RCEDEL), C"RCEF" (RCEFIND)

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Return code

06 Type of RCE entry

07 Mode of RCE entry (in hex)

- 01=Base entity mode
- 02=Reference entity mode

08–0F Key value (base entity name, base index, or reference index, depending on mode)

10–13 Address of the issuer of the macro

14–17 For RCEADD, RCEDEL, and RCEFIND: Value in RCEPOUT1

For RCECHG: First half of new table name

18–1B For RCEADD, RCEDEL, and RCEFIND: Value in RCEPOUT2

For RCECHG: Second half of new table name

1C–1F Data address

RCM entry for RCM PAB dispatch

Entry: RCM

VIT option:
HPR

Event: Dispatch of RTP context manager (RCM) PAB

VIT processing module:
ISTITCHR

Control is returned to:
The module that issued INTRACE type (RCM)

This trace record is written by the RTP context manager (RCM) to summarize specific activities.

00 01 02 03	04	05	06	07 08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
RCM	ID	0	INSTANCE	ISSUING MODULE NAME	RCM BASE EXT	RCM RSR EXT	RUPE OPCODE	RPNCB ADDR	RPH ADDR

Byte (hex)
Contents

00–03 Record ID: C"RCM"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 INTRACE macro instance

07–0B Issuing module name

0C–0F RCM base extension

10–13 RCM route setup request (RSR) extension

14–17 RUPE opcode

18–1B RPNCB address

1C–1F RPH address

RCPx entry for invoking a RoCE verb (Part 1)

Entry: RCPx

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) verb, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing.

VIT processing module:
ISTITCSH

Control is returned to:
The module that issued the INTRACE macroinstruction

This trace record is written upon invocation or completion of a RoCE verb.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
RRCC		PCPO		ID	INSTANCE	PARM LIST	LENGTH	RELATED CONTROL BLOCK				RUNCB ADDRESS				SRNCB ADDRESS				PLIST ADDRESS				MODULE	IDENTIFIER	PFID		RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID:

- C'RCPI' for the RoCE parameter list information before the call
- C'RCPO' for the RoCE parameter list information after the call

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Instance identifier within the module

06–07 Length of the parameter list (PLIST) that is used for the RoCE verb invocation

08–0B A related control block for this particular ROCE verb. This control block can be either a storage control block or a control block that represents the queue pair, VLAN, or 10GbE RoCE Express interface that this verb affects.

0C–0F Address of the associated RUNCB

10–13 Address of the associated SRNCB

14–17 Parameter list address. This is a 64-bit address, but only the lower 32 bits are shown in the trace record.

18–19 Last 2 characters of the module that issued the RoCE verb

1A–1B Peripheral Component Interconnect Express (PCIe) function ID (PFID) defining the 10GbE RoCE Express interface that was the target of the RoCE verb, in hexadecimal

1C–1F Request parameter header (RPH) address

RCP2 entry for invoking a RoCE verb (Part 2)

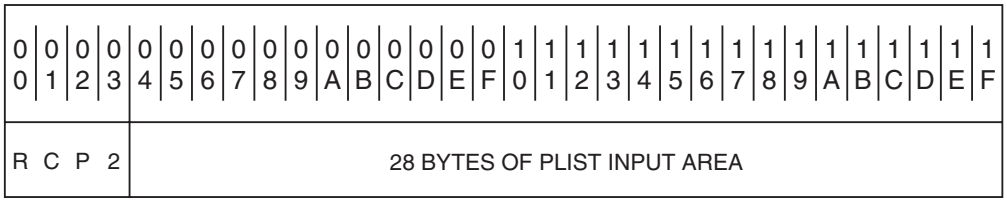
Entry: RCP2

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) verb when the input area in the RoCE verb parameter list (PList) contains nonzero information.

VIT processing module:
ISTITCSH

This trace record is a continuation of the RCPx entries. Multiple RCP2 entries can be generated, depending on the length of the input area in the PList that is used for the RoCE verb.



Byte (hex)
Contents

00–03 Record ID: C'RCP2'

04–1F 28 bytes of the input area in the PList

RCP3 entry for invoking a RoCE verb (Part 3)

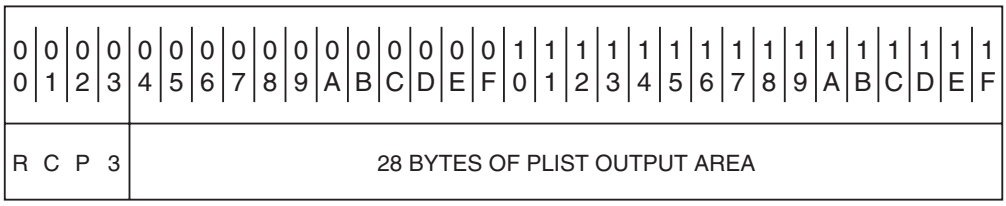
Entry: RCP3

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) verb when the output area in the RoCE verb parameter list (PList) contains nonzero information.

VIT processing module:
ISTITCSH

This trace record is a continuation of the RCPO entry. Multiple RCP3 entries can be generated, depending on the length of the output area in the PList that is used for the RoCE verb.



Byte (hex)
Contents

00–03 Record ID: C'RCP3'

04–1F 28 bytes of the output area in the PList

RCV entry for RCV PAB dispatch

Entry: RCV

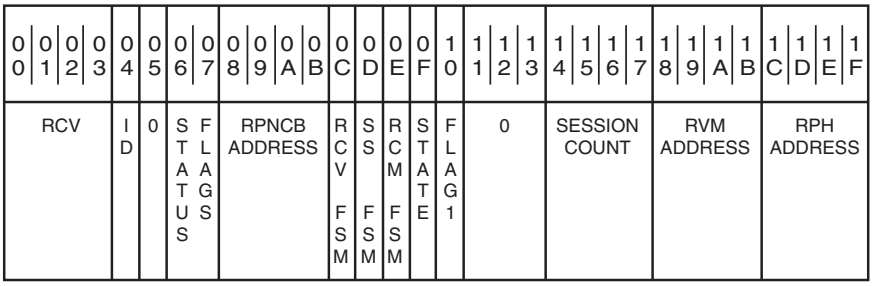
VIT option:
HPR

Event: Dispatch of MNPS recovery processing (RCV) PAB

VIT processing module:
ISTITCHR

Control is returned to:
ISTRVRR1

This trace record is written when a Recovery PAB (RPAB) is dispatched. The entry contains Recovery PAB control block information.



Byte (hex)
Contents

00–03 Record ID: C"RCV"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06–07 RCV status flags

Bit **Meaning**

1... ....
Initial dispatch of this RPAB.

.1.. ....
Crypto sessions are being recovered.

..1. ....
Recovery PAB termination is underway.

.... .1..
The RPAB has completed its recovery processing.

.... ..1.
All data to be recovered has been received from the Recovery Manager PAB.

....1
The RPAB is awaiting the status from RTP before beginning termination of the recovery.

08–0B Address of the RTP NCB being recovered by this RPAB

0C State information for internal recovery PAB processing

0D State information for recovery PAB communication with Session Services

0E State information for recovery PAB communication with RTP Context Manager

0F Recovery APPC state

10 RCV input flags

Bit **Meaning**

1... ....
This RPAB is still chained in the Recovery Manager session data queue.

.1.. ....
No more data will be coming from the Recovery Manager.

..1. ....
The RPAB should terminate recovery when it is next dispatched.

.... 1...
Session Services was unable to send a response IPS to a prior MNPS_SESSINFO(Recover)request.

.... .1..
Session Services was unable to send a response IPS to a prior MNPS_SESSINFO(Terminate) request.

11–13 0

14–17 Number of sessions being recovered

18–1B Address of the Recovery Manager control block (RVM)

1C–1F Request parameter header (RPH) address

RDSC entry for RUPE discard (Part 1)

Entry: RDSC

VIT option:
PIU

Event: Discarding a RUPE

VIT processing module:
ISTRACOT

Control is returned to:
ISTDLCDI

This trace record is written when VTAM's dependent LU server receives an erroneous signal either from the VTAM configuration services component or from the dependent LU requester node across the CPSVRMGR session.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
RDSC				ID	REASON		CODE	RUPE ADDRESS				FIRST 20 BYTES OF PIU DATA																			

Byte (hex)
Contents

00–03 Record ID: C"RDSC"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 Reason code (decimal)

1 The dependent LU server abend recovery routine, ISTDLCRR, performs clean-up.

2 CV X'60' is not found.

3 Dependent LU requester element is not found.

4 PU element is not found.

5 LU element is not found.

6 Storage shortage has occurred.

7 Dependent LU requester finite state machine is not valid.

8 Dependent LU requester finite state machine is pending inactive.

9 CPSVRMGR session pipe activation failure has occurred.

10 Unrecognized request unit processing element (RUPE) detected.

11 Start transaction program (STARTTP) failure has occurred.

12 CPSVRMGR session pipe has already been deactivated.

13 PU finite state machine is not valid.

14 SEND_ENCAP_TP process anchor block (PAB) does not exist.

08–0B Address of the RUPE being discarded

0C–1F First 20 bytes of PIU data (inbound) or RUPE's RU data (outbound) in the RUPE being discarded

RDS2 Entry for RUPE Discard (Part 2)

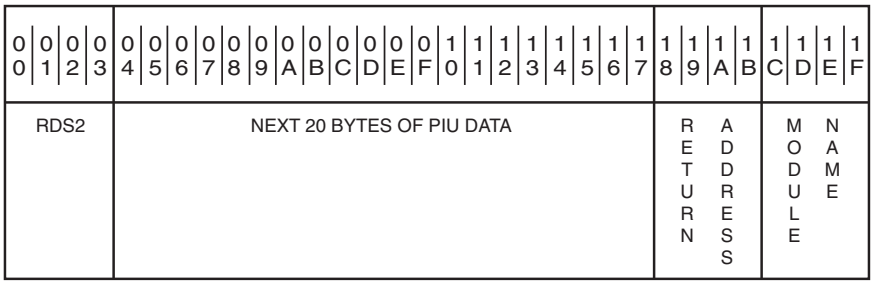
Entry: RDS2

VIT option:
PIU

Event: Discarding a RUPE

VIT processing module:
ISTRACOT

This trace record is a continuation of the RDSC entry.



Byte (hex)
Contents

00–03 Record ID: C"RDS2"

04–17 Bytes 21 through 40 of the PIU data (inbound) or RUPE's RU data (outbound) in the RUPE being discarded

18–1B Return address

1C–1F The module name that initiates the RUPE discard

RDVX entry for channel exit redrive

Entry: RDVX

VIT option:
CIO

Event: Channel interrupt

VIT processing module:
ISTRACCI

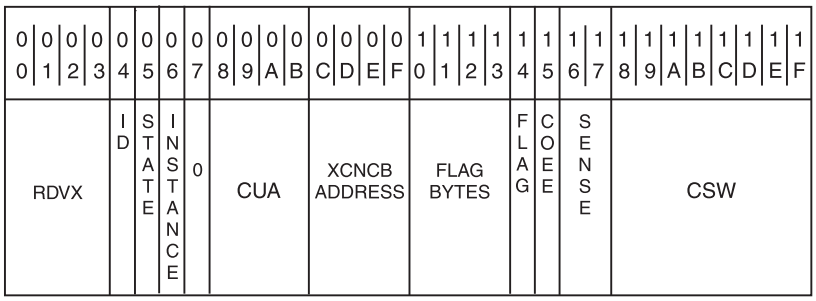
Control is returned to:
ISTTSCLC

This trace record is written when a channel program interrupt occurs. RDVX is generated for interrupts between channel-to-channel-attached hosts.

The RDVX trace entry may follow the INTX entry. The RDVX entry is written when an abnormal I/O subsystem code has been presented back to VTAM for this CTC device. This entry documents the redrive of the CTC channel exit.

See for a description of the NCB fields.

The RDVX events are also captured within the NCB (pointed to by NCBCIOMV). The NCB trace table is mapped by NCBCIOAR.



Byte (hex)
Contents

00–03 Record ID: C"RDVX"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Station state (XCNSSFSM)

06 Macro starting instance

07 0

08–0B Channel device name in EBCDIC (either a device address or device number)

0C–0F XCNCB address

10–13 Flag bytes (NCBFLAGS)

14 Flag byte as follows:

```
Bit       Meaning
1... ....  Running in disabled interrupt exit (IOSDIE is not zero)
.1.. ....  ERP work area address exists (IOSERP is not zero)
..1. ....  Exception condition (IOSEX flag is on)
...1 ....  Error routine in control (IOSERR flag is on)
```

15 I/O completion code (IOSCOD)

16–17 Sense data in IOSSNS if this was a sense channel program; otherwise, zero

18–1F Channel status word from IOSB

RE entry for RPL exit

Entry: RE

VIT option:
API

Event: RPL exit

VIT processing module:
ISTRACAP

Control is returned to:
ISTAPCSX, ISTAICRX, or ISTAICPT

This trace record contains RPL information passed from VTAM to the application program. If the return code or feedback is nonzero, this entry is generated whether the API option is in effect or not. It is treated as an exception condition and is always traced if the VIT is active, regardless of the VIT options specified.

See z/OS Communications Server: SNA Programming for a description of RPL return codes.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
RE		REQTY	EXTDS	ID		RTNCD		FDB2		FDB3		RPL ADDRESS				EXIT ADDRESS				RPL AREA				RPL RLEN				CID OR 0				RPL FDBK2			

Byte (hex)
Contents

00–01 Record ID: C"RE"

02 RPL request type (RPLREQ)

- **X'15'** SETLOGON
- **X'16'** SIMLOGON
- **X'17'** OPNDST
- **X'19'** CHANGE
- **X'1A'** INQUIRE
- **X'1B'** INTRPRET
- **X'1F'** CLSDST
- **X'22'** SEND
- **X'23'** RECEIVE
- **X'24'** RESETSR
- **X'25'** SESSIONC
- **X'27'** SENDCMD

X'28' RCVCMD

X'29' REQSESS

X'2A' OPNSEC

X'2C' TERMSESS

03 Exit definition (RPLEXTDS)

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Return code (RPLRTNCD) (See z/OS Communications Server: SNA Programming)

06 Feedback code (RPLFDB2) (See z/OS Communications Server: SNA Programming)

07 Feedback data flag (RPLFDB3) (See z/OS Communications Server: SNA Programming under INQUIRE macro with OPTCD=APPSTAT)

08–0B RPL address

0C–0F Exit address

10–13 RPL data area pointer (RPLAREA)

14–17 Record length (RPLRLEN)

18–1B CID from NIB or from RPL (RPLARG) or 0

1C–1F Second RPL feedback area - Sense code (RPLFDBK2)

RELS entry for release storage

Entry: RELS

VIT option:
SMS

Event: Release storage

VIT processing module:
ISTRACSM

Control is returned to:
ISTORMBD

This trace record provides the status of each RELSTORE request issued by VTAM components to release fixed-length buffers to one of the predefined buffer pools.

RELSTORE is the complement of REQSTORE. Storage obtained by REQSTORE must be released by RELSTORE. However, because more than one buffer can be obtained and released at a time, there may not be a RELS for every REQS, and there may not be a REQS for each RELS. Use the “next buffer address” in RELS and the “number of buffers” in REQS to help determine the correlation between buffers requested and buffers released.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
RELS				ID	CBID	0	RTNCD	PST ADDRESS				BUFFER ADDRESS				RETURN ADDRESS				NEXT BUFFER ADDRESS OR 0				REG 1				CALLER OF UTILITY OR 0			

Byte (hex)
Contents

00–03 Record ID: C"RELS"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Control block ID index value or 0. A 0 is returned if the buffer is not allocated for a specific control block.

For the index values and the control block IDs they represent, see z/OS Communications Server: SNA Data Areas Volume 1.

06 0

07 Return code

08–0B PST address

0C–0F Address of buffer to be released

10–13 Address of the issuer of the RELSTORE macro

14–17 Pointer to the next buffer to be released if more than one buffer to be released; otherwise, 0

18–1B Register 1 (normally RPH address)

1C–1F Caller of utility routine, or 0

Address of the utility's caller if the RELSTORE macro was issued from a utility routine; otherwise, 0 if the macro was issued directly by the caller without a utility routine (See bytes 10–13 for the address of the issuer of the RELSTORE macro).

REML entry for TPREMEL macro

Entry: REML

VIT option:
APPC, HPR

Event: Element TPREMELed from a work queue; only for selective TPREMELs

VIT processing module:
ISTRACAC

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced

This trace record is written when an element is dequeued from a work queue and processing begins on the element.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
REML				ID	0	INST	TYPE	ISSUING MODULE NAME				0			CBID	WORK ELEMENT INFO FIELD OR 0				WORK ELEMENT ADDRESS				QUEUE ADDRESS				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"REML"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 REML instance within issuing module

07–0B Issuing module name

0C–0E 0

0F Control block ID

10–13 Information field or 0:
- AMU ID if work element is an AMU
- CONTROL and QUALIFY values if work element is an LU6.2 RPL
- Control point operation code if work element is a RUPE
- 0 if work element is a UECB or TQE.
- DAPT, IN, OUT, or TIMB if REML is traced for HPR

14–17 Work element address

18–1B Address of the queue from which the work element is being dequeued

1C–1F Request parameter header (RPH) address

REMQ entry for APPC

Entry: REMQ

VIT option:
APPC

Event: Element TPDEQueued from a PAB; only for selective TPDEQs

VIT processing module:
ISTRACAC

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced

This trace record is written when an element is dequeued from a PAB and processing begins on the element.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
REMQ				ID		0	INST	ISSUING MODULE NAME				CNV	RTR	ERROR	CBID	WORK ELEMENT INFO FIELD OR 0				WORK ELEMENT ADDRESS				PAB ADDRESS				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"REMQ"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 REMQ instance within issuing module

07–0B Issuing module name

0C Conversation FSM state or 0

0D Router FSM state or 0

0E Error or failure FSM state or 0

0F Control block ID

10–13 Information field or 0

- AMU ID if work element is an AMU
- CONTROL and QUALIFY values if work element is an LU6.2 RPL
- Control point operation code if work element is an RUPE
- 0 if work element is a UECB or TQE

14–17 Work element address

18–1B Address of the PAB from which the work element is being dequeued

1C–1F Request parameter header (RPH) address

REQS entry for request storage (Part 1)

Entry: REQS

VIT option:
SMS

Event: Request storage (Part 1)

VIT processing module:
ISTRACSM

Control is returned to:
ISTORMBA

This trace record provides the status of each REQSTORE request issued by VTAM components to obtain fixed-length buffers from one of the predefined buffer pools. The storage obtained by REQSTORE is released by RELSTORE.

If this entry is associated with an event failure (that is, the return code is nonzero), this entry is generated whether the SMS option is in effect or not. It is treated as an exception condition and is always traced, regardless of the VIT options specified, if the VIT is active.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
REQS				ID	CBID	0		PST ADDRESS OR 0				BUFFER ADDRESS OR 0				RETURN ADDRESS				NUM BUF REQ		RC		REG 1				NUMBER OF AVAIL. BUFFERS			

Byte (hex)
Contents

00–03 Record ID: C"REQS"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Control block ID index value or 0. A 0 is returned if the buffer is not allocated for a specific control block or if the buffer allocation failed. For the index values and the control block IDs they represent, see z/OS Communications Server: SNA Data Areas Volume 1.

08–0B Pointer to the PST, or 0

0C–0F Address of buffer obtained, or 0 if buffer not obtained

10–13 Address of the issuer of the REQSTORE macro

14–15 Number of buffers requested

16–17 Return code from REQSTORE

00 Successful.

04 Storage obtained, but slowdown threshold exceeded.

06 Storage request queued, but buffer pool has to be expanded before buffers can be allocated.

08 The number of buffers requested could not be allocated immediately. Depending on the conditions specified on the REQSTORE request and the state of the buffer pool that is requested, the request may or may not be queued for future processing.

The request is queued for future processing if one of the following conditions is met:

- The REQSTORE request specifies that it can be queued for future processing regardless of the state of the buffer pool from which buffers are requested.

- The REQSTORE request specifies that it can be queued for future processing if specific conditions are met. These conditions are as follows:
  - Number of buffers already allocated plus the number of buffers for which there are outstanding requests does not exceed the maximum size of the buffer pool.
  - Buffer pool is defined to be expandable.
  - Buffer pool expansion has never failed for the buffer pool or the buffer pool has contracted since it failed to expand.

  The request is not queued for future processing if any of the following conditions apply:
- The REQSTORE request specifies that it is not to be queued under any circumstances.
- The REQSTORE request specifies that it is to be queued according to one or more of the conditions described previously in this topic and the specified conditions are not met.

16 This return code applies only to nonexpandable buffer pools. The number of buffers requested exceeds the maximum number which can be allocated in one request. This return code does not indicate that the number of buffers requested is not available; it indicates that the number of buffers exceeds the maximum allowed in one request.

18–1B Register 1 (normally RPH address)

1C–1F Number of available buffers in pool after this request is processed.

REQ2 entry for request storage (Part 2)

Entry: REQ2

VIT option:
SMS

Event: Request storage (Part 2)

VIT processing module:
ISTRACSM

This trace record is a continuation of the REQS entry. It is generated when REQSTORE macro was issued for more than one buffer. The number of records generated depends on the number of buffers obtained by the REQSTORE request.

VTAM generates up to 31 REQ2 trace records. Each REQ2 entry contains addresses for up to seven buffers. If more than 218 buffers are requested, the last 4 bytes, 1C–1F, in the last REQ2 entry are set to X'FFFF' indicating that not all of the requested buffers are traced.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
REQ2				SEVEN WORDS OF BUFFER ADDRESSES																											

Byte (hex)
Contents

00–03 Record ID: C"REQ2"

04–1F Up to seven more words of buffer addresses (padded on the right with zeros)

RESM entry for resume event processing

Entry: RESM

VIT option:
PSS

Event: Resume event processing

VIT processing module:
ISTRACPS

Control is returned to:
ISTAPCPD

This trace record gives information about which VTAM process is about to be redispatched after a TPWAIT. A RESM entry follows a POST, although not every POST has a RESM. The POST entry is followed sometime later by a RESM entry. However, when a TPPOST precedes the TPWAIT, the TPWAIT returns to the caller immediately without waiting. Then POST is not followed by RESM. Use the RPH address to find the original DSP entry, which may have occurred earlier.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
RESM				ID		CBID		FLAGS			PST ADDRESS				PAB ADDRESS				WORK EL ADDR OR NEXT DSP Q LVL				WORK ELEMENT QUEUE				PAB DVT ADDRESS OR NAME				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"RESM"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Control block ID of work element (See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures.)

06 PAB flag field (PABFLAGS)

Bit **Meaning**

1... ....
PAB is unconditionally scheduled.

.1.. ....
PAB closedown is in progress.

..1. ....
PAB is synchronous.

...1 ....
PAB extension is present.

.... 1...
Do not dequeue work element.

.... .1..
Do not detach the RPH.

.... ..1.
Indicates a very extended PAB.

....1
Indicates a slightly extended PAB.

07 PAB flag field (PABFLGS1)

Bit Meaning

1... ....
Switch the PST address of this PAB's major control block to the new PST address contained in DYPNWPST.

.1.. ....
This PAB has a data space extension.

..1. ....
This PAB's major control block is an FMCB.

...1 ....
PAB can be referenced in PSW disable mode.

.... 1...
PAB is persistent.

.... .1..
APSTERM/APSINIT FMCB during PAB dispatch.

.... ..xx
0

08–0B PST address

0C–0F PAB address

10–13 Work element address or next dispatchable queue level for a very extended PAB

14–17 PAB work element queue

18–1B PAB DVT address or name

1C–1F Request parameter header (RPH) address

RIOx entry for Resume I/O (Part 1)

Entry: RIOx

VIT option:
CIO

Event: Resume I/O

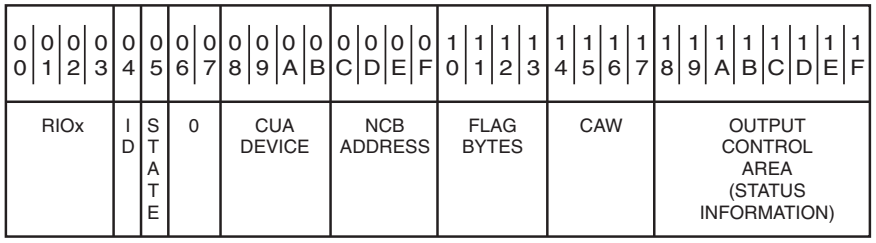
VIT processing module:
ISTRACCI

Control is returned to:
ISTLLCXR, ISTTSCIE, ISTTSCNY, ISTTSCXR, or ISTTSC8W

This trace record is written when the MVS Resume I/O service is invoked and for HPDT only.

Eventually, an INTx or PCIx entry follows the RIOx trace record. Use the CUA field to correlate the entries. See for a description of the NCB fields.

For record types with suffix I, X, or T, the CIO events are also captured within the NCB (pointed to by NCBCIOMV). The NCB trace table is mapped by NCBCIOAR.



Byte (hex)
Contents

00–03 Record ID: "RIOx" for XCNCB

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 State

06–07 0

08–0B Channel device name in EBCDIC (either a CUA or device number)

0C–0F NCB address

10–13 Flag bytes (NCBFLAGS)

14–17 Virtual channel address word (NCBCAW)

18–1F Output control area (status information)

RIO2 entry for Resume I/O (Part 2)

Entry: RIO2

VIT option:
CIO

Event: Resume I/O (Part 2)

VIT processing module:
ISTRACCI

This trace record is a continuation of the RIOx entry.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
RIO2				SECP		0		MODID		FIRST 16 BYTES OF MPC TRANSMIT BLOCK DATA OR 0 OR DEVICE DEPENDENT DATA																			0					

Byte (hex)
Contents

00–03 Record ID: C"RIO2"

04–05 CPNCB_Index_Word

06–07 0

08–09 Module ID

0A–19 First 16 bytes of MPC transmit block data, or 0, or device-dependent data

1A–1F 0

RPLx entry for invoking a RoCE Poll command (Part 1)

Entry: RPLx

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) Poll command, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing.

VIT processing module:
ISTITCSH

Control is returned to:
The module that issued the INTRACE macroinstruction

This trace record is written upon completion of the RoCE Poll operation.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
RPLE RPLR RPLS				ID		0		COUNT		RETURN CODE		REASON CODE				RUNCB ADDRESS or 0								PLIST ADDRESS							
																										CALLER RETURN ADDRESS					
																												RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID:

- C'RPLE' for Poll for event information
- C'RPLR' for Poll for received data information
- C'RPLS' for Poll for sent data information

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–06 0

07 Number of array entries that are filled as a result of the Poll operation

08–09 Return code from the Poll operation

0A–0B Reason code

0C–0F RUNCB address or 0

- For the RPLR and RPLS records, the address of the associated RUNCB
- For RPLE records, 0

10–17 Parameter list address.

18–1B Return address of the calling routine

1C–1F Request parameter header (RPH) address

RPLP entry for invoking a RoCE Poll command (Part 2)

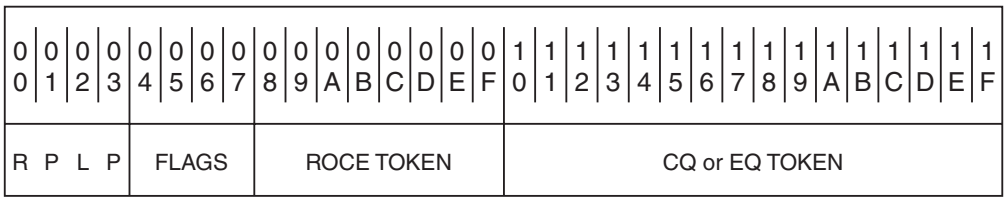
Entry: RPLP

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) PollCQ or PollEQ command, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing.

VIT processing module:
ISTITCSH

This trace record is continuation of the RPLx entry. A single RPLP entry is generated, which provides information about the base portion of the PollCQ or PollEQ parameter list.



Byte (hex)
Contents

00–03 Record ID: C'RPLP'

04–07 Option and output flags:

- If this RPLP record follows an RPLE record, the option and output flags data
- Otherwise, the option flag data

08–0F RoCE token

10–1F Queue token

RPLA entry for invoking a RoCE Poll command (Part 3)

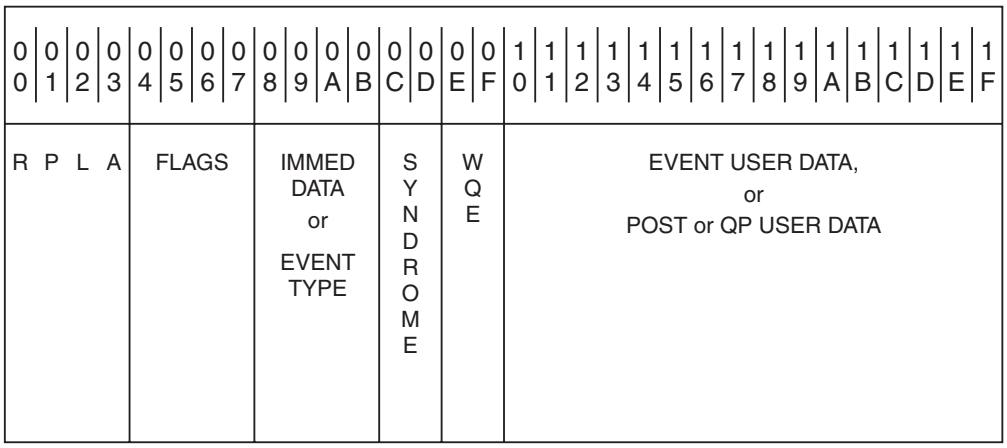
Entry: RPLA

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) PollCQ or PollEQ command, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing.

VIT processing module:
ISTITCSH

This trace record is a continuation of the RPLx entry. Multiple RPLA entries can be generated, one for each array entry that contains data at the completion of the PollCQ or PollEQ operation. A single Poll operation can have up to 64 array entries with data.



Byte (hex)
Contents

00–03 Record ID: C'RPLA'

04–07 Flags:
- If this RPLA record follows an RPLE record, 0
- Otherwise, the output flags data for this array entry

08–0B Immediate data or event type:
- If this RPLA record follows an RPLE record:
  - Bytes 08–09 are 0
  - Byte 0A is the event type
  - Byte 0B is the event subtype
- Otherwise, the immediate data, if any, that is associated with this array entry

0C–0D
Syndrome value:
- If this RPLA record follows an RPLE record, 0
- Otherwise, the syndrome value that is associated with this array entry

0E–0F Work Queue Element (WQE) number:

- If this RPLA record follows an RPLE record, 0
- Otherwise, the Work Queue Element (WQE) number that is associated with this array entry

10–1F User data:

- If this RPLA record follows an RPLE record, the event user data field
- If this RPLA record follows an RPLR record:
  - Bytes 10–17 are 0
  - Bytes 18–1F are the queue pair user data that is associated with this array entry
- If this RPLA record follows an RPLS record:
  - Bytes 10–17 are 0
  - Bytes 18–1F are the sender user data that is associated with this array entry

RPLI entry for invoking a RoCE PollCQ command (Part 4)

Entry: RPLI

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) PollCQ command, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing.

VIT processing module:
ISTITCSH

This trace record is continuation of the RPLA entry, and the RPLA entry is a continuation of the RPLx entry. One or two RPLI entries can be generated per corresponding RPLA entry, depending on the length of the inline data that is associated with the PollCQ array entry.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
R	P	L	I	28 BYTES OF ARRAY INLINE ENTRY DATA																											

Byte (hex)
Contents

00–03 Record ID: C'RPLI'

04–1F 28 bytes of inline data that is associated with the PollCQ array entry

RPST entry for invoking a RoCE Post command (Part 1)

Entry: RPST

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged

Ethernet (RoCE) Post command, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing.

VIT processing module:
ISTITCSH

Control is returned to:
The module that issued the INTRACE macroinstruction

This trace record is written upon completion of a RoCE Post operation.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
RPST				ID	0			RETURN CODE		REASON CODE		RUNCB ADDRESS				PLIST ADDRESS								CALLER RETURN ADDRESS				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C'RPST'

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–09 Return code from the Post operation

0A–0B Reason code

0C–0F Address of the associated RUNCB

10–17 Parameter list address

18–1B Return address of the calling routine

1C–1F Request parameter header (RPH) address

RPSP entry for invoking a RoCE Post command (Part 2)

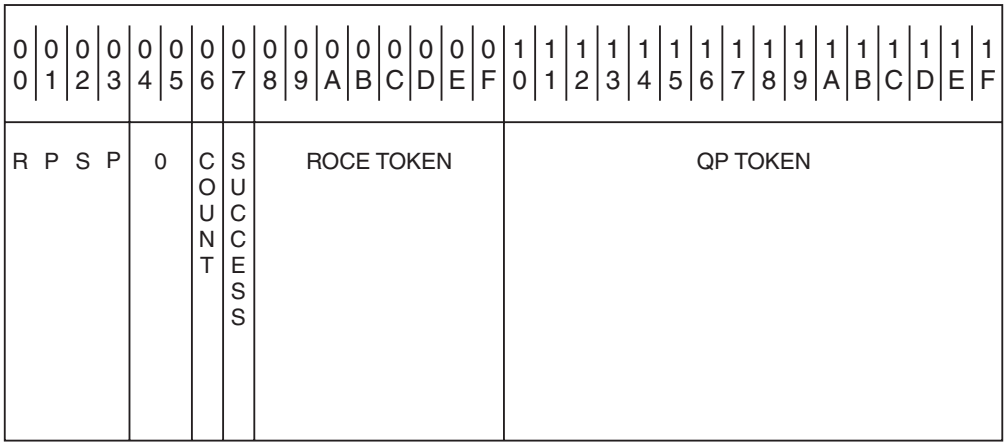
Entry: RPSP

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) Post command, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing.

VIT processing module:
ISTITCSH

This trace record is continuation of the RPST record. A single RPSP entry is generated, and provides information about the base portion of the Post parameter list.



Byte (hex)
Contents

00–03 Record ID: C'RPSP'

04–05 0

06 Number of operations (array entries) provided as input on this Post command

07 Number of operations that completed successfully

08–0F RoCE token

10–1F Queue Pair (QP) token

RPSA entry for invoking a RoCE Post command (Part 3)

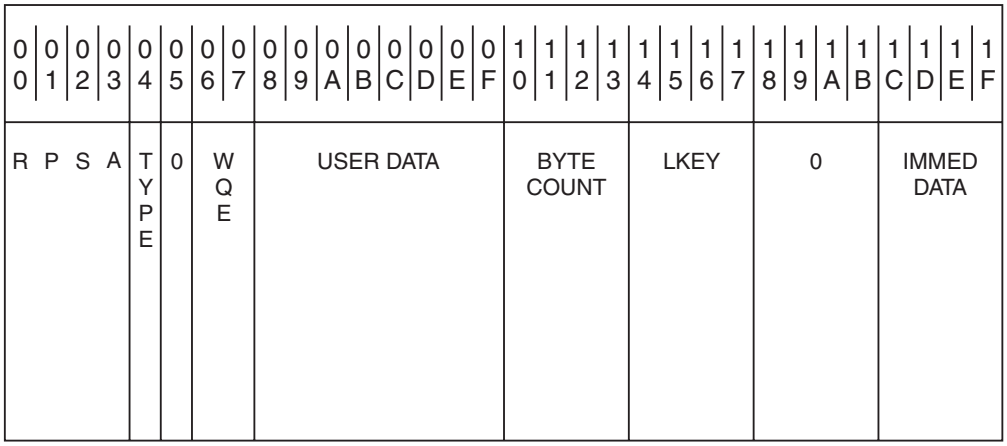
Entry: RPSA

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) Post command, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing.

VIT processing module:
ISTITCSH

This trace record is continuation of the RPST record. Multiple RPSA entries can be generated, one for each array entry that was provided as input on the Post command.



00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
R	P	S	A	TYPE	0	WQE		USER DATA								BYTE COUNT				LKEY				0				IMMED DATA			

Byte (hex)
Contents

00–03 Record ID: C'RPSA'

04 Post operation type
- I for Send Immediate operation
- M for RDMA Write Immediate operation
- W for RMDA Write operation
- S for Send operation

05 0

06–07 Work Queue Element (WQE) number that is associated with this array entry

08–0F UserData that is associated with this Post operation

10–13 Amount of data to be sent on this Post operation

14–17 Local Key (LKEY) of the source buffer or 0:
- If Post operation type is 'M' or 'W', the Local Key (LKEY) of the source buffer
- Otherwise, 0

18–1B 0

1C–1F Immediate data to be sent as part of this Post operation, or 0

RPS2 entry for invoking a RoCE Post command (Part 4)

Entry: RPS2

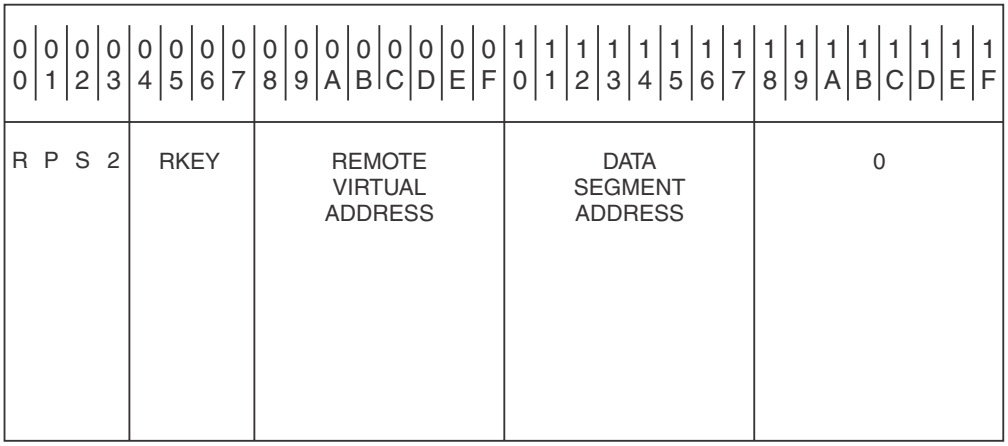
VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) Post command, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing.

VIT processing module:
ISTITCSH

This trace record is a continuation of the RPSA entry, and the RPSA entry is a continuation of the RPST record. One RPS2 entry can be generated per

corresponding RPSA entry, if the RPSA entry represents an RDMA Write operation.



Byte (hex)
Contents

00–03 Record ID: C'RPS2'

04–07 Remote key (RKEY) of the destination buffer

08–0F Address within the remote destination buffer where the data is to be stored

10–17 Source address for the data to be sent

18–1F 0

RPSI entry for invoking a RoCE Post command (Part 5)

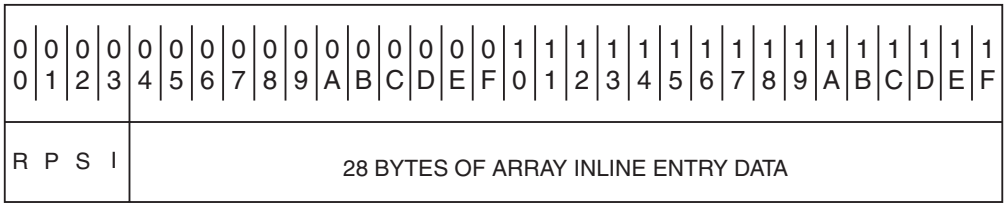
Entry: RPSI

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) Post command, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing.

VIT processing module:
ISTITCSH

This trace record is a continuation of the RPSA entry, and the RPSA entry is a continuation of the RPST record. One or two RPSI entries can be generated per corresponding RPSA entry, depending on the length of the inline data that is associated with the Post array entry. If no inline data is associated with this Post operation, no RPSI record is created for this entry.



Byte (hex)
Contents

00–03 Record ID: C'RPSI'

04–1F 28 bytes of inline data that is associated with the Post array entry

RQE entry for read queue exit

Entry: RQE

VIT option:
CMIP

Event: Read-queue exit called by CMIP application program

VIT processing module:
ISTITCCM

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced

This trace record is generated when the read-queue exit of a CMIP application program returns from processing a message. The trace record shows the information that is passed from the MIB controller to the application program and the return code passed from the application program.

For detailed descriptions of the fields, see z/OS Communications Server: CMIP Services and Topology Agent Guide.

If the return code is not 0, this entry is always traced, regardless of the VIT options specified.

00 01 02 03	04	05	06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
RQE	ID	0	REASON	LINK ID	INVOKE ID OR 0	RETURN CODE	USER DATA	LENGTH OF DATA	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"RQE"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06–07 Reason code indicating the reason the read-queue exit is called

08–0B Link identifier

0C–0F Invoke identifier or 0. The invoke identifier can be used to correlate this VIT entry with the CMIP message string in the buffer trace.

10–13 Return code from application program

14–17 User data

18–1B Length of data being passed to the read-queue exit

1C–1F Request parameter header (RPH) address

RSCx entry for RSCVSCAN macroinstruction (Part 1)

Entry: RSC

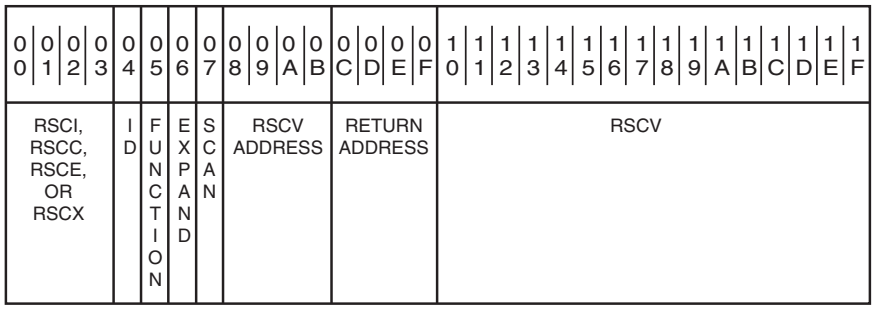
VIT option:
HPR

Event: Invocation of RSCVSCAN macroinstruction

VIT processing module:
ISTITCHP

Control is returned to:
Module invoking the RSCVSCAN macroinstruction

This trace record is written when the RSCVSCAN macroinstruction is issued. The record displays the input RSCV and the output RSCVs (the expanded, condensed, and essential RSCVs).



Byte (hex)
Contents

00–03 Record ID:

C"RSCI" for tracing input RSCV
C"RSCC" for tracing condensed RSCV
C"RSCE" for tracing essential RSCV
C"RSCX" for tracing expanded RSCV

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Function:

1 Expand CV85 before building condensed and essential RSCVs

2 Expand CV85 only

3 Do not expand CV85 before building condensed and essential RSCVs

4 Build essential RSCV

5 Trace condensed RSCV

6 Trace essential RSCV

06 Expand Return code:

14 CV85 error

15 CV83 missing

16 CV46 missing

07 Scan Return code:

01 V46 length error

02 V2B length error

03 V80 length error

04 Unknown vector

05 Hop count not valid

07 V46 not valid

08 Subvector not valid

09 CPNAME breakdown error

12 CV2B prefix error

13 No RTP path exists

17 CV4680 missing

18 CPNAME breakdown error

08–0B RSCV address

0C–0F Return address

10–1F 16 bytes of RSCV

RSC2 entry for RSCVSCAN macroinstruction (Part 2)

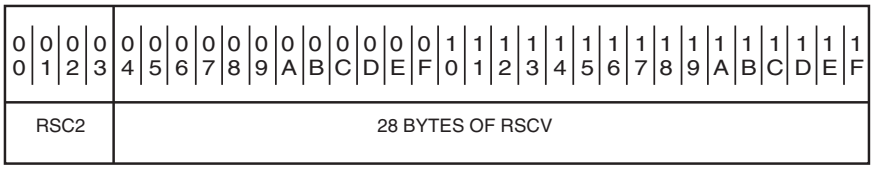
Entry: RSC2

VIT option:
HPR

Event: Invocation of RSCVSCAN macroinstruction

VIT processing module:
ISTITCHP

This trace record is a continuation of the RSCx entry.



Byte (hex)
Contents

00–03 Record ID: C"RSC2"

04–1F 28 bytes of RSCV

RSLK entry for invoking a RoCE shared lock operation

Entry: RSLK

VIT option:
CIA

Subtrace Type:
DIO

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) 64-bit shared lock operation, as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing.

VIT processing module:
ISTITCSH

This trace record is written upon completion of a shared lock operation.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
RSLK				ASID	FUNCTION	RETURN CODE	TYPE	ASSOCIATED CONTEXT CONTROL BLOCK ADDRESS								LOCK ADDRESS								SEQUENCE	USE COUNT	MODULE ID		RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C'RSLK'

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Shared lock function identifier:

- 'C' for Recovery
- 'D' for Destroy
- 'I' for Init
- 'O' for Obtain
- 'Q' for Query
- 'R' for Release

06 Return code

07 Associated control block type:

- 'C' for connection queue control block

- 'E' for event queue control block
- 'Q' for queue pair control block

08–0F Address of the control block that is associated with the shared lock

10–17 Shared lock address

18 Lock sequence number

19 Lock use count

1A–1B Module identifier of the module that issued INTRACE

1C–1F Request parameter header (RPH) address

RTP entry for RTP PAB dispatch

Entry: RTP

VIT option:
HPR

Event: Dispatch of a rapid transport protocol (RTP) PAB

VIT processing module:
ISTITCHR

Control is returned to:
ISTRPCRT

This trace record is written when an RTP PAB is dispatched. The entry contains RTP state and adaptive rate-base congestion control (ARB) information.

00	01	02	03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10	11	12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
RTP				ASID	NUM RETRY	PATH SWITCH	ARB FLAGS	LAST BYTE SENT	LAST BYTE RCVD	RTP CONST	TIMERS	NUMBER OF	NLPS RXMT	NUMBER OF BYTES TO SEND	RPNCB ADDRESS	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"RTP"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Number of retries (RPN_NUM_RETRY)

06 RTP path switch fields:

Bit **Meaning**

1... ....
Path switch—Waiting for LU-LU session services or topology and routing services (RPN_WAIT_PSWCH)

.1.. ....
Path switch—Waiting for partner (RPN_WAIT_PS_STAT)

..1. ....
Back pressure applied (RPN_BACK_PRESSURE)

...1 ....
Status pending (RPN_STATUS_PENDING)

.... 1...
Last message bit set in the NLP transport header (RPN_LAST_MSG)

.... .1..
Path switch in progress (RPN_PSWCH_STATE)

.... ..1.
Modify RTP command in progress (RPN_MRTP)

....1
Allow reporting of lost data (RPN_REPORT_GAPS)

07 ARB Flags:

Bit	Meaning

1... ....
Echo pending (RPN_ECHO_PENDING)

.1.. ....
GAP pending (RPN_GAP_PENDING)

..xx ....
Mode (ARB_MODE):

00	Green
01	Yellow
10	Red

.... xxxx
Unused; available

08–0B Last byte sequence number sent (RPN_NEXT_BYTE_XMIT)

0C–0F Last byte sequence number received (RPN_LAST_BYTE_RCV)

10 RTP connection state (RPN_CONN_STATE)

11 Timers:

Bit	Meaning

1... ....
Burst timer expired.

.1.. ....
Short request timer expired.

..1. ....
Liveness timer expired.

...1 ....
HPRPST path switch timer expired.

.... 1...
Refifo timer expired.

.... .1..
New route timer for path switch expired.

.... ..xx
Unused; available

12–13 Number of retransmitted NLPs (RPN_REXMITTED_NLPS)

14–17 Number of bytes to send in the current burst interval (RPN_BYTES_TO_SEND)

18–1B RPNCB address

1C–1F Request parameter header (RPH) address

RTP2 entry for RTP PAB dispatch (Part 2)

Entry: RTP2

VIT option:
HPR

Event: Dispatch of a rapid transport protocol (RTP) PAB

VIT processing module:
ISTITCHR

This trace record is a continuation of the RTP entry.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
RTP2				RTP	FLAGS2	SLOWDOWNS	NHOONTORED	STATUS	XMIT	STATUS	RECEIVED	ECHO	RECEIVED	NLP COUNT	ONOOSQ	NLP CONUNTQ	ONINBWKQ	NLP COUNTQ	ONOUTWKQ	NLP COUNT	ONWFAQ	NLP COUNT	ONWT2SND	Number Of Bytes On WFAQ				Number Of NLPs Sent			

Byte (hex)
Contents

00–03 Record ID: C"RTP2"

04–05 RTP flags

Byte 1

Bit Meaning

1... ....
This RTP uses a CoS of CPSVCMG.

.1.. ....
This RTP uses a CoS of RSETUP.

..1. ....
Remote node is a network node (valid only for CPSVCMG RTPs).

...1 ....
Remote node is in this native subnet (valid only for CPSVCMG RTPs).

.... 1...
Remote node is border node (valid only for CPSVCMG RTPs).

.... .11.
Component initiating pipe termination.

....1
Nonmobile endpoint is performing a last ditch path switch attempt.

Byte 2

Bit Meaning

1... ....
Waiting for Route_Setup reply during path switch state

.xx. ....
Adaptive Rate Based Algorithm Used

00 ARB Mode Algorithm

01 ARB Responsive Mode Algorithm

10 ARB Progressive Mode Algorithm

...x x...
Unused; available

.... .xxx
Backpressure reason code (valid only when RPN_BACK_PRESSURE is on. See byte 6, bit 3 in the RTP entry)

B'001' Path switch in progress

B'010' Send queue backed up (congested)

B'011' Storage shortage

B'100' Stalled RTP pipe

B'101' Wait-for-acknowledgement queue maximum reached

06–07 Number of slowdowns not honored

08–09 Last status number transmitted

0A–0B Last status number received

0C–0D
Last status number echoed correctly by partner

0E–0F Number of NLPs on out of sequence queue

10–11 Number of NLPs on inbound work queue

12–13 Number of NLPs on outbound work queue

14–15 Number of NLPs on waiting for acknowledgement queue

16–17 Number of NLPs on waiting to send queue

18–1B Number of bytes on waiting for acknowledgement queue

1C–1F Number of NLPs sent

RTP3 entry for RTP PAB dispatch (Part 3)

Entry: RTP3

VIT option:
HPR

Event: Dispatch of a rapid transport protocol (RTP) PAB

VIT processing module:
ISTITCHR

This trace record is a continuation of the RTP entry.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
RTP3				MNPS	FLAGS2	0		Inbound High NLP Num				OKACK QUE Ptr NLP value				0				0				0				0			

Byte (hex)
Contents

00–03 Record ID: C"RTP3"

04–05 Multinode persistent sessions (MNPS) flags:

Byte 1

Bit **Meaning**

1... ....
This end of the RTP connection is associated with an MNPS application.

.1.. ....
The partner endpoint is associated with an MNPS application.

..1. ....
MNPS endpoint path switch is in progress.

...1 ....
Incoming data should be discarded until MNPS recovery is complete.

.... 1...
MNPS enhanced path switch processing is in progress.

.... .1..
This RTP connection maintains a real connection path that is different from its computed session path.

.... ..1.
MNPS coupling facility structure data needs to be repopulated.

....x
Unused; available

Byte 2

Bit **Meaning**

1... ....
MNPS recovery is underway.

.x.. ....
Unused; available

..1. ....
The recovery PAB has given permission to delete the RPNCB.

...1 ....
A request to delete the RPNCB has been queued to the recovery PAB by RTP context manager.

.... 1...
Recovery is being terminated, but RCM is waiting for completion of ALS processing before continuing.

.... .1..
This recovery PAB is chained on the ATCVT list of recovery PABs.

.... ..1.
PU termination processing is waiting for RTP connection cleanup.

....1
Route setup processing is required during RTP recovery.

06–07 Unused, available

08–0B Highest contiguous inbound NLP sequence number acknowledged by this endpoint.

0C–0F Sequence number associated with the first NLP pending notification from TSC that the data can be acknowledged to a partner endpoint

10–13 0

14–17 0

18–1B 0

1C–1F 0

RTPE entry for RTP error detection

Entry: RTPE

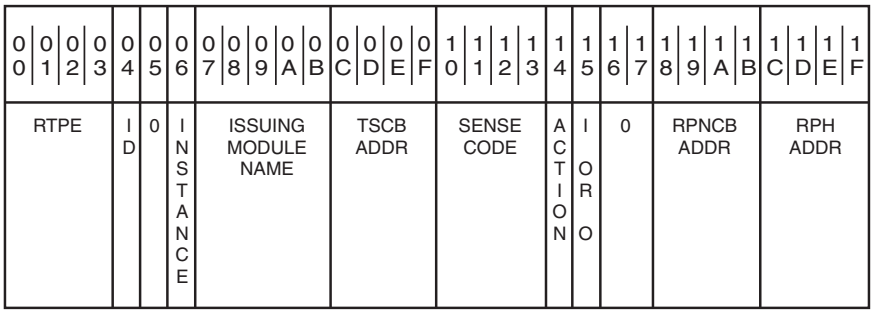
VIT option:
HPR

Event: Error detected by rapid-transport protocol (RTP)

VIT processing module:
ISTITCHR

Control is returned to:
ISTRPCRC or ISTRPCRR

This trace record is written when rapid-transport protocol (RTP) detects an error condition, including protocol violations.



00 01 02 03	04	05	06	07 08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14	15	16 17	18 19 1A 1B	1C 1D 1E 1F
RTPE	ID	0	INSTANCE	ISSUING MODULE NAME	TSCB ADDR	SENSE CODE	ACTION	I OR O	0	RPNCB ADDR	RPH ADDR

Byte (hex)
Contents

00–03 Record ID: C"RTPE"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Instance of the trace in the issuing module

07–0B Name of the module that issued this trace entry

0C–0F TSCB address containing network layer packet (NLP)

10–13 Sense code indicating error condition (MRPFA sense code)

14 Action:

01 RTP termination

02 Packet discard

03 Packet processed (error ignored)

15

I—Inbound
Partner error detected

O—Outbound
Origin node error detected

16–17 0

18–1B RPNCB address

1C–1F Request parameter header (RPH) address

RTPP entry for path switch processing

Entry: RTPP

VIT option:
HPR

Event: Path switch

VIT processing module:
ISTITCHR

Control is returned to:

Module invoking the INTRACE macro that caused the record to be produced

This trace record is generated at various points during path switch processing.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
RTPP				ASID	PSEVENT	PATH SW1	PATH SW2	PATH SW3	PS FLAVOR	NUM PSRY	RTP CONST	NRTEOIWUMTEER		PSTAWITHIMTECRH		RETURN ADDRESS				RUPE OPCODE				RPNCB ADDRESS				RPH ADDRESS			

Byte (hex)

Contents

00–03 Record ID: C"RTPP"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 If nonzero, indicates one of the following path switch events:

C - Path switch successfully completed

F - Path switch failed

O - Path switch overridden by partner

S - Path switch started

06 RTPP path switch 1 fields:

Bit **Meaning**

1... ....
Path switch—Waiting for new route (RPN_WAIT_PS_APPN)

.1.. ....
Path Switch—Waiting for partner (RPN_WAIT_PS_STAT)

..1. ....
Path switch needed (RPN_PS_NEEDED)

...1 ....
Path switch in progress (RPN_PSWCH_STATE)

.... 1...
Modify RTP command in progress (RPN_MRTP)

.... .1..
RPN_RS_OUTSTANDING

.... ..1.
RPN_INTERNET

....1
RPN_LAST_DITCH

07 RTPP path switch 2 fields:

Bit **Meaning**

1... ....
RPN_PS_TIMER

.1.. ....
RPN_NR_TIMER

..xx xx..
RPN_PS_REASON

.... ..xx
RPN_CONN_TYPE

08 RTPP path switch 3 fields:

Bit **Meaning**

1... ....
RPN_LOCAL_MNPS

.1.. ....
RPN_REMOTE_MNPS

..1. ....
RPN_TWOSTEP

...1 ....
RPN_ENDPOINT_PS

.... 1...
RPN_PSW_STARTED_MSG

.... .xxx
Unused; available

09 RPN_PS_FLAVOR

0A RPN_NUM_PS_RETRY

0B RPN_CONN_STATE

0C–0D
RPN_NEW_ROUTE_T (low half)

0E–0F RPN_PATHSWITCH_T (low half)

10–13 Return address

14–17 RUPE opcode

18–1B RPNCB address

1C–1F Request parameter header (RPH) address

RTSx entry for route setup (Part 1)

Entry: **RTS**

VIT option:
HPR

Event: Route setup sent or received

VIT processing module:
ISTITCHR

Control is returned to:
ISTTSCAR, ISTTSCWS, or ISTTSC9S

This trace record is written when a FID2 route-setup record is sent or received at the DLC layer. The RTSI and RTSO entries provide, respectively, inbound and outbound information about the FID2 rapid transport protocol (RTP) route-setup signal when it is detected at the DLC layer.

00	01	02	03	04	05	06	07 08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14	15	16	17	18	19	1A 1B	1C 1D 1E 1F
RTSI OR RTSO				ID	0	CBID	ISSUING MODULE NAME	TSCB ADDR	0	TSCFLG1	TSCFLG2	TSCFLG3	TSCFLG4	TSCFLG5	0	LENGTH	RPH ADDR

Byte (hex)
Contents

00–03 Record ID:
C"RTSI" for inbound
C"RTSO" for outbound

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Control block ID

07–0B Name of the module that issued this trace entry

0C–0F TSCB address

10–13 0

14 TSCFLG1

15 TSCFLG2

16 TSCFLG3

17 TSCFLG4

18 TSCFLG5

19 TSCB FID type

1A–1B Length of data (TSCILNG)

1C–1F Request parameter header (RPH) address

RTS2 entry for route setup (Part 2)

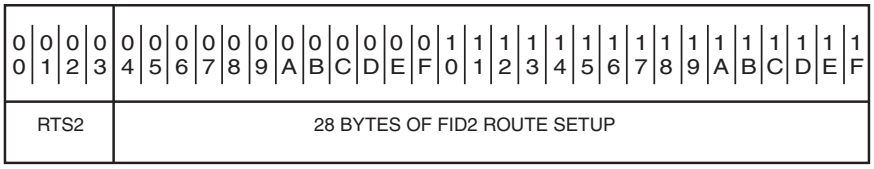
Entry: RTS2

VIT option:
HPR

Event: Route setup sent or received

VIT processing module:
ISTITCHR

This trace record is a continuation of the RTS entry.



00 01 02 03	04 05 06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16 17 18 19 1A 1B 1C 1D 1E 1F
RTS2	28 BYTES OF FID2 ROUTE SETUP

Byte (hex)
Contents

00–03 Record ID: C"RTS2"

04–1F 28 bytes of the FID2 route setup

RVM entry for RVM PAB dispatch

Entry: RVM

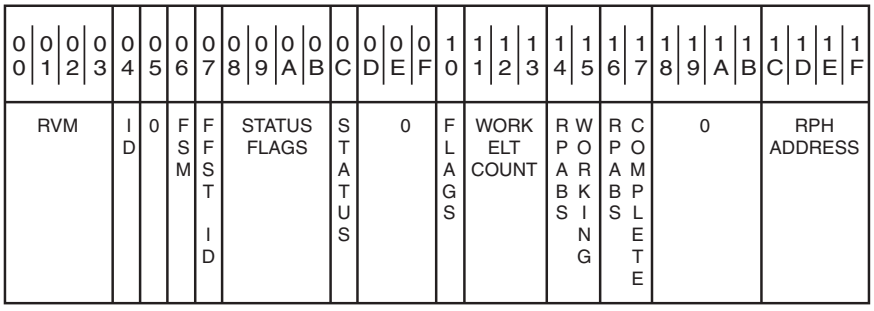
VIT option:
HPR

Event: Dispatch of recovery manager (RVM) PAB

VIT processing module:
ISTITCHR

Control is returned to:
ISTRVMRT

This trace record is written when a Recovery Manager PAB is dispatched. The entry contains Recovery Manager control block information.



00 01 02 03	04	05	06	07	08 09 0A 0B	0C	0D 0E 0F	10	11 12 13	14 15	16 17	18 19 1A 1B	1C 1D 1E 1F
RVM	ID	0	FSM	FFST ID	STATUS FLAGS	STATUS	0	FLAGS	WORK ELT COUNT	RPABS WORKING	RPABS COMPLETE	0	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"RVM"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Recovery Manager state

07 Identifier of last FFST probe issued by this instance of Recovery Manager

08–0B Recovery Manager status flags

Bit	Meaning
1...	Another VTAM has conceded ownership of the ASB to this VTAM as a result of a takeover.
.1..	This VTAM has claimed ownership of the ASB.
..1.	Recovery Manager is terminating.
...1	Recovery Manager has processed the request to begin termination that was sent by Configuration Services.
.... 1...	Recovery Manager has incremented the ACDEB "pending recovery" session count.
.... .1..	All the Recovery PABs managed by this Recovery Manager instance have completed.
.... ..1.	Recovery Manager initialization is continuing.
....1	The DSDCB for this Recovery Manager has been freed.

09

Bit	Meaning
1...	The takeover MNSPL for this Recovery Manager has been freed.
.1..	At least one set of session information blocks was incomplete.
..1.	No APPC LME data was available for this application.
...1 11..	ENCRTYPE encoding for this application.
.... ..1.	The forced takeover request sent for this application has been accepted by the current owning node.
....X	0

0A

Bit	Meaning
1...	Application is also a member of a generic resource.
.1..	Need to send an XCF takeover request.

..1. ....
Takeover reply has been received.

...1 ....
APPC list reading is required.

.... 1...
This takeover request is a forced takeover.

.... .XXX
0

0B 0

0C Planned takeover status

0D–0F 0

10 Recovery Manager interface flags

Bit	Meaning
1...	Recovery Manager is still accepting work to do from other components.
.1..	One or more Recovery PABs have completed work.
..1.	Recovery Manager should terminate recovery processing at the next dispatch.
...1	Initial dispatch of PAB.
.... XXXX	0

11–13 Number of work elements queued to Recovery Manager

14–15 Number of Recovery PABs (RPABs) that are in the process of recovery

16–17 Number of Recovery PABs (RPABs) that have completed their recovery processing

18–1B 0

1C–1F Request parameter header (RPH) address

RXMT entry for adding PDU to RPNCB queue

Entry: RXMT

VIT option:
HPR

Event: A PDU is transmitted.

VIT processing module:
ISTITCHR

Control is returned to:
ISTRPCRX

This trace record is written when a PDU is added to the RPNCB queue for data waiting to be retransmitted.

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
RXMT	ID	0	NABS	FLAGS	ISTSND ADDRESS	SEGMENT ADDRESS OR 0	PIU LENGTH	SEQUENCE NUMBER	NCB ADDRESS	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"RXMT"

04 Primary address space ID

05 0

06 Number of acknowledged bytes

07 Flags

Bit **Meaning**

x... ....
Available

.1.. ....
Outbound CV29 processed

..1. ....
Last message indicator

...0 0...
First transmission

...0 1...
Retransmit

...1 0...
Retransmitted

.... .1..
TSOP failed to get storage for token.

.... ..1.
Need to free RPN_OUTBOUND_CV29_Q entry.

....1
Send was built because of an MNPS recovery.

08–0B ISTSND address

0C–0F Segmentation address or 0

10–13 PIU length

14–17 Sequence number

18–1B NCB address

1C–1F RPH address

SBAL entry for Storage Block Address Lists (Part 1)

Entry: SBAL

VIT option:
CIA

Event: Capture SBAL

VIT processing module:
ISTITCOD

Control is returned to
ISTLLCHI, ISTLLCIE, ISTLLCWC, ISTLLCWI

This trace record is written when the OSA-Express QDIO or HiperSockets Storage Block Address List is altered. Specifically, SBAL records will follow or be preceded by an SLSB record. The SLSB shows the contents of all 128 status bytes while the SBAL record shows the contents of a single SBAL.

00 01 02 03	04	05	06	07	08	09	0A	0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
SBAL	ID	INDEX	DIRECTION	PRIORITY/QID	SBFLAG 0	SBFLAG 1	SBFLAG 14	SBFLAG 15	SBALE 1	SBALE 2	SBALE 3	SBALE 4	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"SBAL"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 SBAL index

06 Direction:
- C"I" for inbound (read queue)
- C"O" for outbound (write queue)

07 Write queue priority/Read queue identifier
- if byte 6 is C"I"
  - Read queue identifier
- if byte 6 is C"O"
  - Write queue priority

08–0B SBALE_SBALF_0, SBALE_SBALF_1, SBALE_SBALF_14, and SBALE_SBALF_15 respectively.

Note: Nonzero SBALE_SBALF_14 indicates SBAL error.

0C–0F Contents of first SBALE:

Format:

Bit 0 SBALE_Last_Entry

Bit 1 SBALE_Next_Contig

Bits 2–3
SBALE–FT (fragment type)

"00"B Not fragmented

"01"B First fragment

"10"B Middle fragment

"11"B Last fragment

Bits 4–19
SBALE_length

Bits 20–31
SBALE_Addr page offset

10–13 Contents of continuation SBALEs (if applicable).

14–17 Contents of continuation SBALEs (if applicable).

18–1B Contents of continuation SBALEs (if applicable).

1C–1F Request parameter header (RPH) address.

SBA2 entry for Storage Block Address Lists (Part 2)

Entry: SBA2

VIT option:
CIA

Event: Capture SBAL

VIT processing module:
ISTITCOD

This trace record is written subsequent to SBAL or SBA2 entries when the previous entry did not contain enough room to capture up to and including the last active SBALE.

00 01 02 03	04 05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
SBA2	SBALE X	SBALE X+1	SBALE X+2	SBALE X+3	SBALE X+4	SBALE X+5	SBALE X+6

Byte (hex)
Contents

00–03 Record ID: C"SBA2"

04–07 Contents of continuation SBALEs (see SBAL record for SBALE format)

08–0B Contents of continuation SBALEs (if applicable)

0C–0F Contents of continuation SBALEs (if applicable)

10–13 Contents of continuation SBALEs (if applicable)

14–17 Contents of continuation SBALEs (if applicable)

18–1F Contents of continuation SBALEs (if applicable)

SCHD entry for schedule of PAB dispatch

Entry: SCHD

VIT option:
PSS

Event: Schedule of PAB dispatch

VIT processing module:
ISTRACPS

Control is returned to:
ISTAPCTS

This trace record shows the schedule of a PAB to be dispatched and the last work element, if any, that was queued to the PAB. This entry should be followed shortly by a DSP entry, representing the PSS dispatch of this PAB.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
SCHD				ID	STAT	FLAGS		PST ADDRESS				PAB ADDRESS				RETURN ADDRESS				WORK EL Q OR NEXT DSP Q LVL				MODULE NAME OR DVT ADDRESS				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"SCHD"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Status

Bit **Meaning**

xx.. ....
0

..1. ....
TPSCHED unconditional

...x ....
0

.... 1...
Registers are saved in the RPH control block.

.... .x..
0

.... ..1.
PAB work element queue gate bit (PABWEQG).

....0
PAB change bit (PABCHNG) = 0 if the PAB *is not* scheduled to run.

....1
PABCHNG=1 if the PAB *is* scheduled to run.

06 PAB flag field (PABFLAGS)

Bit Meaning

1... ....
PAB is unconditionally scheduled.

.1.. ....
PAB closedown is in progress.

..1. ....
PAB is synchronous.

...1 ....
PAB extension is present.

.... 1...
Do not dequeue work element.

.... .1..
Do not detach the RPH.

.... ..1.
Indicates a very extended PAB.

....1
Indicates a slightly extended PAB.

07 PAB flag field (PABFLGS1)

Bit Meaning

1... ....
Switch the PST address of this PAB's major control block to the new PST address contained in DYPNWPST.

.1.. ....
This PAB has a data space extension.

..1. ....
This PAB's major control block is an FMCB.

...1 ....
PAB can be referenced in PSW disable mode.

.... 1...
PAB is persistent.

.... .1..
APSTERM/APSINIT FMCB during PAB dispatch.

.... ..xx
0

08–0B PST address associated with PAB

0C–0F PAB address

10–13 Address of the issuer of the TPSCHED macro

14–17 PAB work element queue or next dispatchable queue level for a very extended PAB

18–1B Module name abbreviation (bytes 4, 5, 7, and 8 of the module name) or PAB DVT address (high-order bit of X'18' = 0). For an explanation of the module naming convention, see "Using module names to isolate VTAM problems" on page 25. The module name might be unavailable if the PAB being scheduled is associated with an address space different from the current one.

1C–1F Request parameter header (RPH) address

SIGA entry for Signal Adapter event

Entry: SIGA

VIT option:
CIA

Event: Signal Adapter instruction

VIT processing module:
ISTITCOD

Control is returned to
ISTLLCHI, ISTLLCIE, ISTLLCRB, ISTLLCWC, ISTLLCWI

This trace record is written immediately subsequent to the issuance of the Signal Adapter instruction. The Signal Adapter instruction is primarily used to notify the OSA-Express QDIO or HiperSockets adapter that the status of one or more SBALs has changed (for example: data is available for a write operation). SIGA is similar in function to SIO/SSCH. SIGA is also used to communicate with the VM operating system when z/OS is executing in a specific type of virtual machine.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
SIGA				ID	0	FUNCTION	COND CODE	DEVICE ADDRESS				NCB ADDRESS				SIW				QUEUE INDEX 1		QUEUE INDEX 2		0		MODULE IDENTIFIER		RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"SIGA"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 SIGA function:
- C"M" for SIGA-mw (SIGA multiple write)
- C"R" for SIGA-r (SIGA read)
- C"S" for SIGA-s (SIGA synchronize)
- C"W" for SIGA-w (SIGA write)

07 Left nibble: Condition code from the SIGA instruction.

Right nibble: Program mask.

08–0B Device address in EBCDIC (as specified in the TRL deck)

0C–0F DINCB address

10–13 Subsystem Identification Word: X'0001' followed by the Subchannel Number that corresponds to the device address.

14–15 Queue indices bit mask (1):
- SIGA multiple write: Specifies write queues for which the Storage List Status Bytes have been updated
- SIGA read: Specifies read queues for which the Storage List Status Bytes are to be refreshed.
- SIGA sync: Specifies write queues for which the Storage List Status Bytes are to be refreshed.
- SIGA write: Specifies write queues for which the Storage List Status Bytes have been updated.

16–17 Queue indices bit mask (2):
- SIGA multiple write: X'0000'
- SIGA read: X'0000'
- SIGA sync: Specifies read queues for which the Storage List Status Bytes are to be refreshed.
- SIGA write: X'0000'

18–19 0

1A–1B Module identifier for the module that issued the INTRACE

1C–1F Request parameter header (RPH) address

SIOx entry for Start I/O

Entry: SIOD, SIOI, SIOL, SIOT, or SIOX

VIT option:
CIO

Event: Start I/O

VIT processing module:
ISTRACCI

Control is returned to:
ISTTSCIO or ISTTSCLC

This trace record is written when a Start I/O SVC is issued.

- SIOD is generated for OSA-Express QDIO or HiperSockets adapters.
- SIOI is generated for communication controllers and local SNA cluster controllers.
- SIOL is generated for local non-SNA cluster controllers.
- SIOT is generated for a TCP/IP DLC connection.
- SIOX is generated for channel-to-channel-attached hosts and channel-attached IBM 3172 Interconnect Controllers.

Eventually, an INTx or PCIx entry follows the SIO trace record. Use the CUA field to correlate the entries.

See z/OS Communications Server: SNA Data Areas Volume 1 for a description of the NCB fields.

For record types with suffix D, I, X, or T, the CIO events are also captured within the NCB (pointed to by NCBCIOMV). The NCB trace table is mapped by NCBCIOAR.

SIOD and SIOT mapping and field descriptions

00 01 02 03	04 05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
SIOT	ID / STATE / 0 / TYPE	CUA DEVICE	NCB ADDRESS	FLAG BYTES	CAW	CCW	

Byte (hex)
Contents

00–03 Record ID:
"SIOD" for DINCB
"SIOT" for RWNCB

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 State

06 0

07 For SIOD, 0

For SIOT, type:

- For the CDLC DLC: C
- For the HYPERchannel DLC: H
- For the LCS DLC: L
- For the CLAW DLC: W
- For the CTC DLC: X

- For the Hyperchannel DLC: H

08–0B Channel device name in EBCDIC (either a CUA or device number)

0C–0F NCB address

10–13 Flag bytes (NCBFLAGS)

14–17 Virtual channel address word (NCBCAW)

18–1F First channel command word (CCW)

SIOI mapping and field descriptions

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
SIOI				ID	STATE	WRITE	0	CUA DEVICE				NCB ADDRESS				FLAG BYTES				CAW				FIRST WRITE CCW ADDRESS OR 0				READ	0		

Byte (hex)
Contents

00–03 Record ID:
- "SIOI" for ICNCB

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Link station state

06 Write start operation code

07 0

08–0B Channel device name in EBCDIC (either a CUA or device number)

0C–0F NCB address

10–13 Flag bytes (NCBFLAGS)

14–17 Virtual channel address word (NCBCAW)

18–1B If link is active, first WRITE CCW and READ START operation code (06 will be WRITE START operation code), or 0

If link is not active, first channel command word (CCW)

1C Read start operation code

1D–1F 0

SIOL mapping and field descriptions

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
SIOL				ID	STATE	0		CUA DEVICE				NCB ADDRESS				FLAG BYTES				CAW				FIRST WORD OF SELECT CCW OR 0				CODE	0		

Byte (hex)
Contents

00–03 Record ID: "SIOL" for LDNCB

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 State

06–07 0

08–0B Channel device name in EBCDIC (either a CUA or device number)

0C–0F NCB address

10–13 Flag bytes (NCBFLAGS)

14–17 Virtual channel address word (NCBCAW)

18–1B If link is active and select operation; CCW and operation code, or 0. If link is not active, first channel command word (CCW)

1C Code

1D–1F 0

SIOX mapping and field descriptions

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
SIOX				ID	STATE	0		CUA DEVICE				NCB ADDRESS				FLAG BYTES				CAW				OUTPUT CONTROL AREA (STATUS INFORMATION)							

Byte (hex)
Contents

00–03 Record ID: "SIOX" for XCNCB

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 State

06–07 0

08–0B Channel device name in EBCDIC (either a CUA or device number)

0C–0F NCB address

10–13 Flag bytes (NCBFLAGS)

14–17 Virtual channel address word (NCBCAW)

18–1F Output control area (status information)

SIO2 entry for Start I/O (Part 2)

Entry: SIO2

VIT option:
CIO

Event: Start I/O (Part 2)

VIT processing module:
ISTRACCI

This trace record is a continuation of the SIOI, SIOL, SIOT, and SIOX entries.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
SIO2				SECP		0		MODID		FIRST 16 BYTES OF MPC TRANSMIT BLOCK DATA OR 0 OR DEVICE DEPENDENT DATA																		0					

Byte (hex)
Contents

00–03 Record ID: C"SIO2"

04–05 CPNCB_Index_Word

06–07 0

08–09 Module ID

0A–19 First 16 bytes of MPC transmit block data, or 0, or device-dependent data

1A–1F 0

SLSB entry for OSA-Express QDIO or HiperSockets Storage List Status Bytes (Part 1)

Entry: SLSB

VIT option:
CIA

Event: Capture SLSBs

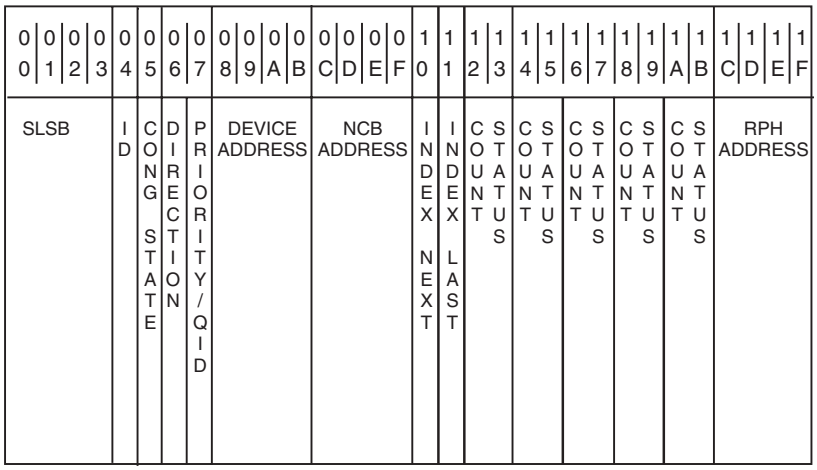
VIT processing module:
ISTITCOD

Control is returned to
ISTLLCHI, ISTLLCIE, ISTLLCWC, ISTLLCWI, ISTITCOD

This trace record is written when the OSA-Express QDIO or HiperSockets Storage List Status Bytes are altered. Specifically, this record is written:

- Upon completion of the construction of write structures for a given write queue and immediately preceding the issuance of the Signal Adapter instruction.
- Upon detection of a write completion during OSA-Express QDIO or HiperSockets timer processing.
- Upon read completion (PCI interrupt processing).
  - Prior to read completion processing

    Note: The PCID record is also used to capture the SLSBs. If the PCID record captures all 128 status bytes, the SLSB record is skipped. If the PCID record does not capture all 128 status bytes, the SLSB record does not start where PCID left off but instead replicates the count/status pairs in the PCID.
- Upon a priority queue entering a congested state.



Byte (hex)
Contents

00–03 Record ID: C"SLSB"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Congestion state; the value X'04' indicates that a write priority queue has entered a congested state.

06 Direction:
- C"I" for inbound (read queue)
- C"O" for outbound (write queue)

07 Write queue priority/Read queue identifier
- if byte 6 is C"I"
  - Read queue identifier
- if byte 6 is C"O"
  - Write queue priority

08–0B Device address in EBCDIC (as specified in the TRL deck).

0C–0F DINCB address

10 Contents of DINCB_Q_Data_Index_Next
- Next Empty Read for read SLSBs
- Next Write to Complete for write SLSBs

11 Contents of DINCB_Q_Data_Index_Last
- Last Empty Read for read SLSBs
- Last Write to Complete for write SLSBs

12–13 First of up to 128 count/status pairs

Starting at SLSB(1), these fields represent the number of consecutive SLSBs containing the same status, and what the status value is. See SLS_SLSB_Status constants for status values.

14–15 Continuation count/status pairs (if applicable)

16–17 Continuation count/status pairs (if applicable)

18–19 Continuation count/status pairs (if applicable)

1A–1B Continuation count/status pairs (if applicable)

1C–1F Request parameter header (RPH) address

SLS2 entry for OSA-Express QDIO or HiperSockets Storage List Status Bytes (Part 2)

Entry: SLS2

VIT option:
CIA

Event: Capture SLSBs

VIT processing module:
ISTITCOD

This trace record is written when the previous SLSB or SLS2 entry did not contain enough room for all the count/status pairs needed to represent the entire SLSB.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
SLS2	CS count status		CS count status		CS count status		CS count status		CS count status		CS count status		CS count status		CS count status		CS count status		CS count status		CS count status		CS count status		CS count status		CS count status		CS count status	

Byte (hex)
Contents

00–03 Record ID: C"SLS2"

04–05 Continuation count/status pairs

06–07 Continuation count/status pairs (if applicable)

08–09 Continuation count/status pairs (if applicable)

0A–0B Continuation count/status pairs (if applicable)

0C–0D
Continuation count/status pairs (if applicable)

0E–0F Continuation count/status pairs (if applicable)

10–11 Continuation count/status pairs (if applicable)

12–13 Continuation count/status pairs (if applicable)

14–15 Continuation count/status pairs (if applicable)

16–17 Continuation count/status pairs (if applicable)

18–19 Continuation count/status pairs (if applicable)

1A–1B Continuation count/status pairs (if applicable)

1C–1D
Continuation count/status pairs (if applicable)

1E–1F Continuation count/status pairs (if applicable)

SPT entry for SPT macro invoked (Part 1)

Entry: SPT

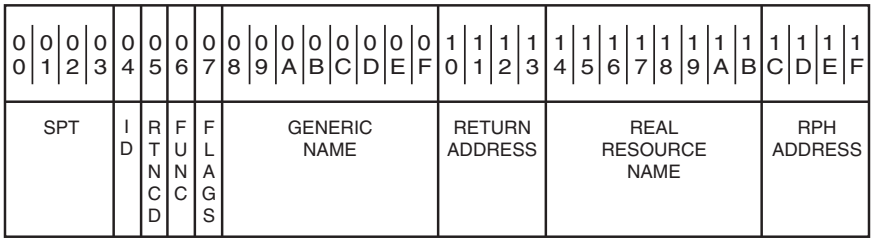
VIT option:
SSCP

Event: SPT macro invocation

VIT processing module:
ISTRACSC

Control is returned to:
ISTCPMSP

This trace record is written when partner LU mapping information in the generic resource coupling facility structure is created, deleted, or changed using the SPT macroinstruction.



Byte (hex)
Contents

00–03 Record ID: C"SPT"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Return code from the SPT macro

X'00' Request completed successfully. This is an existing USERVAR return code.

X'01' Request completed successfully and local data was returned. This is returned from SPT if SEARCH is CF&LOCAL only.

X'04' Resource specified could not be located. This is an existing USERVAR return code.

X'51' Request failed because of APPC restrictions. This is an existing USERVAR return code.

X'52' Request failed because of a parameter specification that was not valid. This is an existing USERVAR return code.

X'53' The function requested could not be completed because of a storage allocation failure. This is an existing USERVAR return code.

X'54' The real instance of user variable to be deleted could not be located. This is an existing USERVAR return code.

X'55' A conflict was found because of NETIDs.

X'56' A conflict was found because of CPNAMEs.

X'57' VTAM is halting.

X'58' ENDAFFINITY was issued for a session that was VTAM owned.

X'59' RSCTYPE value conflicted between USERVAR and GR.

X'5A' An attempt to change the generic name for a given application failed because SPTEs pertaining to the previous generic name still exist.

X'60' A session pair could not be found in an SPT entry.

X'61' An attempt to change the generic name for a given application failed because either (1) the existing generic name was never deleted, or (2) because SPTEs pertaining to the existing generic name still exist.

X'62' An attempt to repopulate the generic resource coupling facility structure has failed because the local data being used for repopulation is backlevel compared to data already in the structure.

X'63' An attempt to repopulate the generic resource coupling facility structure has succeeded but backlevel data has been identified in the structure and additional structure cleanup may be required.

X'64' An attempt to increment the session count for an SPTE failed because the name type of the SPTE did not match what was expected.

X'65' Request failed because of TSO mismatch.

X'66' An attempt to register a generic resource with the workload manager failed because a STOKEN that was not valid was used.

X'A0' A request made against the generic resources coupling facility structure will complete synchronously.

X'A1' An attempt to update information in the generic resources coupling facility structure failed because that data had changed since it was last read. The data should be reread and then modified again.

X'A2' An attempt to access the generic resources coupling facility structure failed for an unexpected reason.

X'A3' There is currently no connection to the generic resources coupling facility structure.

X'A4' The buffers provided for reading data from the generic resources coupling facility structure were insufficient for buffering all the data associated with the list entry being read. No data (adjunct or element) is returned.

X'A5' A read from the generic resources coupling facility structure failed because the requested data could not be found in that structure.

X'A6' Data could not be added to the generic resources coupling facility structure because there is insufficient storage in the generic resources coupling facility structure to hold it.

06 Reason macro invoked:

X'01' Find an SPT entry.

X'02' Add a session pair to the SPT entry.

X'03' Decrement the session count for a session pair.

X'04' Increment the session count for a session pair.

X'05' End the affinity between the generic resource and its partner LU.

X'06' Update an affinity between the generic resource and its partner LU.

X'07' Delete a session pair in an SPT entry.

X'08' Free local SPT entry that was read from the coupling facility structure.

X'09' Create a local copy of an SPT entry.

07 Flags:

x... ....
Name type

B"0" Real names only

B"1" Generic names allowed

.1.. ....
This SPT will persist until the application issues the CHANGE OPTCD=ENDAFFIN macroinstruction. See z/OS Communications Server: SNA Programming for additional information.

..x. ....
Ownership indicator

B"0" VTAM-owned

B"1" Application-owned

...x ....
Multinode persistent session indicator

B"0" SPT entry is not associated with a multinode persistent session application program

B"1" SPT entry is associated with a multinode persistent session application program

.... xx..
Affinity creator.

B"00" The affinity was created during a previous request.

B"01" VTAM selected the instance of the generic resource.

B"10" The MVS WLM selected the instance of the generic resource.

B"11" The Generic Resources Exit selected the instance of the generic resource.

.... ..1.
This affinity is for an LU 6.2 session that is not a user sync point or a limited resource.

....x
0

08–0F Generic resource name

10–13 Address of the issuer of the SPT macro

14–1B Application program network name

1C–1F Request parameter header (RPH) address

SPT2 entry for SPT macro invoked (Part 2)

Entry: SPT2

VIT option:
SSCP

Event: SPT macro invocation

VIT processing module:
ISTRACSC

This trace record is a continuation of the SPT entry.

00 01 02 03	04 05 06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B 1C 1D 1E 1F
SPT2	SIB COUNT	PCID	NETID OF PARTNER LU	PARTNER LU NAME

Byte (hex)
Contents

00–03 Record ID: C"SPT2"

04–07 Number of session information blocks (SIBs) that have been created for this SPT entry

08–0F PCID if associated with a session, otherwise 0

10–17 Partner NETID

18–1F Partner resource name

SRBD entry for SRB dispatch

Entry: SRBD

VIT option:
PSS

Event: SRB dispatch

VIT processing module:
ISTRACPS

Control is returned to:
ISTAPCAD

This trace record provides information when PSS is dispatched under an SRB.

Note: For this trace record to be created, in addition to specifying the PSS option, you must specify SRB or BOTH on the PSS TRACE start option.

00 01 02 03	04	05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D	1E 1F
SRBD	ID	0	PST ADDRESS	PST LIFO ASYNC DSP QUEUE	PST FIFO ASYNC DSP QUEUE	PST ASYNC N-DSP QUEUE (ANDSP)	TCB ADDRESS	FLG1	0

Byte (hex)
Contents

00–03 Record ID: C"SRBD"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0B PST address

0C–0F PST LIFO asynchronous dispatchable queue (PSTADSP)

10–13 PST FIFO asynchronous dispatchable queue (PSTALIST)

14–17 PST asynchronous nondispatchable queue (PSTANDSP)

18–1B TCB address (PSTTCBA)

1C–1D
PST flags (PSTFLG1)

1E–1F 0

SRBX entry for SRB exit

Entry: SRBX

VIT option:
PSS

Event: SRB exit

VIT processing module:
ISTRACPS

Control is returned to:
ISTAPCSX, ISTAPCTX, or ISTAPCAD

This trace record provides information when PSS exits an SRB. For this trace record to be created, you must specify the PSS VIT option, and you must specify SRB or BOTH on the PSSTRACE start option.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
SRBX				ID	CODE	0		PST ADDRESS				PST LIFO ASYNC DSP QUEUE				PST FIFO ASYNC DSP QUEUE				NEW ASCB ADDRESS				OLD ASCB ADDRESS				RETURN ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"SRBX"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Reason code for SRB exit

06–07 0

08–0B PST address

0C–0F PST LIFO asynchronous dispatchable queue (PSTADSP)

10–13 PST FIFO asynchronous dispatchable queue (PSTALIST)

14–17 New ASCB address

18–1B Old ASCB address

1C–1F Address of the module issuing the SRBX trace event

SRTx entry for SRTADD, SRTCHG, SRTDEL, SRTFIND macros

Entry: SRTA, SRTC, SRTD, or SRTF

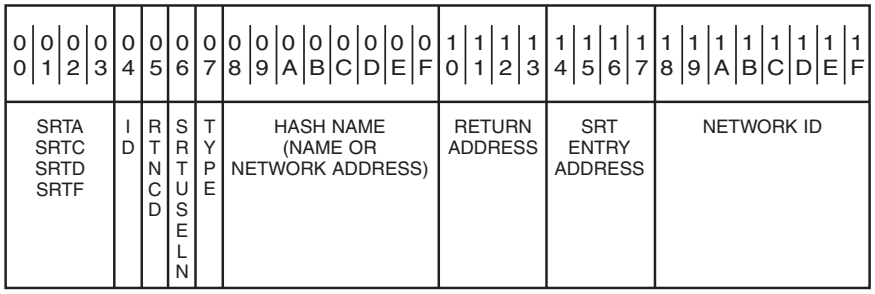
VIT option:
NRM

Event: SRTADD, SRTCHG, SRTDEL, SRTFIND macros

VIT processing module:
ISTRACNR

Control is returned to:
ISTNRCSA for SRTADD, ISTNRCSD for SRTCHG, SRTDEL, and SRTFIND

This trace record contains information about an SRTADD, SRTCHG, SRTDEL, or SRTFIND macroinstruction issued by a VTAM module.



Byte (hex)
Contents

00–03 Record ID: C"SRTA" (SRTADD), C"SRTC"(SRTCHG), C"SRTD" (SRTDEL), or C"SRTF" (SRTFIND)

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Return code. See the information about the SRT control block in z/OS Communications Server: SNA Data Areas Volume 1.

06 0 or SRTUSELN from the SRTE. This is a 4-byte field in the SRTE and will be set to X'FF' in the SRTx if SRTUSELN is greater than X'FF'. This field will be 0 if the return code is nonzero, or if the SRT type does not use SRTUSELN as a use count.

07 Type of SRT entry. For the types, see the information about the SRT control block in z/OS Communications Server: SNA Data Areas Volume 1.

08–0F Network name or network address (padded on left with zeros) passed to the hashing algorithm

10–13 Address of the issuer of the SRTADD, SRTCHG, SRTDEL, or SRTFIND macroinstruction

14–17 Address of SRT entry for the resource

18–1F Network ID of the resource

SRT2 entry for the SRTADD macro

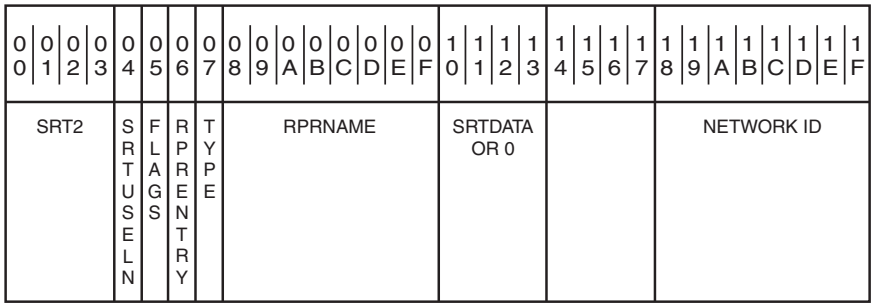
Entry: SRT2

VIT option:
NRM

Event: SRTADD

VIT processing module:
ISTRACNR

This trace record is a continuation of the SRTADD entry. It is written after an SRTADD failure if the duplicate SRTE is contained in or points to an RDTE.



00	01	02	03	04	05	06	07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B 1C 1D 1E 1F
SRT2				SRTUSELN	FLAGS	RPRENTRY	TYPE	RPRNAME	SRTDATA OR 0		NETWORK ID

Byte (hex)
Contents

00–03 Record ID: C"SRT2"

04 SRTUSELN from the duplicate SRTE; this is a 4-byte field in the SRTE and will be set to X'FF' in the SRT2 if SRTUSELN is greater than X'FF'.

05 The first bit is SRTSPECE; the other seven are not used.

06 RPRENTRY of the duplicate RDTE

07 SRTTYP from the duplicate SRTE

- **X'00'** RDTE
- **X'03'** Shadow
- **X'09'** Alias name
- **X'0A'** Network address
- **X'FF'** SRTE

08–0F RPRNAME of the duplicate RDTE

10–13 SRTDATA from the duplicate SRTE or 0

14–17 Not used

18–1F Network ID of the duplicate RDTE. If RPRENTRY is RPRENTRC, it is RCDNETID; otherwise, it is ATCNETID.

TGM entry for APPN TG management (Part 1)

Entry: TGM

VIT option:
SSCP

Event: APPN TG management event

VIT processing module:
ISTRACSC

Control is returned to:
ISTATCTR

This record is generated when one of the following APPN TG management events has occurred:

- Add an ATGB to an ATGB chain.
- Remove an ATGB from an ATGB chain.
- Find an ATGB.
- Activate a TG number.
- Deactivate a TG number.
- Negotiate a TG number.

If TGFIND fails to locate an ATGB, a trace entry will still be recorded.

00	01	02	03	04	05	06	07	08 09 0A 0B	0C	0D	0E	0F	10 11 12 13 14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
TGM			TYPE	ID	NN	RC	0	ADJCP ADDR	DYNF	CONC	CPCT	TGFS	CPNAME ADJACENT NODE	CALLER NAME	RETURN ADDR

Byte (hex)
Contents

00–02 Record ID: C"TGM"

03 Type field

Code	Meaning
C	Activate transmission group number (TGN) or APPN transmission group block (ATGB)
D	Deactivate TGN or ATGB
A	Add an ATGB
R	Remove an ATGB
F	Find an ATGB
N	Negotiate a TGN

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 APPN TG Management function values

- Network node specification
  - 0: Not a network node
  - 1: Network node
- RU being processed
  - 0: Request Contact
  - 1: Contacted
- TG number coded on macroinstruction
  - 0: Not specified
  - 1: Specified
- Display CV47
- APPN connection pending, not reported to topology (LIMBO) specification

0: No
1: Yes

- Vector format
  0: Key-length format
  1: Length-type format
- Assigned chain specification
  0: Assigned not specified
  1: Assigned specified
- Unassigned chain specification
  0: Unassigned not specified
  1: Unassigned specified

06 The calling module's return code. 0 if no return address is provided.

07 Unused available

08–0B Adjacent control point (ADJCP) address

0C Dynamic indicators received in XID3 exchange (ADJDYNFL)

0D Number of active connections controlled (ADJCONCT), last digit

0E Connections controlled by the ADJCP (ADJCPCT), last digit

0F Transmission group number state map (ADJSTMP), indexed by TGN

10–17 CPNAME of the adjacent node

18–1B Calling module name

1C–1F Return address

TGM2 entry for APPN TG management (Part 2)

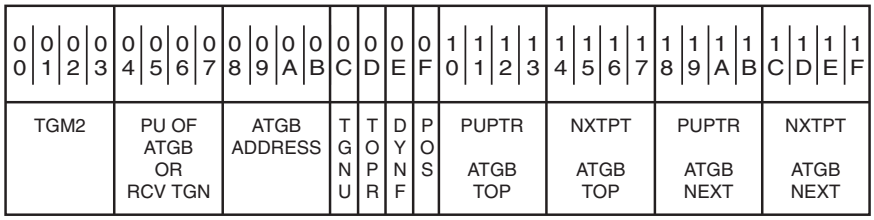
Entry: TGM2

VIT option:
SSCP

Event: APPN TG management event (Part 2)

VIT processing module:
ISTRACSC

This trace record is a continuation of the TGM trace record.



00 01 02 03	04 05 06 07	08 09 0A 0B	0C	0D	0E	0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
TGM2	PU OF ATGB OR RCV TGN	ATGB ADDRESS	TGNU	TOPR	DYNF	POS	PUPTR ATGB TOP	NXTPT ATGB TOP	PUPTR ATGB NEXT	NXTPT ATGB NEXT

Byte (hex)
Contents

00–07 Overlay 1

- 00-03 Record ID: C"TGM2"
- 04-07 PU of current ATGB

Overlay 2
- 00-03 Record ID: C"TGM2"
- 04-06: Unused, available
- 07: Received TGN

08–0B ATGB address

0C ATGTGNUM

0D ATGTOPR

0E ATGDYNFL

0F ATGPOS

10–13 ATGPUPTR: Top ATGB in the chain

14–17 ATGNXTPT: Top ATGB in the chain

18–1B ATGPUPTR: Next ATGB in the chain

1C–1F ATGNXTPT: Next ATGB in the chain

TGVC entry for Transmission Group Vector (Part 1)

Entry: TGVC

VIT option:
SSCP

Subtrace Type:
TGVC

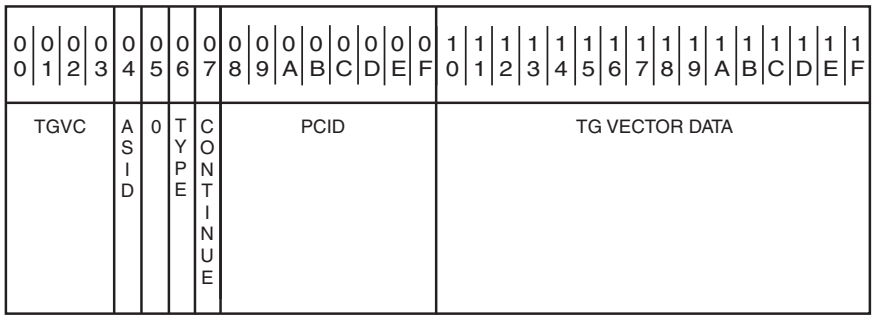
Event: Request Route, Recompute Route, Request TG Vectors, or Cache Data message

VIT processing module:
ISTITCTG

Control is returned to:
Module invoking the INTRACE TYPE(TGVC) macro

This record is generated when the subtrace TGVC under SSCP trace option is active and a TRS Request Route, Recompute Route, Request TG Vectors, or SSL Cache Data message is requested.

Note: Because of the potentially large amounts of data contained in the TG Vectors, it is not recommended that this function be turned on, except for problem diagnosis. If this function is used, it should be turned on only for the time required to generate the necessary documentation and then turned off.



Byte (hex)
Contents

00–03 Record ID: C"TGVC"

04 ASID is the primary address space ID

05 0

06 Trace type
- C"P" PLU
- C"S" SLU
- C"U" Unknown

07 Continuation trace
- C"F" First set of entries
- C"C" Continuation set of entries

08–0F PCID

10–1F TG Vector data

TGV2 entry for Transmission Group Vector (Part 2)

Entry: TGV2

VIT option:
SSCP

Subtrace Type:
TGVC

Event: Request Route, Recompute Route, Request TG Vectors, or Cache Data message

VIT processing module:
ISTITCTG

This record is a continuation of the TGVC trace record.

Note: If the complete CV46/CV47 pair does not fit in the remaining TGV2 records, another TGVC/TGV2 set is generated.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
TGV2				TG VECTOR DATA																											

Byte (hex)
Contents

00–03 Record ID: C"TGV2"

04–1F TG Vector Data

TOD entry for time of day

Entry: TOD

VIT option:
None

Event: Time-of-day snapshot at or near the top of every other VIT page

VIT processing module:
ISTRACOT

Control is returned to:
Caller of ISTRACOT

This entry is not associated with any VIT options. It is recorded as close as practical to the top of every other page of the internal VIT.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
TOD				ID	0	CPU ID		Time Of Day in TOD Format								0															

Byte (hex)
Contents

00–03 Record ID: C'TOD'

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06-07 The CPU ID of the host processor in which the trace is run

08-0F Time-of-day clock value (TOD format) when this trace record is written.

10-1F 0

TOKx entry for token collection

Entry: TOKA or TOKD

VIT option:
CIA

Event: Addition or deletion to token collection

VIT processing module:
ISTRACCI

Control is returned to:
Module invoking the INTRACE macroinstruction that caused the record to be produced

The TOKA trace record is written when a token is added to one of the token collections that are maintained by Registration Manager. The TOKD trace record is written when a token is deleted from one of the token collections that are maintained by Registration Manager.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
TOKA TOKD				ID	0	0	MODULE ID					PTOKEN				0				OBJECT TOKEN				CALLER ADDR				RPH ADDR			

Byte (hex)
Contents

00–03 Record ID:
- C"TOKA" for addition of token
- C"TOKD" for deletion of token

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 0

07–0B Module eyecatcher

0C–0F PTOKEN (Provider = D)

10–13 0

14–17 Token of object being added or deleted (filter object)

18–1B Address of caller

1C–1F Request parameter header (RPH) address.

TOPN entry for node modified (Part 1)

Entry: **TOPN**

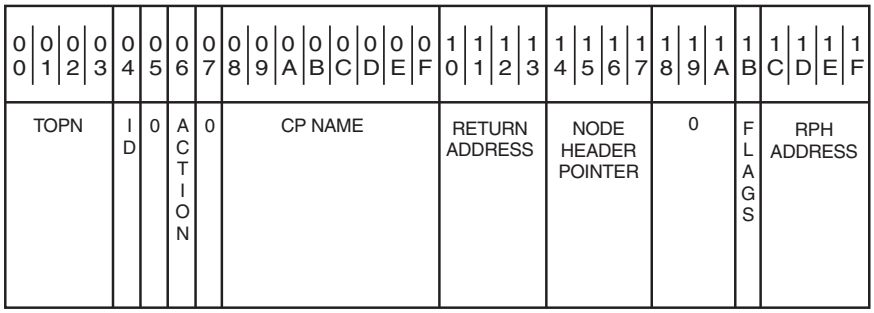
VIT option:
SSCP

Event: Topology node entry modified

VIT processing module:
ISTITCST

Control is returned to:
Module invoking the INTRACE TYPE(TOPN) macro

This record is generated when a node entry in the topology database is created or modified.



Byte (hex)
Contents

00–03 Record ID: C"TOPN"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Action performed on Topology Database:

Code	Meaning
C"A"	Add node record
C"D"	Delete node record
C"U"	Update node record

07 0

08–0F CP name of the node represented by this node record

10–13 Return address of the module that changed the Topology Database

14–17 Node header pointer

18–1A 0

1B Flag bytes as follows:

Bit	Meaning
11..	Node type
	B"00" End node
	B"01" Network node
	B"10" Virtual routing node
..1.	Indicate whether this node is nonnative

...x xxxx
Not used

1C–1F Request parameter header (RPH) address

TPN2 entry for node modified (Part 2)

Entry: TPN2

VIT option:
SSCP

Event: Topology node entry modified

VIT processing module:
ISTITCST

This record is a continuation of the TOPN trace record.

00 01 02 03	04 05 06 07	08 09 0A 0B	0C 0D 0E	0F	10 11 12 13	14 15 16 17 18 19 1A 1B	1C	1D 1E 1F
TPN2	NODE RECORD POINTER	RESOURC SEQUENC NUMBER	V4580 FLAGS	REASON	0	NETWORK ID	TIME	0

Byte (hex)
Contents

00–03 Record ID: C"TPN2"

04–07 Node record pointer

08–0B Current resource sequence number for the node

0C–0E Node characteristics control vector flags (V4580_FLAGS)

Bit **Meaning**

1... ....
Node congested

.1.. ....
Intermediate routing resources depleted

..1. ....
Endpoint resources depleted

...1 ....
Garbage collection indicator

.... 1...
High-order bit of the 3-bit Locate Message Size supported by this node

.... .1..
Node is shutting down

.... ..11
Low-order bits of the 3-bit Locate Message Size supported by this node

0F Garbage collection indicator

10–13 0

14–1B Network ID

1C Number of days left before this node is garbage collected

1D–1F 0

TOPT entry for TG modified (Part 1)

Entry: TOPT

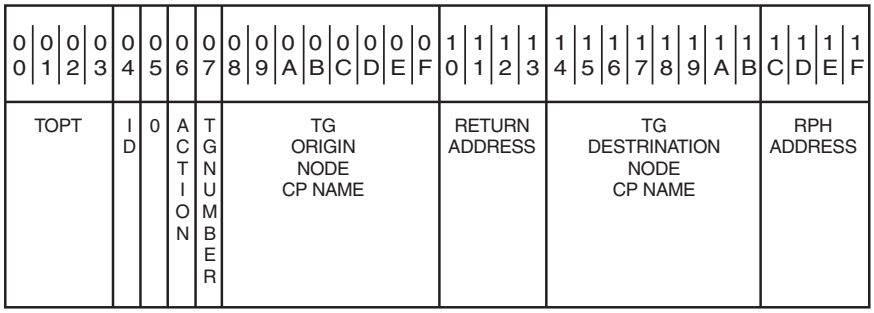
VIT option:
SSCP

Event: Topology TG entry modified

VIT processing module:
ISTITCST

Control is returned to:
Module invoking the INTRACE TYPE(TOPT) macro.

This record is generated when a TG entry in the topology database is created or modified.



Byte (hex)
Contents

00–03 Record ID: C"TOPT"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Action performed on Topology Database:

Code Meaning

C"A" Add TG record

C"D" Delete TG record

C"U" Update TG record

07 TG number

08–0F CP name of the TG origin node

10–13 Return address of the module that changed the Topology Database

14–1B CP name of the TG destination node

1C–1F Request parameter header (RPH) address

TPT2 entry for TG modified (Part 2)

Entry: TPT2

VIT option:
SSCP

Event: Topology node entry modified

VIT processing module:
ISTITCST

This record is a continuation of the TOPN trace record.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
TPT2				TG RECORD POINTER				RESOURC SEQUENC NUMNBER				V47STAT	V4680FLG	FLAGS	REASON	ORIGIN NODE RECORD POINTER				DEST NODE RECORD POINTER				REVERSE TG RECORD POINTER				TIME	0		

Byte (hex)
Contents

00–03 Record ID: C"TPT2"

04–07 TG record pointer

08–0B Current resource sequence number for the TG

0C TG characteristics status flags (V47STAT)

0D TG descriptor flags (V4680FLAGS)

0E TG information flags

Bit **Meaning**

111. ....
TG type

B"000" Endpoint TG

B"001" Intermediate routing TG

B"010" Interchange TG

B"011" Intersubnet TG

B"100" Branch extender TG

...1 ....
Indicate whether HPR control flows supported

.... xxxx
Not used

0F Garbage collection indicator

C"G" This entry is generated by Garbage Collection processing.

C"M" This entry is generated by Routing Tree Marking processing.

10–13 Node record pointer of the TG origin node

14–17 Node record pointer of the TG destination node

18–1B TG record pointer of the reverse TG

1C Number of days left before this TG is garbage collected

1D–1F 0

TPT3 entry for TG modified (Part 3)

Entry: TPT3

VIT option:
SSCP

Event: Topology node entry modified

VIT processing module:
ISTITCST

Control is returned to:
Module invoking the INTRACE TYPE(TOPT) macro.

This record is a continuation of the TPT2 trace record. This record will be present only if the TG origin node has a different Network ID than the TG destination node.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
TPT3				TG ORIGIN NODE NETWORK ID								TG DESTINATION NODE NETWORK ID								0				0				0			

Byte (hex)
Contents

00–03 Record ID: C"TPT3"

04–0B Network ID of the TG origin node

0C–13 Network ID of the TG destination node

14–1F 0

TREx entry for routing tree Build or Update

Entry: TREM, TRED, TREI, or TREB

VIT option:
SSCP

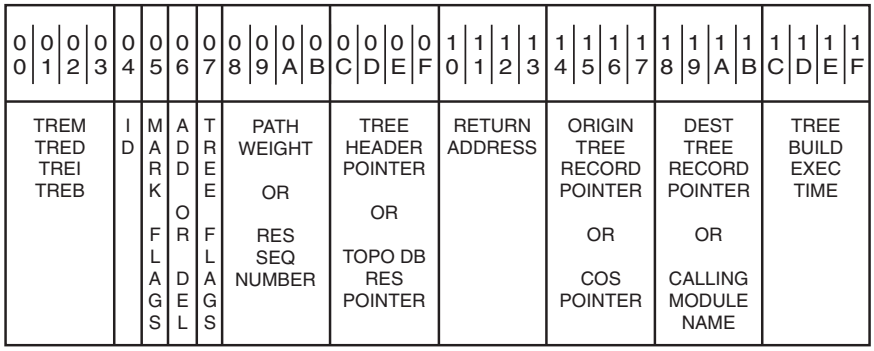
Event: Routing tree Build or Update

VIT processing module:
ISTRACSC

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced

A routing tree operations (TRE) VIT entry is created by topology and routing services (TRS) whenever one of the following events is encountered:

- TRS accesses or builds a routing tree to satisfy a request for an APPN route.
- An existing routing tree is marked for modification because of a topological change in the APPN network.
- TRS learns of the availability or loss of a central directory server or interchange node.



Byte (hex)

00–03 Record ID:

C'TREM'
Mark tree.

C'TRED'
Add or change directory server.

C'TREI'
Add or change interchange node.

C'TREB'
Build tree.

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Tree marking flags

Bit	Meaning
`x... ....`	1 = Operable resource state 0 = Inoperable resource state
`.xxx ....`	0
`.... xxxx`	Reason 0000 = Transmission group update 0001 = Topology database update 0010 = Garbage collection 0011 = Overuse 0100 = Modify topology 0101 = Database reset 0110 = Uncache tree 0111 = Unreachable partner change 1000 = Unacceptable hop detected

06 Indicates that a directory server or interchange node is added ("A") or deleted ("D")

07 Tree building flags

Bit	Meaning
`x... ....`	Indicates whether existing tree is used 1 = Existing tree is used. 0 = New tree is built; existing tree is not available.
`.x.. ....`	Indicates whether clean path is used. 1 = Clean path is used. 0 = Clean path is not available.
`..x. ....`	Indicates number of destinations 1 = Multiple 0 = Single

08–0B Path weight, resource sequence number, or topology database node pointer, depending on entry type and flags:

Entry type	Meaning
B	Path weight

M

- If tree marking flags are ('1000'), topology database node pointer associated with the unacceptable tree record
- Otherwise, resource sequence number

Note: If entry type is TREB and the destination tree record pointer indicates multiple destinations, the path weight field is not valid.

0C–0F Tree header pointer or topology database resource pointer, depending on entry type and flags:

Entry type	Meaning
B	Tree header pointer
M	• If tree marking flags are ('1000'), tree header pointer • Otherwise, topology database resource pointer

10–13 Return address of caller

14–17 Origin tree record pointer or CoS pointer, depending on entry type and flags:

Entry type	Meaning
B	Origin tree record pointer
M	• If tree marking flags are ('1000'), origin tree record pointer • If tree marking flags are ('0110'), CoS pointer

18–1B Destination tree record pointer, unacceptable tree record pointer, or calling module, depending on entry type and flags:

Entry type	Meaning
B	Destination tree record pointer
M	• If tree marking flags are ('1000'), unacceptable tree record pointer • If tree marking flags are ('0110'), last four characters of calling module name

1C–1F Tree building execution time (microseconds), if entry type is B

TRMR entry for mark record (Part 1)

Entry: TRMR

VIT option:
SSCP

Event: Routing tree marked for future update

VIT processing module:
ISTITCAB

Control is returned to:
ISTTRRUM

This record is generated when TRS marks a tree record because of changes on the network topology.

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
TRMR	ASID	0	INSTANCE	STATUS	MARKED TREE RECORD POINTER	TREE HEADER POINTER	MARKER NODE RECORD POINTER	NODE HEADER POINTER	ROOT TREE RECORD POINTER	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"TRMR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace entry instance

07 New status of the tree record being marked

Code	Meaning
C"C"	Tree record is clean, no changes on this tree record.
C"I"	Tree record is incomplete, a change was detected on a descendant of this tree record but the tree has not been updated.
C"D"	Tree record is dirty, a change was detected on this tree record but the tree has not been updated.

08–0B Tree record pointer

0C–0F Tree header pointer

10–13 Node record pointer

14–17 Node header pointer

18–1B Tree record pointer for the root of the routing tree

1C–1F Request parameter header (RPH) address

TRM2 entry for mark record (Part 2)

Entry: TRM2

VIT option:
SSCP

Event: Routing tree marked for future update

VIT processing module:
ISTITCAB

This record is a continuation of the TRM2 trace record.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
TRM2				ACTION	TYPE	0		ROOT TREE CP NAME								MARKER TREE RECORD CP NAME								COS NAME							

Byte (hex)
Contents

00–03 Record ID: C"TRM2"

04 Action on the topology entry that caused the tree marking

Code	Meaning
C"I"	Incomplete
C"U"	Update
C"A"	Add
C"D"	Delete

05 Type of topology entry

Code	Meaning
C"T"	TG
C"N"	Node

06–07 0

08–0F CP name of the node on tree root

10–17 CP name of the tree record being marked

18–1F CoS name

TRM3 entry for mark record (Part 3)

Entry: **TRM3**

VIT option:
SSCP

Event: Routing tree marked for future update

VIT processing module:
ISTITCAB

This record is a continuation of the TRM2 trace record. TRM3 is generated only if any of the CP names in the TRM2 record has a different network ID than the local node.

00 01 02 03	04 05 06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B 1C 1D 1E 1F
TRM3	0	ROOT TREE RECORD NETWORK ID	MARKER TREE RECORD NETWORK ID	0

Byte (hex)
Contents

00–03 Record ID: C"TRM3"

04–07 0

08–0F Network ID of the node on tree root

10–17 Network ID of the tree record being marked

18–1F 0

TRNM entry for translate message (Part 1)

Entry: TRNM

VIT option:
MSG

Event: Translate message error (Part 1)

VIT processing module:
ISTRACOT

Control is returned to:
ISTUSCMS or IKTMSIFR

This trace record is generated when a return code greater than the value 4 is received from the TRANMSG macro. When the return code and reason code indicate that the MVS message service is not active, no TRNM trace record is generated. A single message is translated each time the TRANMSG macro is invoked.

00 01 02 03	04	05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
TRNM	ID	LANG CODE	MESSAGE I/O BLOCK ADDRESS	MESSAGE I/O BLOCK LENGTH	RETURN CODE	REASON CODE	MPB ADDRESS	MTB ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"TRNM"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 3-character language code or blanks if language is not supported

Hex Value	Language Code	Language Name
X'02'	ARA	Arabic
X'03'	CHT	Traditional Chinese
X'04'	CHS	Simplified Chinese
X'05'	DAN	Danish
X'06'	DEU	German
X'07'	DES	Swiss German
X'08'	ELL	Greek
X'09'	ENG	UK English
X'00'		US English (default)
X'01'	ENU	US English (specified)
X'0A'	ESP	Spanish
X'0B'	FIN	Finnish
X'0C'	FRA	French
X'0D'	FRB	Belgian French
X'0E'	FRC	Canadian French
X'0F'	FRS	Swiss French
X'10'	HEB	Hebrew
X'12'	ISL	Icelandic
X'13'	ITA	Italian
X'14'	ITS	Swiss Italian
X'11'	JPN	Japanese
X'15'	KOR	Korean
X'16'	NLD	Dutch
X'17'	NLB	Belgian Dutch
X'18'	NOR	Norwegian
X'19'	PTG	Portuguese
X'1A'	PTB	Brazil Portuguese
X'1B'	RMS	Rhaeto-Romanic
X'1C'	RUS	Russian
X'1D'	SVE	Swedish
X'1E'	THA	Thai
X'1F'	TRK	Turkish
X'3F'		Unknown language code

08–0B Message input/output block address

0C–0F Message input/output block length

10–13 Return code

14–17 Reason code

18–1B Input message parameter block address (MIOINPTP). If a message text block or text is supplied instead, 18–1B is the address of the text block or text.

1C–1F Output message text block address (MIOBUFFP)

TRN2 entry for translate message (Part 2)

Entry: TRN2

VIT option:
MSG

Event: Translate message error (Part 2)

VIT processing module:
ISTRACOT

This trace record is a continuation of the TRNM entry. It is generated when a TRNM entry is produced and the input to the TRANMSG macro is the address of a message parameter block.

00 01 02 03	04 05 06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B 1C 1D 1E 1F
TRN2	IST, IKT, OR USS MESSAGE NUMBER	FIRST MESSAGE VARIABLE OR 0	SECOND MESSAGE VARIABLE OR 0	THIRD MESSAGE VARIABLE OR 0

Byte (hex)
Contents

00–03 Record ID: C"TRN2"

04–07 Last four digits of the message ID (for example, 0200 for message IKT0200I, or SG02 for USSMSG02)

08–0F First 8 bytes of the first message variable, if present; otherwise, 0

10–17 First 8 bytes of the second message variable, if present; otherwise, 0

18–1F First 8 bytes of the third message variable, if present; otherwise, 0

TRRT entry for subtrace tree

TRRT entry for subtrace tree (Part 1)

Entry: TRRT

VIT option:
SSCP

Subtrace type:
TREE

Event: APPN route computation

VIT processing module:
ISTITCAB

Control is returned to:
Module invoking the INTRACE TYPE(TRRT) macro.

This record is generated when:

- Subtrace TREE under SSCP trace option is active
- TRS accesses a routing tree to satisfy a request for an APPN route

00	01	02	03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19	1A 1B	1C 1D 1E 1F
TRRT				ASID	0	INSTANCE	STATUS	CURRENT NODE RECORD POINTER	CHILD NODE RECORD POINTER	SIBLING NODE RECORD POINTER	PARENT NODE RECORD POINTER	TG WEIGHT	NODE WEIGHT	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"TRRT"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Trace entry instance

07 Status on tree record for current node:

Code	Meaning
C"C"	Tree record is clean, no changes on this tree record.
C"I"	Tree record is incomplete, a change was detected on a descendant of this tree record but the tree has not been updated.
C"D"	Tree record is dirty, a change was detected on this tree record but the tree has not been updated.

08–0B Node record pointer of the node described by the current tree record

0C–0F Node record pointer of the node described by the child tree record

10–13 Node record pointer of the node described by the sibling tree record

14–17 Node record pointer of the node described by the parent tree record

18–19 Weight of the TG from parent node to this node

1A–1B Weight of the current node

1C–1F Request parameter header (RPH) address

Note: An APPN route is comprised of TGs and network nodes. To compute the optimal route, TRS assigns a weight to each TG and network node by comparing the resource's characteristics against the characteristics required to set up the route. By adding up all weights, a route weight can be calculated and the optimal route with the least weight can be chosen.

TRRT entry for subtrace tree (Part 2)

Entry: TRR2

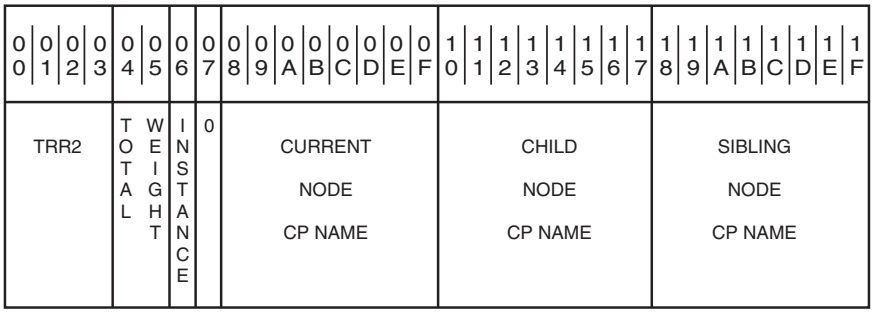
VIT option:
SSCP

Subtrace type:
TREE

Event: APPN route computation

VIT processing module:
ISTITCAB

This record is a continuation of the TRRT trace record.



Byte (hex)
Contents

00–03 Record ID: C"TRR2"

04–05 Total path weight from the root of routing tree to the current node

06 Trace entry instance

07 0

08–0F CP name of the current node

10–17 CP name of the child node

18–1F CP name of the sibling node

TRRT entry for subtrace tree (Part 3)

Entry: TRR3

VIT option:
SSCP

Subtrace type:
TREE

Event: APPN route computation

VIT processing module:
ISTITCAB

This record is a continuation of the TRR2 trace record. TRR3 is generated only if any CP names in the TRR2 record have a different network ID than the local node.

00 01 02 03	04 05 06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B 1C 1D 1E 1F
TRR3	0	CURRENT NODE NETWORK ID	CHILD NODE NETWORK ID	SIBLING NODE NETWORK ID

Byte (hex)
Contents

00–03 Record ID: C"TRR3"

04–07 0

08–0F Current node network ID

10–17 Parent node network ID

18–1F Sibling node network ID

TRRT entry for subtrace tree (Part 4)

Entry: TRR4

VIT option:
SSCP

Subtrace type:
TREE

Event: APPN route computation

VIT processing module:
ISTITCAB

This record is generated if the current routing tree hop (tree record) described by the TRRR and TRR2 pair contains any TGs. If the current hop contains multiple equal-weights TGs, TRR4 is generated for each TG on the hop.

00 01 02 03	04 05	06	07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13	14 15	16 17	18	19	1A	1B	1C 1D 1E 1F
TRR4	0	INSTANCE	0	DESTINATION NODE CP NAME	RESOURCE SEQUENCE NUMBER	RSCV COUNTER	RESOURCE USAGE	TG NUM	V468 0FLG	V47 STAT	0	TG RECORD POINTER

Byte (hex)
Contents

00–03 Record ID: C"TRR4"

04–05 0

06 Trace entry instance

07 0

08–0F CP name of the TG destination node

10–13 Resource sequence number

14–15 RSCV counter

16–17 Resource usage counter

18 TG number

19 TG descriptor flags

1A TG status flags

1B 0

1C–1F TG record pointer

TRRT entry for subtrace tree (Part 5)

Entry: TRR5

VIT option:
SSCP

Subtrace type:
TREE

Event: APPN route computation

VIT processing module:
ISTITCAB

This record is a continuation of the TRR4 trace record. TRR5 is generated only if the destination CP name in the TRR4 record has a different network ID than the local node.

00 01 02 03	04 05 06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B 1C 1D 1E 1F
TRR5	0	DESTINATION NODE NETWORK ID	0	0

Byte (hex)
Contents

00–03 Record ID: C"TRR5"

04–07 0

08–0F Destination node network ID

10–1F 0

Note:

1. The group TRRT, TRR2, TRR3, TRR4, and TRR5 describes a single hop (represented by a tree record) on a routing tree. If the hop contains multiple equal-weight TGs, multiple TRR4 trace records are generated (one for each TG on that hop).
2. When a routing tree is accessed to satisfy a route request and the TREE subtrace is active, the whole routing tree will be traced. Each hop (tree record) on the tree will generate the group TRRT, TRR2, TRR3, TRR4, and TRR5. The processing module ISITCAB is called when the INTRACE TYPE (TRRT) is issued. ISTITCAB will traverse the routing tree to trace every tree record on the tree.
3. After every tree record on the tree has been traced, control will be returned to the module that invoked the INTRACE macro.

TSNS entry to trace sense codes

Entry: TSNS

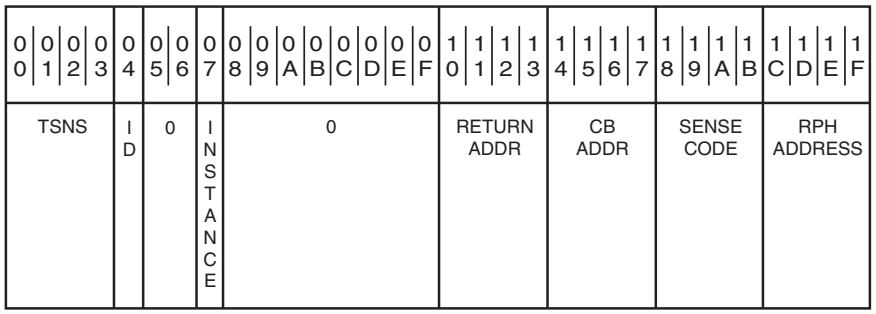
VIT option:
PIU

Event: TSNS record

VIT processing module:
ISTRACOT

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced.

This trace record allows a given TSC module to trace a sense code at the time it is generated. The TSNS event is treated as an exception condition and is always traced, whether the PIU option is in effect.



Byte (hex)
Contents

00–03 Record ID: C"TSNS"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–06 0

07 Instance identifier in invoking module

08–0F 0

10–13 Address of issuer of the TSNS macro

14–17 Control block address or 0

18–1B Sense code

1C–1F Request parameter header (RPH) address

UE entry for USER exit (DFASY or RESP)

Entry: UE

VIT option:
API

Event: User exit (DFASY or RESP)

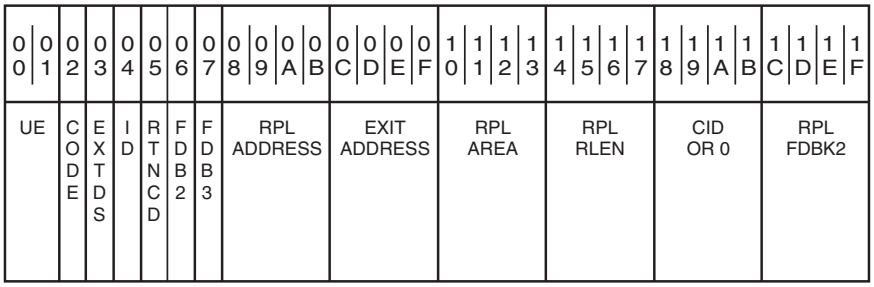
VIT processing module:
ISTRACAP

Control is returned to:
ISTAICUE

This trace record identifies the exit dispatched and data passed back to the user application program.

If this entry is associated with an event failure (that is, the return code is nonzero), this entry is generated whether the API option is in effect. It is treated as an exception condition and is always traced, regardless of the VIT options specified, if the VIT is active.

For DFASY and RESP exits (type codes = 07 and 08), the user exit trace record has the following format:



00 01	02	03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
UE	CODE	EXTDS	ID	RTNCD	FDB2	FDB3	RPL ADDRESS	EXIT ADDRESS	RPL AREA	RPL RLEN	CID OR 0	RPL FDBK2

Byte (hex)
Contents

00–01 Record ID: C"UE"

02 Exit type code (hex 7=DFASY, hex 8=RESP)

03 Exit definition (RPLEXTDS)

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Return code (RPLRTNCD) (For more information, see z/OS Communications Server: SNA Programming)

06 Feedback code (RPLFDB2) (For more information, see z/OS Communications Server: SNA Programming)

07 Feedback code (RPLFDB3) (For more information, see z/OS Communications Server: SNA Programming)

08–0B RPL address

0C–0F Exit address

10–13 RPL data area pointer (RPLAREA) or 0

14–17 Record length (RPLRLEN)

18–1B CID from NIB or RPL (RPLARG) or 0

1C–1F Second RPL feedback area, sense code (RPLFDBK2)

UE1 entry for USER exit (not DFASY or RESP, Part 1)

Entry: UE1

VIT option:
API

Event: User exit (not DFASY or RESP, Part 1)

VIT processing module:
ISTRACAP

Control is returned to:
ISTAICUE

The user exit trace record (not DFASY or RESP, Part 1) has the following format:

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
UE1				ID	CODE	0		EXIT-TYPE DEPENDENT INFORMATION								PRIMARY (APPL) LU NAME								SECONDARY LU NAME OR 0							

Byte (hex)
Contents

00–03 Record ID: C"UE1"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Exit type code (see Table 8 on page 464)

06–07 0

08–0F Exit-type-dependent information (see Table 8)

10–17 Primary (application program) logical unit name

18–1F Secondary logical unit name, or 0, if this is a TPEND exit

Table 8. Exit-type-dependent information for a UE1 entry

Exit type code	Exit type	Byte (hex)	Contents
05	SCIP (BIND)	08–09	RPL control flags (RPLCNTDC, RPLCNTSC)
		0A–0F	Session parameters
05	SCIP (STSN)	08–09	RPL control flags (RPLCNTDC, RPLCNTSC)
		0A–0B	RPLOBSQV
		0C–0D	RPLIBSQV
		0E	RPLOBSQ
		0F	RPLIBSQ
05	SCIP (other)	08–09	RPL control flags (RPLCNTDC, RPLCNTSC)
		0C–0F	CID
06	LOGON	08–0B	Logon data length
		0C–0F	CID
09	LOSTERM	08–0B	Reason code
		0C–0F	CID
0A	RELREQ	08–0F	Unused
0D	TPEND	08–0B	Reason code
		0C–0F	Unused
0E	NSEXIT	08–0F	NS RU bytes 00–07

UE2 entry for USER exit (Not DFASY or RESP, part 2)

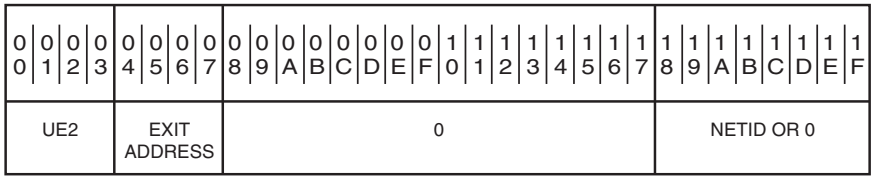
Entry: UE2

VIT option:
API

Event: User exit (not DFASY or RESP, Part 2)

VIT processing module:
ISTRACAP

This trace record is a continuation of the UE1 entry.



Byte (hex)
Contents

00–03 Record ID: C"UE2"

04–07 Exit address

08–17 0

18–1F Network identifier, or 0 if this is a TPEND exit

ULKA entry for release all locks

Entry: ULKA

VIT option:
LOCK

Event: Release all locks

VIT processing module:
ISTRACLK

Control is returned to:
ISTAPC39

This trace record contains information about a routine releasing all locks it currently holds.

00 01 02 03	04	05	06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17 18 19 1A 1B	1C 1D 1E 1F
ULKA	ID	0	0	PST ADDRESS	CRA LOCK ACCOUNT WORD	RETURN ADDRESS	0	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"ULKA"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06–07 0

08–0B PST address

0C–0F CRA lock account word (CRALKACT)

10–13 Address of the issuer of the TPUNLOCK macro

14–1B 0

1C–1F Request parameter header (RPH) address

UNLK entry for release a lock

Entry: UNLK

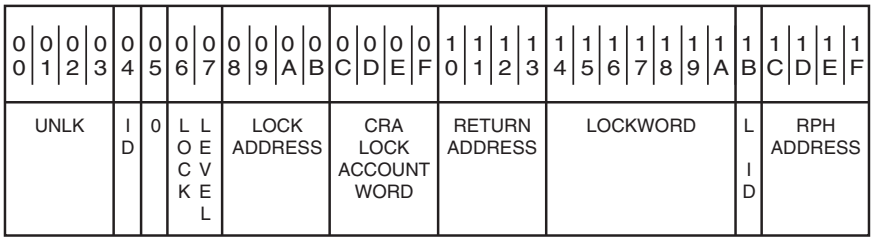
VIT option:
LOCK

Event: Release a lock

VIT processing module:
ISTRACLK

Control is returned to:
ISTAPC33

This trace record contains information for a routine releasing a lock. It is the complement of an LKEX or LKSH entry.



Byte (hex)
Contents

00–03 Record ID: C"UNLK"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06–07 Level of lock to be released. See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures for a listing of VTAM locks.

08–0B Address of lock to be released

0C–0F CRA lock account word (CRALKACT)

10–13 Address of the issuer of the TPUNLOCK macro

14–1A Lockword pointed to by address in bytes 08–0B

1B The LOCK ID field. See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures for a list of VTAM locks.

1C–1F Request parameter header (RPH) address

UP entry for user application program post

Entry: UP

VIT option:
API

Event: User application program post

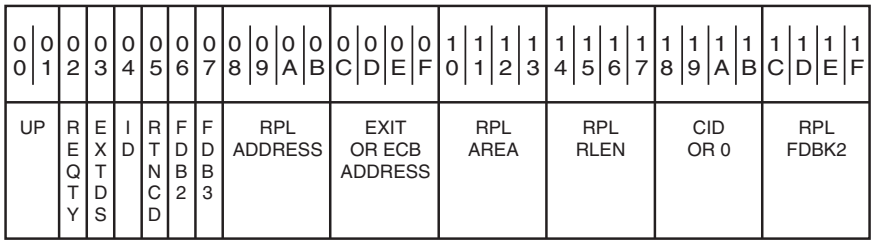
VIT processing module:
ISTRACAP

Control is returned to:
ISTAICPT or ISTAPCSX

This trace record provides the RPL information that VTAM passes to the application program. The RPL information and the API TPIO request record (AIn or IOn) show VTAM activity for a given API request.

See z/OS Communications Server: SNA Programming for a description of the RPL return codes.

If this entry is associated with an event failure (that is, the return code is nonzero), this entry is generated whether the API option is in effect. It is treated as an exception condition, and is always traced if the VIT is active, regardless of the VIT options specified.



00	01	02	03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
UP	REQTY	EXTDS	ID	RTNCD	FDB2	FDB3		RPL ADDRESS	EXIT OR ECB ADDRESS	RPL AREA	RPL RLEN	CID OR 0	RPL FDBK2

Byte (hex)
Contents

00–01 Record ID: C"UP"

02 RPL request type (RPLREQ)

- **X'15'** SETLOGON
- **X'16'** SIMLOGON
- **X'17'** OPNDST
- **X'19'** CHANGE
- **X'1A'** INQUIRE
- **X'1B'** INTRPRET
- **X'1F'** CLSDST
- **X'22'** SEND
- **X'23'** RECEIVE
- **X'24'** RESETSR
- **X'25'** SESSIONC
- **X'27'** SENDCMD
- **X'28'** RCVCMD
- **X'29'** REQSESS
- **X'2A'** OPNSEC
- **X'2C'** TERMSESS

03 Exit definition (RPLEXTDS)

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Return code (RPLRTNCD) (See z/OS Communications Server: SNA Programming.)

06 Feedback code (RPLFDB2) (See z/OS Communications Server: SNA Programming.)

07 Feedback data flag (RPLFDB3) (See z/OS Communications Server: SNA Programming under INQUIRE macro with OPTCD=APPSTAT.)

08–0B RPL address

0C–0F Exit address or ECB address

10–13 RPL data area pointer (RPLAREA)

14–17 Record length (RPLRLEN)

18–1B CID from NIB or from RPL (RPLARG), or 0

1C–1F Second RPL feedback area — Sense code (RPLFDBK2)

USI or USO entry for APPC commands

Entry: USI or USO

VIT option:
APPC

Event: APPCCMD

VIT processing module:
ISTRACAC

Control is returned to:
Calling module

The USI trace record contains what RPLAREA points to when the following APPC commands are issued:

APPCCMD
Data

CONTROL=ALLOC,QUALIFY=*
FMH-5

CONTROL=SENDFMH5
FMH-5

CONTROL=OPRCNTL,QUALIFY=ACTSESS
Session parameters

CONTROL=OPRCNTL,QUALIFY=CNOS
CNOS structure

CONTROL=OPRCNTL,QUALIFY=DEFINE
DEFINE/DISPLAY structure

Note: * indicates all the possible values of QUALIFY when CONTROL equals ALLOC.

The USO trace record contains what RPLAREA points to when the following APPC commands complete:

APPCCMD
Data

CONTROL=OPRCNTL, QUALIFY=CNOS
CNOS structure

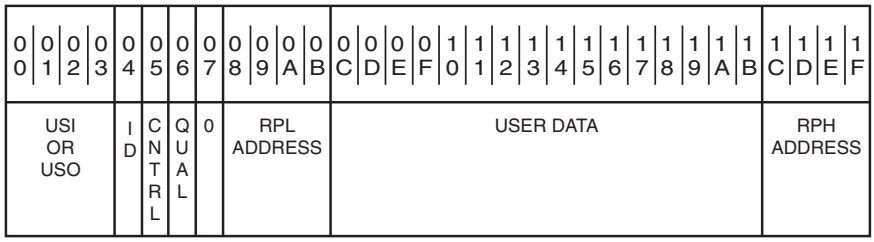
CONTROL=OPRCNTL, QUALIFY=DISPLAY
DEFINE/DISPLAY structure

CONTROL=OPRCNTL, QUALIFY=RESTORE
RESTORE structure

CONTROL=RCVFMH5
FMH-5

A maximum of 212 bytes of user data will be traced. The FMH-5 will be traced only up to but not including the security access parameters.

Note: If the address of the CNOS session limits structure is not specified on the AREA keyword of the APPCCMD, the USI and USO records are not cut for the APPCCMD.



Byte (hex)
Contents

00–03 Record ID: C"USI" or C"USO"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 APPCCMD CONTROL operand value:

X'10' ALLOC

X'12' SENDFMH5

X'40' OPRCNTL

X'60' RCVFMH5

06 APPCCMD QUALIFY operand value:

X'06' CNOS

X'0C' DEFINE

X'0D' DISPLAY

X'12' ACTSESS

X'14' ALLOCD

X'15' IMMED

X'16' CONWIN

X'1B' RESTORE

X'1E' CONVGRP

X'1F' WHENFREE

07 0

08–0B RPL address

0C–1B User data

1C–1F Request parameter header (RPH) address

USI2 or USO2 entry for APPC commands

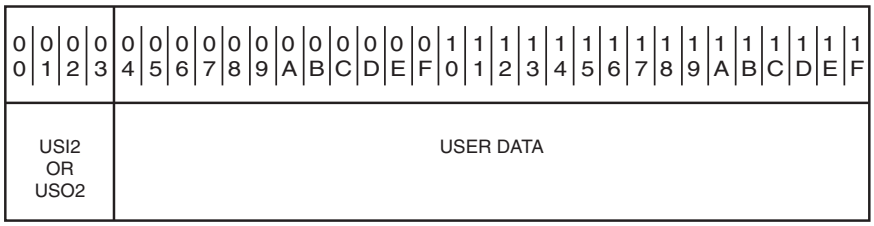
Entry: USI2 or USO2

VIT option:
APPC

Event: APPCCMD

VIT processing module:
ISTRACAC

This trace record is a continuation of the USI or USO entries. A maximum of 212 bytes of data is traced.



Byte (hex)
Contents

00–03 Record ID: C"USI2" or C"USO2"

04–1F User data

UVO or UVI entry for vector information

Entry: UVO or UVI

VIT option:
APPC

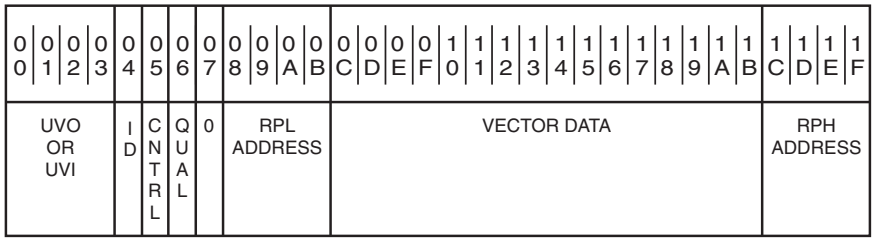
Event: VTRINA and VTRINL, or VTROUTA and VTROUTL specified on an APPCCMD macroinstruction

VIT processing module:
ISTRACAC

Control is returned to:
APPCVL

This trace record contains vector information for APPCCMD macroinstructions that specify a vector area. UVI traces any input vectors (application-to-VTAM) when an APPCCMD macroinstruction is issued. UVO traces any output vectors when an

APPCCMD macroinstruction is completed. The user data field of the USI and USO entries (0C–1B) is used to trace the total vector length (including the length of the length field) and vectors up to a maximum of eight trace records. The UVI vectors are traced from the application's storage. The UVO vectors are traced from VTAM's storage.



Byte (hex)
Contents

00–03 Record ID:

- C"UVI" for input vector tracing
- C"UVO" for output vector tracing

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 APPCCMD CONTROL operand value:

X'10' ALLOC

X'11' PREALLOC

X'12' SENDFMH5

X'20' RESETRCV

X'30' DEALLOC

X'31' DEALLOCQ

X'40' OPRCNTL

X'50' PREPRCV

X'60' RCVFMH5

X'70' RECEIVE

X'71' RCVEXPD

X'80' REJECT

X'90' SEND

X'91' SENDEXPD

X'92' SENDRCV

X'A0' SETSESS

X'B0' TESTSTAT

06 APPCCMD QUALIFY operand value:

X'00' NULL

X'01' ABNDPROG

X'02' ABNDSERV

X'03' ABNDTIME

X'04' ABNDUSER

X'05' ANY

X'06' CNOS

X'07' CONFIRM

X'08' CONFRMD

X'09' DATA

X'0A' DATACON

X'0B' DATAFLU

X'0C' DEFINE

X'0D' DISPLAY

X'0E' ERROR

X'0F' FLUSH

X'10' RQSEND

X'11' SPEC

X'12' ACTSESS

X'13' DACTSESS

X'14' ALLOCD

X'15' IMMED

X'16' CONWIN

X'17' SESSION

X'18' CONV

X'19' SUSPEND

X'1A' RESUME

X'1B' RESTORE

X'1C' SYNCBEG

X'1D' SYNCEND

X'1E' CONVGRP

X'1F' WHENFREE

X'20' IANY

X'21' ISPEC

X'22' ALL

X'23' IALL

X'24' QUEUE

X'25' DATAQUE

07 0

08–0B RPL address

0C–1B Contents of the RPL6VAIA for UVO trace records. Contents of the RPL6VAOA for UVI trace records. No more than eight trace records of vector data is traced.

1C–1F Request parameter header (RPH) address

UVO2 or UVI2 entry for vector information

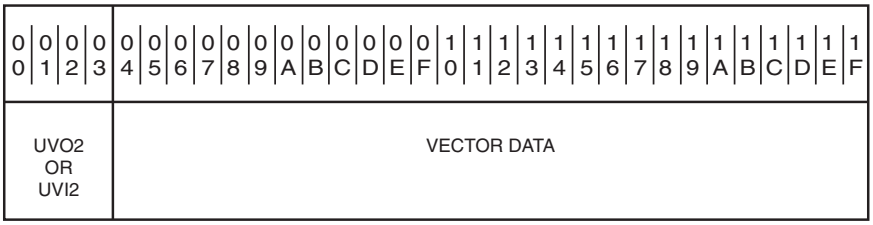
Entry: UVO2 or UVI2

VIT option:
APPC

Event: VTRINA and VTRINL, or VTROUTA and VTROUTL specified on an APPCCMD macroinstruction

VIT processing module:
ISTRACAC

This trace record is a continuation of the UVO entry.



Byte (hex)
Contents

00–03 Record ID:
- C"UVI2" for continuation of UVI
- C"UVO2" for continuation of UVO

04–1F Vector data:
- Contents of the RPL6VAOA for UVI trace records.
- Contents of the RPL6VAIA for UVO trace records.

VCC1 entry for CNCB queued (Part 1)

Entry: VCC1

VIT option:
VCNS

Event: CNCB queued (Part 1)

VIT processing module:
ISTRACNS

The VCC1 trace record is written when a CNS protocol control block (CNCB) is queued between CNS and LSA components. The VCC2 trace record displays data

contained in the CNCB.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
VCC1				ID	CBID	STATE	CCODE	MAJOR CONTROL BLOCK ADDRESS				CNCB ADDRESS				REQSTING MODULE ABBREV NAME				12 BYTES OF CNCB DATA											

Byte (hex)
Contents

00–03 Record ID: C"VCC1"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Control block identifier

X'0B' ISTVLNCB

X'7B' ISTRIB

06 Process state of the control block processing the dequeued work element:

- LSNCB states when CBID=X'0B' (ISTVLNCB)

  X'00' Reset

  X'01' Pending active

  X'02' Active without application logged on to line

  X'03' Active with application logged on to line

  X'04' Pending inactive phase 1

  X'05' Pending inactive phase 2

  X'06' Pending inactive phase 3

  X'07' Blocked

- States when CBID=X'7B' (ISTRIB)

  X'00' Idle

  X'01' Logon in progress

  X'02' Active

  X'03' Logoff in progress

  X'04' DACTLINK in progress

  X'05' Forced termination in progress

07 CNCB primitive code

X'01' CNS_INQUIRE_REQUEST

X'02' CNS_INQUIRE_CONFIRM

X'03' CNS_LOGON_REQUEST

X'04' CNS_LOGON_CONFIRM

X'05' CNS_LOGOFF_REQUEST

X'06' CNS_LOGOFF_CONFIRM

X'07' CNS_LOGOFF_RESPONSE

X'08' CNS_LOGOFF_INDICATION

X'09' CNS_CLOSEACB_REQUEST

X'0A' CNS_CLOSEACB_CONFIRM

X'0B' CNS_CLOSEACB_COMPLETION_INDICATION

08–0B Address of the major control block

0C–0F CNCB address

10–13 Requesting module abbreviated name

14–1F First 12 bytes of CNCB data

VCC2 entry for CNCB queued (Part 2)

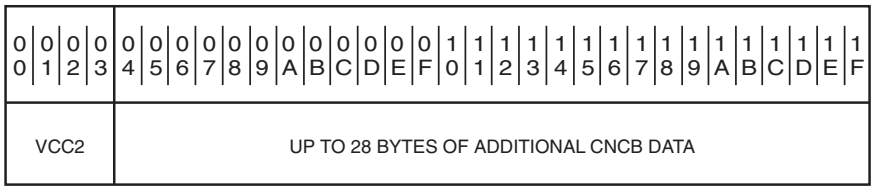
Entry: VCC2

VIT option:
VCNS

Event: CNCB queued (Part 2)

VIT processing module:
ISTRACNS

This trace record is a continuation of the VCC1 trace record. Up to two VCC2 trace records might follow a VCC1 trace record, depending on the length of the primitive that is traced.



Byte (hex)
Contents

00–03 Record ID: C"VCC2"

04–1F Up to 28 bytes of additional CNCB data

VCDQ entry for work element dequeued

Entry: VCDQ

VIT option:
VCNS

Event: Work element dequeued

VIT processing module:
ISTRACNS

Control is returned to:

Module invoking the INTRACE macro that caused the record to be produced

This trace record is written whenever a work element is dequeued for processing. The VCDQ trace record identifies the work element being dequeued.

00 01 02 03	04	05	06	07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
VCDQ	ID	STATE	CBID	WK EL	WORK ELEMENT TYPE	RU TYPE OR 0	WORK ELEMENT ADDRESS	CAB ADDRESS OR 0	0	RPH ADDRESS

Byte (hex)

Contents

00–03 Record ID: C"VCDQ"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Process state of the associated connection or of the control block processing the dequeued work element:

- States when CBID=X'0B' (ISTVLNCB)

  X'00' Reset state

  X'10' ACTLINK pending

  X'20' Active state

  X'30' DACTLINK pending
- States when CBID=X'0C' (ISTPCLCB)

  X'00' Reset

  X'01' Logon complete

  X'02' Logon pending

  X'03' Logoff pending

  X'04' Adapter termination pending
- States when CBID=X'25' (ISTVCCB)

  X'01' P1 Ready

  X'02' P2 DTE waiting

  X'03' P3 DCE waiting

  X'04' P4 Data transfer

  X'05' P5 Call collision

  X'06' P6 DTE clear request

  X'07' P7 DCE clear indication

  X'11' D1 Flow control ready

X'12' D2 DTE reset request

X'13' D3 DCE reset indication

X'21' I1 No interrupt pending

X'22' I2 DTE interrupt pending

X'31' E1 No error reset

X'32' ER CNS error reset

X'33' CF CNS cancel forward

- States when CBID=X'66' (ISTCAB)

  X'00' Idle

  X'01' Connect requested

  X'02' Connect indicated

  X'03' Flow control ready

  X'04' Error reset

  X'05' Cancel hold

  X'06' Hold purge

  X'07' Reset requested

  X'08' Reset indicated

  X'09' Error disconnect

  X'0A' Cleanup

  X'0B' Disconnect requested

  X'0C' Disconnect indicated

  X'0D' Pending error disconnect

- States when CBID=X'6B' (ISTCAR)

  No states are traced when ISTCAR is the major control block.

- States when CBID=X'7B' (ISTRIB)

  X'00' Idle

  X'01' Logon in progress

  X'02' Active

  X'03' Logoff in progress

  X'04' DACTLINK in progress

  X'05' Forced termination in progress

06 Control block identifier

X'0B' ISTVLNCB

X'0C' ISTPCLCB

X'25' ISTVCCB

X'66' ISTCAB

X'6B' ISTCAR

X'7B' ISTRIB

07 If work element is an 'RPL' (see bytes 08–0B)

- **X'08'** CONTROL=INQUIRE
- **X'10'** CONTROL=LOGON
- **X'14'** CONTROL=TEST
- **X'18'** CONTROL=XID
- **X'20'** CONTROL=LOGOFF
- **X'30'** CONTROL=READ
- **X'40'** CONTROL=STATUS
- **X'50'** CONTROL=SET
- **X'60'** CONTROL=OPEN
- **X'70'** CONTROL=CLOSE
- **X'80'** CONTROL=SEND
- **X'90'** CONTROL=SUSPEND
- **X'A0'** CONTROL=RESUME
- **X'B0'** CONTROL=EXPEDITE
- **X'C0'** CONTROL=CHECK
- **X'D0'** CONTROL=RESET
- **X'E0'** CONTROL=SETCPARM
- **X'F0'** CONTROL=RECEIVE
- **X'FC'** CONTROL=REPLY

07 If work element is a 'PICB' (see bytes 08–0B)

- **X'01'** LOGON_REQUEST
- **X'02'** LOGON_CONFIRM
- **X'03'** LOGOFF_REQUEST
- **X'05'** CNS_LOGON_REQUEST
- **X'06'** CNS_LOGON_CONFIRM
- **X'07'** CNS_LOGOFF_REQUEST
- **X'08'** CNS_LOGOFF_CONFIRM
- **X'09'** CNS_LOGOFF_RESPONSE
- **X'0A'** CNS_LOGOFF_INDICATION
- **X'0B'** CNS_CLOSEACB_REQUEST
- **X'0C'** CNS_CLOSEACB_CONFIRM
- **X'0D'** CNS_CLOSEACB_COMPLETION_INDICATION
- **X'11'** CONNECT_REQUEST
- **X'12'** CONNECT_CONFIRM
- **X'13'** CONNECT_ACCEPT
- **X'14'** CONNECT_INDICAT

X'15' DISCONNECT_REQUEST

X'16' DISCONNECT_INDICAT

X'17' DISCONNECT_CONFIRM

X'18' ERROR_DISCONNECT_INDICAT

X'19' RESTART_INDICAT

X'1A' CNS_CLEAR

X'1B' ERROR_DISCONNECT_INDICATION (TIMER)

X'21' RESET_REQUEST

X'22' RESET_CONFIRM

X'23' RESET_ACCEPT

X'24' RESET_INDICAT

X'25' ERROR_RESET_INDICAT

X'31' DATA_OUT (LEVEL1)

X'32' DATA_IN (LEVEL1)

X'33' DATA_OUT (LEVEL2)

X'34' DATA_IN (LEVEL2)

X'35' INTERRUPT_OUT

X'36' INTERRUPT_CONFIRM

X'37' INTERRUPT_INDICATION

X'42' STATUS_INDICAT_FINAL_TERMINAT

X'53' SUSPEND_REQUEST

X'54' RESUME_REQUEST

X'55' RNR_IN

X'56' RR_IN

X'57' ROTATE

X'62' TIMER_EVENT

X'63' RESTART_VC_TRIGGER

X'71' RESET_PENDING_TRIGGER

X'72' RESET_COMPLETE_TRIGGER

X'73' CLEAR_PENDING_TRIGGER

X'74' CLEAR_COMPLETE_TRIGGER

X'75' CALL_PENDING_TRIGGER

X'76' CALL_COMPLETE_TRIGGER

X'77' INTERRUPT_PENDING_TRIGGER

X'78' ERROR_RESET_TRIGGER

X'79' ERROR_DISCONNECT_TRIGGER

X'82' PACKET_IN

X'91' TERMINATE_PORT

X'E0' CNS_NMVT

X'F0' READ_REQ

X'F1' READ_CONFIRM

X'F2' STATUS_PHYSICAL_REQUEST

X'F3' STATUS_PHYSICAL_CONFIRM

X'F4' STATUS_VIRTUAL_REQ

X'F5' STATUS_VIRTUAL_CONFIRM

If work element is a 'CNCB' (see bytes 08–0B)

X'01' CNS_INQUIRE_REQUEST

X'02' CNS_INQUIRE_CONFIRM

X'03' CNS_LOGON_REQUEST

X'04' CNS_LOGON_CONFIRM

X'05' CNS_LOGOFF_REQUEST

X'06' CNS_LOGOFF_CONFIRM

X'07' CNS_LOGOFF_RESPONSE

X'08' CNS_LOGOFF_INDICATION

X'09' CNS_CLOSEACB_REQUEST

X'0A' CNS_CLOSEACB_CONFIRM

X'0B' CNS_CLOSEACB_COMPLETION_INDICATION

08–0B Work element type:

C"CNCB"
CNCB

C"RPL"
RPL

C"PICB"
PICB

C"RUPE"
RUPE

C"VCCB"
VCCB

C"CAB"
CAB

C"RIB"
RIB

C"RPH"
RPH

C"TSCB"
TSCB

C"UECB"
UECB

C"????"
None of the above

0C–0F If work element is a 'RUPE', one of the following values; otherwise, 0

X'0801020A'
ACTLINK

X'0801020B'
DACTLINK

10–13 Work element address

14–17 If work element is 'PICB', CAB address; otherwise, 0

18–1B 0

1C–1F Request parameter header (RPH) address

VHCR entry for invoking a RoCE VHCR operation (part 1)

Entry: VHCR

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) VHCR operation as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing when the IBM 10GbE RoCE Express feature operates in a shared RoCE environment.

This trace record is written upon completion of the Issue_HcrOp function. The VHCR entry is used to invoke a RoCE VHCR operation.

00 01 02 03	04	05	06 07	08 09	0A 0B	0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
VHCR	ASID	OP CODE	MODULE ID	RETURN CODE	REASON CODE	OP CODE MODIFIER	PFCTE ADDRESS	HARDWARE HANDLE	RPH ADDRESS

Byte (hex)
Contents

00-03 Record ID: C"VHCR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF' .

05 Operation code

06 - 07 Identifier of the module that issued the INTRACE command

08 - 09 Return code

0A - 0B
Reason code

0C - 0F
Operation code modifier

10 - 17 Address of the PFCTE

18 - 1B
Hardware handle

1C - 1F
Request parameter header (RPH) address

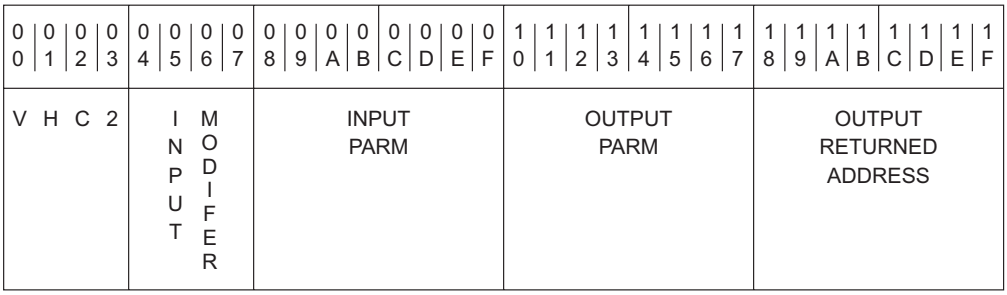
VHC2 entry for invoking a RoCE VHCR operation (part 2)

Entry: VHC2

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) VHCR operation as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing when the IBM 10GbE RoCE Express feature operates in a shared RoCE environment.

This trace record is a continuation of the VHCR entry.



Byte (hex)
Contents

00-03 Record ID: C"VHC2"

04-07 Input modifier

08-0F Input parameter area

10-17 Output parameter area

18-1F Output address returned by command processing

VHC3 entry for invoking a RoCE VHCR operation (part 3)

Entry: VHC3

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) VHCR operation as part of Shared Memory

Communications over Remote Direct Memory Access (SMC-R) processing when the IBM 10GbE RoCE Express feature operates in a shared RoCE environment.

This trace record is a continuation of the VHCR entry.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
V H C 3				OPCODE AND RETRIES				INITIAL VALUE								COMMAND VALUE								COMPLETION VALUE							

Byte (hex)
Contents

00-03 Record ID: C"VHC3"

04-07 Operation code and operation retries values

Bit **Meaning**

0 - 11 Represents the operation code performed

12 - 31
Represents the number of retries before the command completes

08-0F The value of the communication channel before the command is attempted

10-17 The value stored by z/OS Communication Server into the communication channel to execute the command

18-1F The value of the communication channel after the command completes

VHC4 entry for invoking a RoCE VHCR operation (part 4)

Entry: **VHC4**

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) VHCR operation as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing when the IBM 10GbE RoCE Express feature operates in a shared RoCE environment.

This trace record is a continuation of the VHCR entry, and is generated only when the VHCR operation requires command input data. Multiple VHC4 entries might be generated, depending on the length of the command input data.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
V H C 4				28 BYTES OF COMMAND INPUT DATA																											

Byte (hex)
Contents

00-03 Record ID: C"VHC4"

04-1F Command input data

VHC5 entry for invoking a RoCE VHCR operation (part 5)

Entry: VHC5

VIT option:
CIA

Event: Invocation of a Remote Direct Memory Access (RDMA) over Converged Ethernet (RoCE) VHCR operation as part of Shared Memory Communications over Remote Direct Memory Access (SMC-R) processing when the IBM 10GbE RoCE Express feature operates in a shared RoCE environment.

This trace record is a continuation of the VHCR entry, and is generated only when the VHCR operation returns command output data. Multiple VHC5 entries might be generated, depending on the length of the command output data returned.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
V	H	C	5	28 BYTES OF COMMAND INPUT DATA																											

Byte (hex)
Contents

00-03 Record ID: C"VHC5"

04-1F Command output data

VPST entry for VPOST macro

Entry: VPST

VIT option:
PSS

Event: VPOST macro

VIT processing module:
ISTRACPS

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced

This trace record is written when a VTAM module issues a VPOST macro. The VPOST macro generates a system POST event.

00 01 02 03	04	05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
VPST	ID	0	ASCB ADDRESS OR 0	ECB ADDRESS	SUBTASK NAME	ISSUER ADDRESS	COMPLTE CODE OR 0

Byte (hex)
Contents

00–03 Record ID: C"VPST"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0B Address of the ASCB or 0

0C–0F Address of the ECB being posted

10–17 Subtask name

18–1B Address of the issuer of the VPOST macro

1C–1F Completion code or 0

VRSM entry for resume after VWAIT

Entry: VRSM

VIT option:
PSS

event: VWAIT macro

VIT processing module:
ISTRACPS

This trace record is written when VTAM resumes control after a system WAIT event generated by the VTAM VWAIT macro.

00 01 02 03	04	05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
VRSM	ID	0	0	ECB ADDRESS	SUBTASK NAME	ISSUER ADDRESS	0

Byte (hex)
Contents

00–03 Record ID: C"VRSM"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–0B 0

0C–0F Address of the ECB that was posted

10–17 Subtask name

18–1B Address of the code that is resuming execution

1C–1F 0

VTAL entry for allocate storage

Entry: VTAL

VIT option:
SMS

Event: Allocate storage

VIT processing module:
ISTRACSM

Control is returned to:
ISTORMVA

This trace record provides the status of each VTALLOC request issued by VTAM components.

If this entry is associated with an event failure (that is, the return code is nonzero), this entry is generated whethe the SMS option is in effect. It is treated as an exception condition and is always traced, regardless of the VIT options specified, if the VIT is active.

00 01 02 03	04	05	06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
VTAL	ID	FLAG	0	STORAGE ADDRESS	SUBPOOL NUMBER OR POOL ID	RETURN ADDRESS	LENGTH OF STORAGE REQUEST	CALLER OF UTILITY OR 0	RETURN CODE

Byte (hex)
Contents

00–03 Record ID: C"VTAL"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 Flags

Bit **Meaning**

0... ....
FREED(EXPLICIT) storage request

1... ....
FREED(TASK) or FREED(JSTASK) storage request

06–07 0

08–0B Address of area allocated

0C–0F Subpool number of the area allocated

10–13 Address of the issuer of the VTALLOC macro

14–17 Length of area allocated

18–1B If the VTALLOC macro is issued by a utility routine, this location contains the address of the issuer of the utility routine.

If the VTALLOC macro is not issued by a utility routine, this location contains 0.

1C–1F VTALLOC return code

VTFR entry for free storage

Entry: VTFR

VIT option:
SMS

Event: Free storage

VIT processing module:
ISTRACSM

Control is returned to:
ISTORMVF

This trace record provides the status of each VTFREE request issued by VTAM components.

00 01 02 03	04	05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
VTFR	ID	0	STORAGE ADDRESS	SUBPOOL NUMBER OR POOL ID	RETURN ADDRESS	LENGTH OF STORAGE FREED	CALLER OF UTILITY OR 0	0

Byte (hex)
Contents

00–03 Record ID: C"VTFR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0B Address of area to be freed

0C–0F Subpool number of the area allocated

10–13 Address of the issuer of the VTFREE macro

14–17 Length of area to be freed

18–1B If the VTFREE macro is issued by a utility routine, this location contains the address of the issuer of the utility routine.

If the VTFREE macro is not issued by a utility routine, this location contains 0.

1C–1F 0

VWAI entry for VWAIT macro

Entry: VWAI

VIT option:
PSS

Event: VWAIT macro

VIT processing module:
ISTRACPS

Control is returned to:
Module invoking the INTRACE macro that caused the record to be produced.

This trace record is written when a VTAM module issues a VWAIT macro. The VWAIT macro generates a system WAIT event.

If the “last address in ECB list” field is not 0, then this is a wait on an ECB list. Note that an ECB list is a list of the addresses of ECBs, not a list of ECBs.

00 01 02 03	04	05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
VWAI	ID	0	LAST ECB ADDRESS OR 0	ECB ADDRESS	SUBTASK NAME	ISSUER ADDRESS	0

Byte (hex)
Contents

00–03 Record ID: C"VWAI"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0B Address of the last pointer in an ECB list, or 0. If this field is 0, it implies that the previous field points to an ECB instead of an ECB list.

0C–0F Address of the ECB that is being waited on, or (if the next field is nonzero) the address of an ECB list

10–17 Subtask name

18–1B Address of the issuer of the VWAIT macro

1C–1F 0

WAIT entry for TPWAIT macro

Entry: WAIT

VIT option:
PSS

Event: TPWAIT macro

VIT processing module:
ISTRACPS

Control is returned to:
ISTAPCTW

This trace record identifies an RPH that has been suspended to wait for some VTAM resource. This entry might be used with the entry immediately preceding it in the table to determine whether the wait is for storage or for a lock. If the preceding entry is for a REQSTORE, a waiting-for-storage condition may exist. If the preceding entry is for a lock request, the wait can be caused by that request. However, VTAM frequently uses a TPWAIT/TPPOST to synchronize intercomponent functions. Therefore, the TPWAIT entry does not necessarily identify an unusual condition.

00 01 02 03	04	05	06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
WAIT	ID	0	FLAGS	PST ADDRESS	PAB ADDRESS	RETURN ADDRESS	WORK EL Q OR NEXT DSP Q LVL	MODULE NAME OR DVT ADDRESS	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"WAIT"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 PAB flag field (PABFLAGS)

Bit Meaning

1... ....
PAB is unconditionally scheduled.

.1.. ....
PAB closedown is in progress.

..1. ....
PAB is synchronous.

...1 ....
PAB extension is present.

.... 1...
Do not dequeue work element.

.... .1..
Do not detach the RPH.

.... ..1.
Indicates a very extended PAB.

....1
Indicates a slightly extended PAB.

07 PAB flag field (PABFLGS1)

Bit	Meaning
1...	Switch the PST address of this PAB's major control block to the new PST address contained in DYPNWPST.
.1..	This PAB has a data space extension.
..1.	This PAB's major control block is an FMCB.
...1	PAB can be referenced in PSW disable mode.
.... 1...	PAB is persistent.
.... .1..	APSTERM/APSINIT FMCB during PAB dispatch.
.... ..xx	Reserved.

08–0B PST address

0C–0F PAB address

10–13 Address of the issuer of the TPWAIT macro

14–17 PAB work element queue or next dispatchable queue level for a very extended PAB

18–1B Module name abbreviation (bytes 4, 5, 7, and 8 of the name of the next module to get control), PAB DVT address (high-order bit of X'18' = 0), function, or process.

1C–1F Request parameter header (RPH) address

XBA1 entry for extended buffer list (Part 1)

Entry: XBA1

VIT option:
XBUF

Event: OPTCD=XBUFLST request on APPCCMD macroinstruction

VIT processing module:
ISTITCXB

Control is returned to:
ISTPSCFM, ISTPSCFR, ISTPSCFS, or ISTPSCMU

The XBA1 record is created by any of the following conditions:

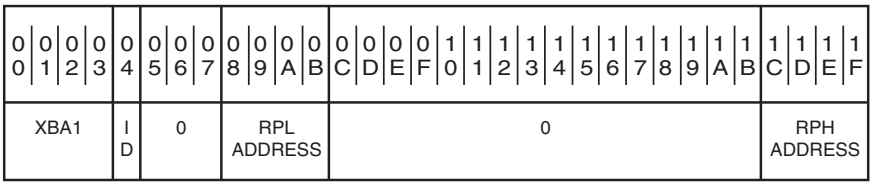
- An HPDT send is issued (send request with OPTCD=XBUFLST specified).
- An HPDT send is completed and RPLXSRV is not set.
- An HPDT receive (APPCCMD CONTROL=RECEIVE with OPTCD=XBUFLST) is completed.

The entry contains information required to correlate this set of extended buffer list entries to an appropriate APPC entry (either ACA1 or ACP1/ACR1).

The number of trace records required to represent an application request buffer list is variable based on the number of entries present in the buffer list.

The first record in a request is XBA1. This record is followed with as many XBA2 and XBA3 record pairs as is necessary to record the entire application buffer list contents.

There is no limit to the number of trace entries that can be produced. Although VTAM groups records together as a single entity in terms of recording in the trace recording media, there is a finite limit to how many records can be written externally or recorded internally at one time. Because of multiprocessing, other VIT records from unrelated operations can be interleaved in the trace output between the XBUF entries for a given operation. To provide correlation between groups of XBUF entries, the RPL address is traced in each entry.



Byte (hex)
Contents

00–03 Record ID: C"XBA1"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0B RPL address. This field corresponds to the RPL address of the ACA1, ACP1, or ACR1 entry.

0C–1B 0

1C–1F RPH address

XBA2 entry for extended buffer list (Part 2)

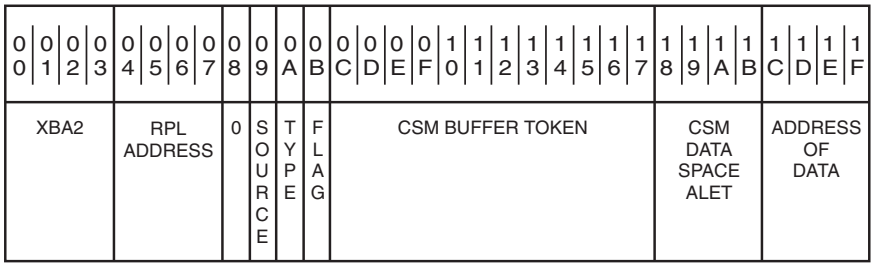
Entry: XBA2

VIT option:
XBUF

Event: OPTCD=XBUFLST request on APPCCMD macroinstruction

VIT processing module:
ISTITCXB

This trace record is a continuation of the XBA1 entry. It contains information about an XBUFLST entry.



Byte (hex)
Contents

00–03 Record ID: C"XBA2"

04–07 RPL address

08 0

09 Buffer source

- **80** ECSA
- **40** Data space
- **20** User data space
- **10** User storage area other than a data space

0A Buffer type

- **80** Fixed
- **40** Pageable
- **20** Eligible to be made pageable

0B BLXEN_FLAGS flag byte

0C–17 CSM buffer token

18–1B CSM data space ALET

1C–1F Address of data

XBA3 entry for extended buffer list (Part 3)

Entry: XBA3

VIT option:
XBUF

Event: OPTCD=XBUFLST request on APPCCMD macroinstruction

VIT processing module:
ISTITCXB

This trace record is a continuation of the XBA2 entry.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
XBA3				RPL ADDRESS				APPL SUPPLED LENGTH				VTAM ACCPTED LENGTH				0															

Byte (hex)
Contents

00–03 Record ID: C"XBA3"

04–07 RPL address

08–0B Length of data provided by application

0C–0F Length of data accepted by VTAM (send completion only) or 0

10–31 0

XBI1 entry for extended buffer list AMU, SPAC or TSCB

Entry: XBI1

VIT option:
XBUF

Event: Extended buffer list AMU, SPAC, or TSCB

VIT processing module:
ISTITCXB

Control is returned to:
INTRACE invoker

This record is produced when an extended buffer list APPC message unit (AMU), ShortPAC (SPAC), or transmission subsystem control block (TSCB) is built by VTAM.

The number of trace records required to represent a VTAM internal extended buffer list is variable-based on the number of entries in the structure.

The first record in a request is XBI1. This record is followed with as many XBI2 and XBI3 record pairs as is necessary to record the entire VTAM internal extended buffer list contents. The first XBI2 and XBI3 record pair contains information relating to the extended buffer list control entry. Subsequent XBI2 and XBI3 record pairs contain information relating to extended buffer list data entries. In addition, if the internal extended buffer list spans more than one AMU, SPAC, or TSCB, then a new XBI1 record is recorded at the point at which a new AMU, SPAC, or TSCB is used. In this case, the XBI1 record contains the previous AMU, SPAC, or TSCB address so that the relationship between this record and the previous set of records can be maintained.

There is no limit to the number of trace entries that can be produced. Although VTAM groups records together as a single entity in terms of recording in the trace recording media, there is a finite limit to how many records can be written externally or recorded internally at one time. Because of multiprocessing, other VIT records from unrelated operations can be interleaved in the trace output between

the XBUF entries for a given operation. To provide correlation between groups of XBUF entries, the AMU, SPAC, or TSCB address is traced in each entry.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
XBI1				ID	0			TSCB OR AMU ADDRESS				0 OR PRVIOUS TSCB OR AMU ADDRESS				RETURN ADDRESS				0								RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"XBI1"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0B TSCB, SPAC, or AMU address

0C–0F Address of the previous TSCB, SPAC, or AMU address, or zeros if this is the first TSCB, SPAC, or AMU.

10–13 Return address

14–1B 0

1C–1F RPH address

XBI2 entry for extended buffer list AMU, SPAC, or TSCB

Entry: XBI2

VIT option:
XBUF

Event: Extended buffer list AMU, SPAC, or TSCB

VIT processing module:
ISTITCXB

This trace record is a continuation of the XBI1 entry. This record contains information about an extended buffer list entry contained in an AMU, SPAC, or TSCB.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
XBI2				TSCB OR AMU ADDRESS				VERSION	SOURCE	TYPE	0	BUFFER TOKEN OR 0												CSM DATA SPACE ALET				ADDRESS OF DATA			

Byte (hex)
Contents

00–03 Record ID: C"XBI2"

04–07 XBUFLST TSCB, SPAC, or AMU address

08 Version of CSM buffer descriptor

09 Buffer source

- **80** ECSA
- **40** Data space
- **20** User data space
- **10** User storage area other than a data space

0A Buffer type

- **80** Fixed
- **40** Pageable
- **20** Eligible to be made pageable

0B 0

0C–17 Buffer token or zeros

18–1B CSM data space ALET

1C–1F Address of data

XBI3 entry for extended buffer list AMU, SPAC, or TSCB

Entry: XBI3

VIT option:
XBUF

Event: Extended buffer list AMU, SPAC, or TSCB

VIT processing module:
ISTITCXB

This trace record is a continuation of the XBI1 entry. This record contains additional information about an extended buffer list entry contained in an AMU, SPAC, or TSCB.

00 01 02 03	04 05 06 07	08 09 0A 0B	0C 0D 0E 0F	10 11 12 13	14	15 16 17 18 19 1A 1B 1C 1D 1E 1F
XBI3	TSCB OR AMU ADDRESS	LENGTH OF DATA	VTAM IO BUFFER ADDRESS OR 0	STORAGE RELEASE ROUTINE	XBFLFLGS	0

Byte (hex)
Contents

00–03 Record ID: C"XBI3"

04–07 XBUFLST TSCB, SPAC, or AMU address

08–0B Length of data pointed to by this entry

0C–0F VTAM I/O buffer address if entry represents data contained in I/O buffer or zeros

10–13 Storage release routine

14 XBFLFLGS byte

15–1F 0

XCFC entry for save message (Part 1)

Entry: XCFC

VIT option:
XCF

Event: A message from another XCF member is saved or a saved message is processed.

VIT processing module:
ISTITCXF

Control is returned to:
ISTTSCMX or ISTTSCDX

The XCFC trace record is written when VTAM cannot immediately receive a message from another VTAM because of a resource shortage or when VTAM is processing a previously saved message.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
XCFC				ID	0		CODE	ORIGINAL MESSAGE TOKEN																0		# ENT		RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"XCFC"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–06 0

07 Request code:

C"D" VTAM has discarded the received message.

C"Q" VTAM has sent a query to determine how many saved messages exist.

C"R" VTAM is redelivering a saved message to the message exit.

C"S" VTAM's first attempt to receive a message failed, so the message has been saved.

08–17 Original message token value

18–19 0

1A–1B Number of entries if Request Code=C'Q'; otherwise 0.

1C–1F Request parameter header (RPH) address

XCC2 entry for save message (Part 2)

Entry: XCC2

VIT option:
XCF

Event: A message from another XCF member is saved

VIT processing module:
ISTITCXF

This trace record is a continuation of the XCFC entry. It shows additional information about a saved message.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
XCC2				0			CODE	SAVED MESSAGE TOKEN																REASON CODE				RETURN CODE			

Byte (hex)
Contents

00–03 Record ID: C"XCC2"

04–06 0

07 Request code

08–17 Saved message token value

18–1B Reason code from an MVS IXCMSGC macroinstruction

1C–1F Return code from an MVS IXCMSGC macroinstruction

See z/OS MVS Programming: Sysplex Services Reference for a description of the return codes and reason codes.

XCFJ entry for join XCF group (Part 1)

Entry: XCFJ

VIT option:
XCF

Event: VTAM joins an XCF group

VIT processing module:
ISTITCXF

Control is returned to:
ISTTSCIX for XCF connectivity

ISTFSUXJ for multiple node persistent session or coupling facility structure support.

The XCFJ trace record is written when VTAM joins an XCF group. It shows information about the XCF connection established by an MVS IXCJOIN macroinstruction, placing an XCF member in an active state and associating it with an XCF group.

00 01 02 03	04	05 06 07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13	14 15 16 17 18 19 1A 1B	1C 1D 1E 1F
XCFJ	ID	0	XCF TOKEN	MAJOR CONTROL BLOCK ADDRESS	XCF GROUP NAME	RPH ADDRESS

Byte (hex)
Contents

00–03 Record ID: C"XCFJ"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0F XCF token value

10–13 Major control block address of:
- ISTXCFCB for XCF connectivity.
- 0 for coupling facility structure support.

14–1B XCF group name:
- ISTXCF*vv* for XCF connectivity, where *vv* is the group ID specified on the XCFGRPID start option. If an XCFGRPID value was not specified, the group name is ISTXCF.
- ISTCFS*vv* for coupling facility structure support, where *vv* is the group ID specified on the XCFGRPID start option. If an XCFGRPID value was not specified, the group name is ISTCFS01.

1C–1F Request parameter header (RPH) address

XCJ2 entry for join XCF group (Part 2)

Entry: XCJ2

VIT option:
XCF

Event: VTAM joins an XCF group

VIT processing module:
ISTITCXF

This trace record is a continuation of the XCFJ entry. It shows additional information about the XCF connection established by an MVS IXCJOIN macroinstruction.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
XCJ2			GROUP MEMBER NAME																	SYSCLONE	VALUE	0		REASON CODE				RETURN CODE			

Byte (hex)
Contents

00–03 Record ID: C"XCJ2"

04–13 Group member name comprises:

- Control point name
- Network identifier

14–15 MVS &SYSCLONE value for XCF connectivity

0 for multiple node persistent session support

The MVS &SYSCLONE value is defined in MVS. For complete information about how the symbol is defined, see z/OS MVS Setting Up a Sysplex and z/OS MVS Initialization and Tuning Reference.

16–17 0

18–1B Reason code from an MVS IXCJOIN macroinstruction

1C–1F Return code from an MVS IXCJOIN macroinstruction

See z/OS MVS Programming: Sysplex Services Reference for a description of the return codes and reason codes.

XCFL entry for leave XCF group (Part 1)

Entry: XCFL

VIT option:
XCF

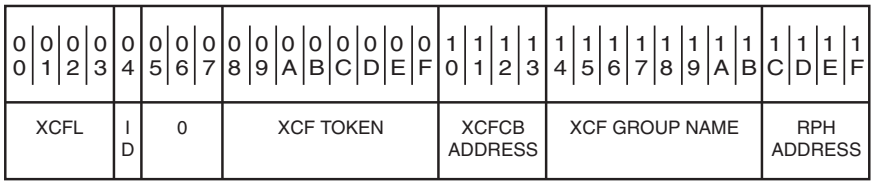
Event: VTAM leaves an XCF group

VIT processing module:
ISTITCXF

Control is returned to:
ISTDECDH

The XCFL trace record is written when VTAM leaves an XCF group. It shows information about the XCF connection terminated by an MVS IXCLEAVE macroinstruction, placing an XCF member in an undefined state and disassociating

it from its XCF group.



00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
XCFL				ID	0			XCF TOKEN								XCFCB ADDRESS				XCF GROUP NAME								RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"XCFL"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05–07 0

08–0F XCF token value

10–13 XCF control block address (ISTXCFCB)

14–1B XCF group name

1C–1F Request parameter header (RPH) address

XCL2 entry for leave XCF group (Part 2)

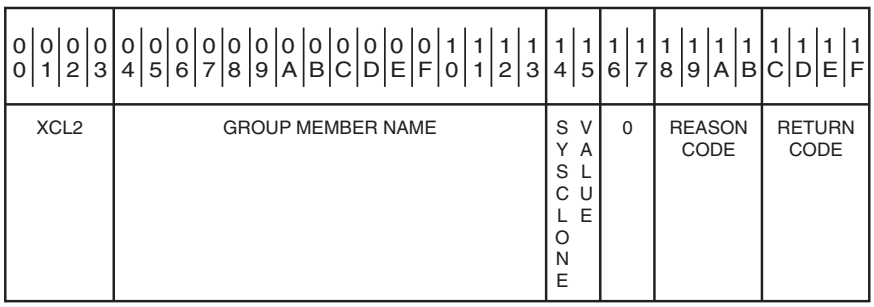
Entry: XCL2

VIT option:
XCF

Event: VTAM leaves an XCF group

VIT processing module:
ISTITCXF

This trace record is a continuation of the XCFL entry. It shows additional information about the XCF connection established or terminated by an MVS IXCLEAVE macroinstruction.



00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
XCL2				GROUP MEMBER NAME																SYSCLONE	VALUE	0		REASON CODE				RETURN CODE			

Byte (hex)
Contents

00–03 Record ID: C"XCL2"

04–13 Group member name comprises:

- Control point name
- Network identifier

14–15 MVS &SYSCLONE value

The MVS &SYSCLONE value is defined in MVS. For complete information about how the symbol is defined, see z/OS MVS Setting Up a Sysplex and z/OS MVS Initialization and Tuning Reference.

16–17 0

18–1B Reason code from an MVS IXCLEAVE macroinstruction

1C–1F Return code from an MVS IXCLEAVE macroinstruction

See z/OS MVS Programming: Sysplex Services Reference for a description of the return codes and reason codes.

XCFM entry for XCF group member (Part 1)

Entry: XCFM

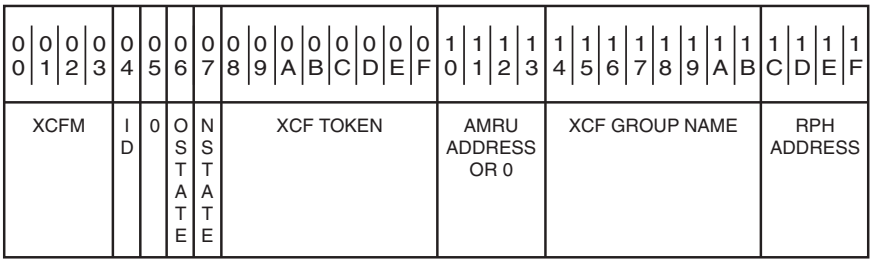
VIT option:
XCF

Event: A member joins or leaves an XCF group

VIT processing module:
ISTITCXF

Control is returned to:
ISTTSCGX or ISTTSCMX for XCF connectivity. ISTFSXGE for multiple node persistent session support

The XCFM trace record is written when an adjacent VTAM joins or leaves an XCF group, or when an initial message is received from an adjacent VTAM after this VTAM joins the group.



Byte (hex)
Contents

00–03 Record ID: C"XCFM"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Old event state when a member joins or leaves the group

0 when an initial message is received

The event states are defined in the group exit parameter list (IXCYGEPL). See *z/OS MVS Data Areas* at z/OS Internet Library for an explanation of the event states.

07 New event state when a member joins or leaves the group

0 when an initial message is received

The event states are defined in the group exit parameter list (IXCYGEPL). See *z/OS MVS Data Areas* at z/OS Internet Library for an explanation of the event states.

08–0F XCF token value

10–13 AMRU address for XCF connectivity. 0 for coupling facility support

14–1B XCF group name:

- ISTXCF*vv* for XCF connectivity, where *vv* is the group ID supplied on the XCFGRPID start option. If XCFGRPID was not specified, the group name is ISTXCF.
- ISTCFS*vv* for coupling facility structure support, where *vv* is the group ID supplied on the XCFGRPID start option. If XCFGRPID was not specified, the group name is ISTCFS01.

1C–1F Request parameter header (RPH) address

XCM2 entry for XCF group member (Part 2)

Entry: XCM2

VIT option:
XCF

Event: A member joins or leaves an XCF group

VIT processing module:
ISTITCXF

This trace record is a continuation of the XCFM entry. It shows additional information about the XCF member when an adjacent VTAM joins or leaves an XCF group, or when an initial message is received from an adjacent VTAM after this VTAM joins the group.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
XCM2				GROUP MEMBER NAME																SYSCLONE	VALUE	ETYPE	0									

Byte (hex)
Contents

00–03 Record ID: C"XCM2"

04–13 Group member names comprise:

- Control point name
- Network identifier

14–15 MVS &SYSCLONE value for XCF connectivity

0 for coupling facility structure support

The MVS &SYSCLONE value is defined in MVS. For complete information about how the symbol is defined, see z/OS MVS Setting Up a Sysplex and z/OS MVS Initialization and Tuning Reference.

16 Event type when a member joins or leaves the group

0 when an initial message is received

The event type is defined by the group exit parameter list (IXCYGEPL). See *z/OS MVS Data Areas* at z/OS Internet Library for an explanation of the event types.

17–1F 0

XCFR entry for receive message (Part 1)

Entry: XCFR

VIT option:
XCF

Event: A message is received from another XCF group member.

VIT processing module:
ISTITCXF

Control is returned to:
ISTTSCMX, ISTTSCBX, or ISTFSXME

The XCFR trace record is written when VTAM receives a message from another active member of an XCF group. It shows information about the message when an MVS IXCMSGI macroinstruction is invoked.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
XCFR				ID	0	FLAGS	STATE	XCF TOKEN								0	TYPE	LENGTH		XFNCB ADDRESS				DATA ELEMENT ADDRESS				RPH ADDRESS			

Byte (hex)
Contents

00–03 Record ID: C"XCFR"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Flag field from MSGCNTRL area

07 State of the link if user type=C'X'; otherwise, 0.

08–0F XCF token value

10 0

11 User type:

C'X' VTAM/XCF

C'M' MNPS

12–13 Length of message

14–17 XFNCB address if user type is C'X'; otherwise, 0.

18–1B Data element address

1C–1F Request parameter header (RPH) address

XCR2 entry for receive message (Part 2)

Entry: XCR2

VIT option:
XCF

Event: A message is received from another XCF group member.

VIT processing module:
ISTITCXF

This trace record is a continuation of the XCFR entry. It is written when an MVS IXCMSGI macroinstruction is invoked. It shows the return code and reason code from the macroinstruction.

See z/OS MVS Programming: Sysplex Services Reference for a description of the return codes and reason codes.

Mapping for Usertype=C'M'

When Usertype (byte 6) is C'M', the mapping for XCR2 is as follows:

00 01 02 03	04 05	06	07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
XCR2	0	TYPE	STATUS	APPL NAME	0	REASON CODE	RETURN CODE

Byte (hex)
Contents

00–03 Record ID: C"XCR2"

04–05 0

06 User type:

C'M' MNPS

07 Message reply status

08–0F Application name

10–17 0

18–1B Reason code from an MVS IXCMSGI macroinstruction

1C–1F Return code from an MVS IXCMSGI macroinstruction

Mapping for Usertype=C'X'

When Usertype (byte 6) is C'X', the mapping for XCR2 is as follows:

00 01 02 03	04 05	06	07	08 09 0A 0B 0C 0D 0E 0F	10 11 12 13 14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
XCR2	0	TYPE	0	MESSAGE TOKEN		REASON CODE	RETURN CODE

Byte (hex)
Contents

00–03 Record ID: C"XCR2"

04–05 0

06 User type:

C'X' VTAM/XCF

07 0

08–17 Message token

18–1B Reason code from an MVS IXCMSGI macroinstruction

1C–1F Return code from an MVS IXCMSGI macroinstruction

XCFS entry for send message (Part 1)

Entry: XCFS

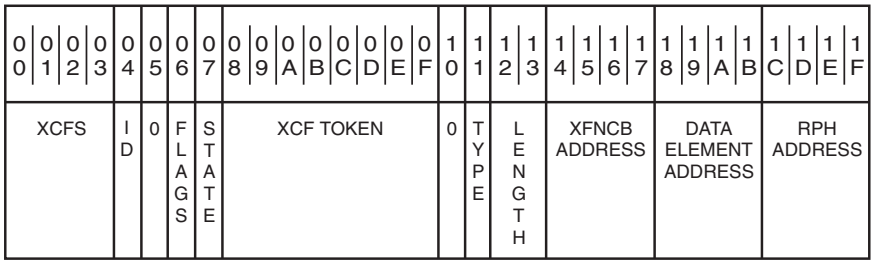
VIT option:
XCF

Event: A message is sent from this VTAM to another XCF group member

VIT processing module:
ISTITCXF

Control is returned to:
ISTTSCOX or ISTFSPFN

The XCFS trace record is written when VTAM sends a message to another active member of an XCF group. It shows information about the message when an MVS IXCMSGO macroinstruction is invoked.



Byte (hex)
Contents

00–03 Record ID: C"XCFS"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Flag field from MSGCNTRL area

07 State of the link if user type=C'X'; otherwise, 0.

Note: If the XFNCB address is 0, the link state is also 0.

08–0F XCF token value

10 0

11 User type:

C'X' VTAM/XCF

C'M' MNPS

12–13 Length of message

14–17 XFNCB address if user type =C'X'; otherwise, 0.

18–1B Data element address if user type =C'X'; otherwise, 0.

1C–1F Request parameter header (RPH) address

XCS2 entry for send message (Part 2)

Entry: XCS2

VIT option:
XCF

Event: A message is sent from this VTAM to another XCF group member

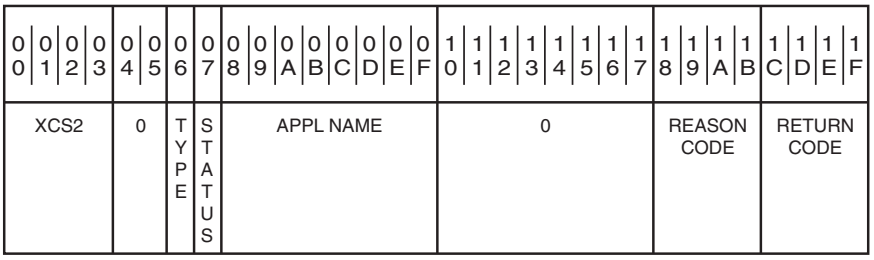
VIT processing module:
ISTITCXF

This trace record is a continuation of the XCFS entry. It is written when an MVS IXCMSGO macroinstruction is invoked and either the return code is greater than 0 or the message token was obtained from XCF by VTAM request on the macroinstruction. It shows the return code and reason code from the macroinstruction, and the message token if obtained by VTAM.

See z/OS MVS Programming: Sysplex Services Reference for a description of the return codes and reason codes.

Mapping for Usertype=C'M'

When Usertype (byte 6) is C'M', the mapping for XCS2 is as follows:



Byte (hex)
Contents

00–03 Record ID: C"XCS2"

04–05 0

06 User type:

C'M' MNPS

07 Message reply status if usertype=C'M'.

08–0F Application name

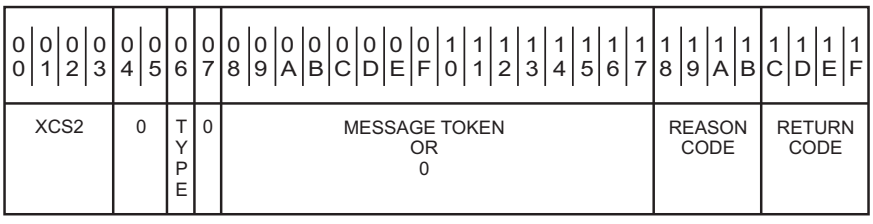
10–17 0

18–1B Reason code from an MVS IXCMSGO macroinstruction

1C–1F Return code from an MVS IXCMSGO macroinstruction

Mapping for Usertype=C'X'

When Usertype (byte 6) is C'X', the mapping for XCS2 is as follows:



Byte (hex)
Contents

00–03 Record ID: C"XCS2"

04–05 0

06 User type:

C'X' VTAM/XCF

07 0

08-17 Message token or 0

18-1B Reason code from an MVS IXCMSGO macroinstruction

1C–1F Return code from an MVS IXCMSGO macroinstruction

XCFX entry for VTAM XCF message exit or notify exit driven

Entry: XCFX

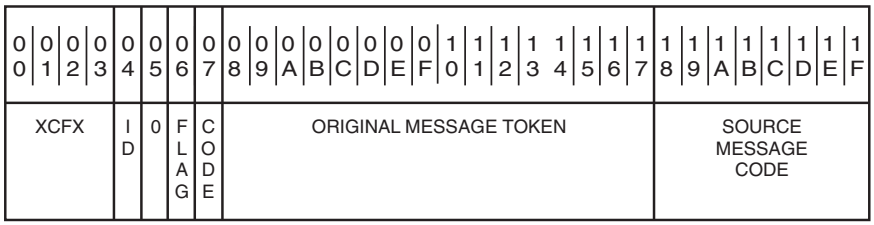
VIT option:
XCF

Event: VTAM XCF message exit or notify exit entered

VIT processing module:
ISTITCXF

Control is returned to:
ISTTSCMX (message exit), ISTTSCFX (notify exit), or ISTFSXME

The XCFX trace record is written when either the VTAM XCF message exit or notify exit is entered.



Byte (hex)
Contents

01–03 Record ID: C'XCFX'

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 Flag Field (Message exit)

Bit **Meaning**

B'1... ....'
Message exit was solicited by the user.

B'.1.. ....'
Sender requested that XCF manage the response to this message.

B'..1. ....'
This message is a response being managed by XCF.

B'...1 ....'
Some portion of the message was delivered by the message-in service.

B'.... 1...'
Message was saved with message control SAVEMSG service.

B'.... .1..'
Sender requested ordered message delivery.

B'.... ..X.'
0

B'.... ...1'
Additional data presented to the message exit in message exit extension.

Flag Field (Notify exit)

Bit **Meaning**

B'1... ....'
Sender specified SENDTO(GROUP) on the IXCMSGO invocation.

B'.1.. ....'
Sender requested that XCF manage the response to this message.

B'..1. ....'
This message is a response being managed by XCF.

B'...1 ....'
required sends not initiated by the message-out service.

B'.... 1...'
Expected response not received.

B'.... .1..'
Message considered to be complete.

B'.... ..1.'
Message did not complete within the timeout period.

B'.... ...1'
Message was canceled before normal completion occurred.

07 Function Code
C'C' - Message exit for CFS
C'M' - Message exit for VTAM/XCF
C'N' - Notify exit for VTAM/XCF

08–17 Original Message token

18–1F Source message code

XID entry for exchange ID (Part 1)

Entry: **XID**

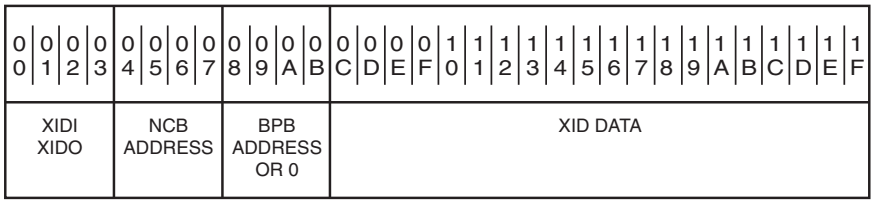
VIT option:
CIA

Event: Exchange ID (Part 1)

VIT processing module:
ISTRACCI

Control is returned to:
ISTTSCCU or ISTTSC8X

This trace record contains information about inbound or outbound exchange ID processing.



Byte (hex)
Contents

00–03 Record ID:
C"XIDI" for inbound XID
C"XIDO" for outbound XID

04–07 NCB address

08–0B Boundary physical unit block (BPB) address or 0

0C–1F 20 bytes of XID data

XID2 entry for exchange ID (Part 2)

Entry: XID2

VIT option:
CIA

Event: Exchange ID (Part 2)

VIT processing module:
ISTRACCI

This trace record is a continuation of the XID trace record.

Byte (hex)
Contents

00–03 Record ID: C"XID2"

04–1F 28 bytes of additional XID data

XPST entry for TPSWPST macro

Entry: XPST

VIT option:
PSS

Event: TPSWPST macro

VIT processing module:
ISTRACPS

Control is returned to:
ISTAPCSP

This trace record identifies a VTAM process (PAB) that is switching PSTs during termination of a task. Switching PSTs causes the PAB to be scheduled for dispatch under the new PST.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
XPST				ID	0	FLAGS		NEW PST ADDRESS				PAB ADDRESS				ISSR				WEQ				MOD NAME OR DVT ADDRESS				RPH ADDRESS OR 0			

Byte (hex)
Contents

00–03 Record ID: "XPST"

04 ID is the primary address space ID (ASID). This field is 0 if the ASID is greater than X'FF'.

05 0

06 PAB flag field (PABFLAGS)

Bit Meaning

1... ....
PAB is unconditionally scheduled.

.1.. ....
PAB closedown is in progress.

..1. ....
PAB is synchronous.

...1 ....
PAB extension is present.

.... 1...
Do not dequeue work element.

.... .1..
Do not detach the RPH.

.... ..1.
Indicates a very extended PAB.

....1
Indicates a slightly extended PAB.

07 PAB flag field (PABFLGS1)

Bit	Meaning
1...	Switch the PST address of this PAB's major control block to the new PST address contained in DYPNWPST.
.1..	This PAB has a data space extension.
..1.	This PAB's major control block is an FMCB.
...1	PAB can be referenced in PSW disable mode.
.... 1...	PAB is persistent.
.... .1..	APSTERM/APSINIT FMCB during PAB dispatch.
.... ..xx	0

08–0B New PST address under which this PAB will now be dispatched

0C–0F PAB address

10–13 Address of the issuer of the TPSWPST macro

14–17 PAB work element queue

18–1B Module name abbreviation or PAB DVT address

1C–1F Request parameter header (RPH) address or 0

Appendix B. Internal topology traces

The internal topology traces provide a record of the creation, update, and deletion of TRS (topology and routing services) topology records. Trace data for the internal topology traces is always automatically recorded.

There are three locations where topology tracing is done:

- In an NDREC (node record) trace table following the NDREC control block, where the creation and update of a node record is recorded.
- In a TGREC (TG record) trace table following the TGREC control block, where the creation and update of a TG record is recorded.
- In a common TRS trace table, where the deletion of NDRECs and TGRECs are recorded.

The NDREC trace table

The NDREC trace table contains entries describing the creation and update of a node record. It is located after the CV45 in an NDREC. It is pointed to by a trace pointer in the NDREC. The first 8 bytes of the NDREC trace table is the header, which contains the following information:

Byte (hex)
Contents

00–03 The current RSN (resource sequence number) of the last update to this NDREC. The current RSN is used when recording TDUs (topology database updates) related to the NDREC. Because duplicate TDU information can be received from multiple adjacent nodes, the RSN in the TDU is compared to the current RSN in the NDREC trace. The TDU will be recorded only in the NDREC trace if the RSN in the TDU is greater than the current RSN in the NDREC trace, indicating that the information in the TDU is more recent than that in the NDREC.

04–07 Address of the current NDREC trace table entry. This is the last trace entry where data was recorded.

Three NDREC trace table entries are displayed after the header. The information about the creation of the NDREC is recorded in the first NDREC trace entry. This entry remains unchanged for the life of the NDREC. Recording of trace events will continue in the remaining two trace table entries, with the trace wrapping back to the second entry after the third entry is completed.

NDREC trace record descriptions

This topic contains the NDREC trace record descriptions. The entries are listed alphabetically by entry name.

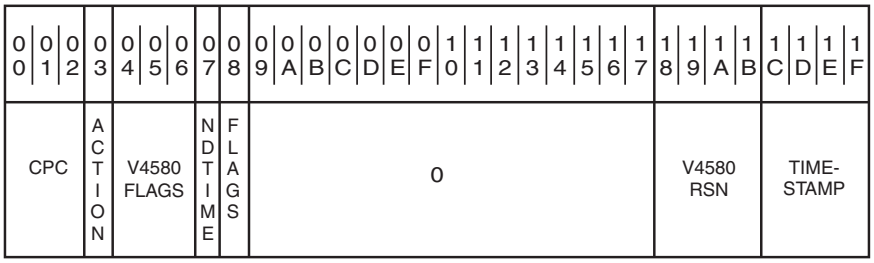
NDREC CPC entry for CP-CP session changes

Entry: **CPC**

Event: CP-CP session changes

Modules Generating Entry:
ISTTRPCS

These trace records are issued when the status of a CP-CP session with this node changes.



Byte (hex)
Contents

00–02 Record ID: C"CPC"

03 Action

- C"U" Update CP-CP session status

04–06 Flag bytes from the CV4580

07 Number of days left before NDREC is garbage collected

08 Flag byte

Bit **Meaning**

11.. ....
Node type from NDREC

B'00' End node

B'01' Network node

B'10' Virtual node

..1. ....
Garbage collection indicator from NDREC

...1 ....
Adjacent node indicator from NDREC

.... 1...
DLUR end node indicator from NDREC

09–17 0

18–1B Resource sequence number from CV4580

1C–1F First word of timestamp for trace entry

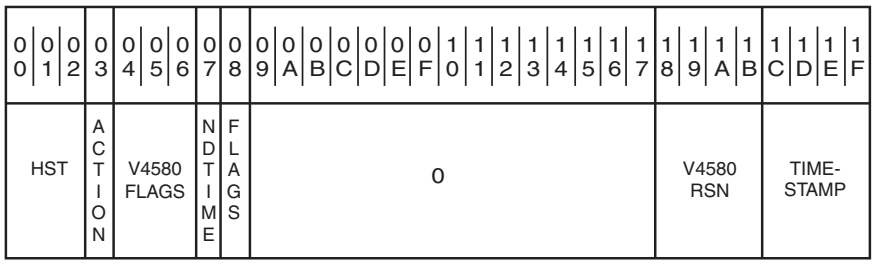
NDREC HST entry for host node create

Entry: **HST**

Event: Host node record creation

Modules Generating Entry:
ISTTRCIT

This trace record is issued when the node record for the host node is created.



00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
HST			ACTION	V4580 FLAGS			NDTIME	FLAGS	0															V4580 RSN				TIME-STAMP			

Byte (hex)
Contents

00–02 Record ID: C"HST"

03 Action
- C"C" Create host node record

04–06 Flag bytes from the CV4580

07 Number of days left before NDREC is garbage collected

08 Flag byte

Bit	Meaning
11..	Node type from NDREC
	B'00' End node
	B'01' Network node
	B'10' Virtual node

09–17 0

18–1B Resource sequence number from CV4580

1C–1F First word of timestamp for trace entry

NDREC MOD entry for MODIFY TOPO command

Entry: MOD

Event: MODIFY TOPO operator command

Modules Generating Entry:
ISTTROMT

This trace record is issued when the MODIFY TOPO command with the FUNCTION=QUIESCE or FUNCTION=NORMAL operand is entered by an operator.

00 01 02	03	04 05 06	07	08	09	0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16 17	18 19 1A 1B	1C 1D 1E 1F
MOD	ACTION	V4580 FLAGS	NDTIME	FLAGS	SCOPE	0	V4580 RSN	TIME-STAMP

Byte (hex)
Contents

00–02 Record ID: C"MOD"

03 Action
- C"Q" FUNCTION=QUIESCE
- C"N" FUNCTION=NORMAL

04–06 Flag bytes from the CV4580

07 Number of days left before NDREC is garbage collected

08 Flag byte

Bit **Meaning**

11.. ....
Node type from NDREC

B'00' End node

B'01' Network node

B'10' Virtual node

..1. ....
Garbage collection indicator from NDREC

...1 ....
Adjacent node indicator from NDREC

.... 1...
DLUR end node indicator from NDREC

09 Scope of the MODIFY TOPO command
- C"L" SCOPE=LOCAL
- C"N" SCOPE=NETWORK

0A–17 0

18–1B Resource sequence number from CV4580

1C–1F First word of timestamp for trace entry

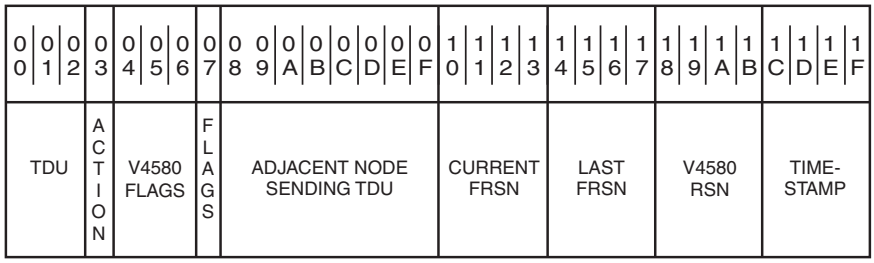
NDREC TDU entry for topology database update

Entry: **TDU**

Event: Topology database update for a node

Modules Generating Entry:
ISTTRINP

This trace record is issued when a node record is created or updated when a TDU is received for a node and the information in the TDU about that node is more recent than the information already in the NDREC.



Byte (hex)
Contents

00–02 Record ID: C"TDU"

03 Action

- C"C" Create node record
- C"U" Update node characteristics
- C"R" Node has changed node roles

04–06 Flag bytes from the CV4580

07 Flag byte

Bit **Meaning**

11.. ....
Node type from NDREC

B'00' End node

B'01' Network node

B'10' Virtual node

..1. ....
Garbage collection indicator from NDREC

...1 ....
Adjacent node indicator form NDREC

.... 1...
DLUR end node indicator from NDREC

08–0F CPNAME of the adjacent node sending the TDU. The CPNAME is not network qualified. This is the node that forwarded the TDU and is not necessarily the originator of the TDU information.

10–13 Current FRSN (flow reduction sequence number)

14–17 Last FRSN previously sent from the adjacent node that forwarded this TDU

18–1B Resource sequence number from CV4580

1C–1F First word of timestamp for trace entry

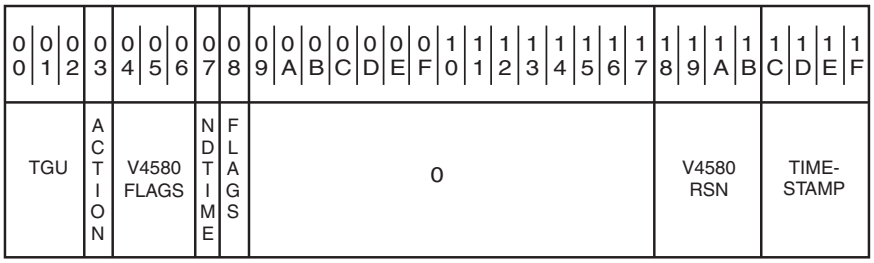
NDREC TGU entry for TG update

Entry: **TGU**

Event: Node created or updated because of a TG update signal

Modules Generating Entry:
ISTTRTLT, ISTTRTTG

This trace record is issued when a node record is created or node information is changed because of a TG update signal.



Byte (hex)
Contents

00–02 Record ID: C"TGU"

03 Action

- C"C" Create node record
- C"U" Update node characteristics
- C"R" Node has changed node roles

04–06 Flag bytes from the CV4580

07 Number of days left before NDREC is garbage collected

08 Flag byte

Bit **Meaning**

11.. ....
Node type from NDREC

B'00' End node

B'01' Network node

B'10' Virtual node

..1. ....
Garbage collection indicator from NDREC

...1 ....
Adjacent node indicator from NDREC

.... 1...
DLUR end node indicator from NDREC

09–17 0

18–1B Resource sequence number from CV4580

1C–1F First word of timestamp for trace entry

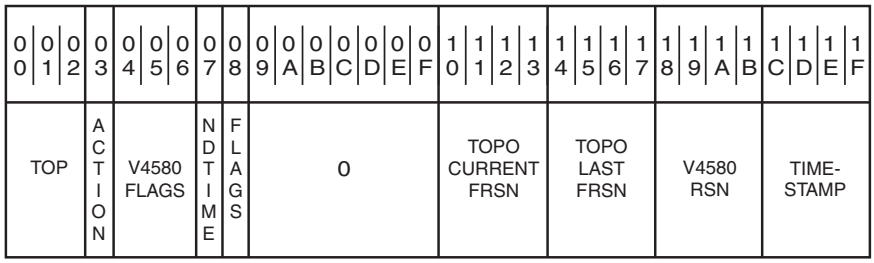
NDREC TOP entry for topology data set create

Entry: TOP

Event: Node created from a checkpointed topology data set

Modules Generating Entry:
ISTTRHND

This trace record is issued when a node record is created from a checkpointed topology data set.



Byte (hex)
Contents

00–02 Record ID: C'TOP'

03 Action

- C'C' Create node record

04–06 Flag bytes from the CV4580

07 Number of days left before NDREC is garbage collected

08 Flag byte

Bit **Meaning**

11.. ....
Node type from TOPO data set

B'00' End node

B'01' Network node

B'10' Virtual node

..1. ....
Adjacent node indicator from the TOPO data set

...1 .... Indicator of adjacent node's unknown control vector support, from the TOPO data set

09–0B 0

0C-0F Current flow reduction sequence number (FRSN), from the TOPO data set, for topology database updates (TDUs) that include unknown topology control vectors (any topology control vectors other than CV44 and CV45)

10–13 Current FRSN, from the TOPO data set, for TDUs that do not include unknown topology control vectors (any topology control vectors other than CV44 and CV45)

14–17 Last FRSN, from the TOPO data set, that is received from this adjacent node

18–1B Resource sequence number (RSN) from CV4580 in the TOPO data set

1C–1F First word of timestamp for trace entry

The TGREC trace table

The TGREC trace table contains entries describing the creation and update of a TG record. It is located following the CV46 in a TGREC. A trace pointer in the TGREC points to it. The first 8 bytes of the TGREC trace table is the header, which contains the following information:

Byte (hex)
Contents

00–03 The current RSN (resource sequence number) of the last update to this TGREC. The current RSN is used when recording TDUs (topology database updates) related to the TGREC. Because duplicate TDU information can be received from multiple adjacent nodes, the RSN in the TDU is compared to the current RSN in the TGREC trace. The TDU will be recorded only in the TGREC trace if the RSN in the TDU is greater than the current RSN in the TGREC trace, indicating that the information in the TDU is more recent than that in the TGREC.

04–07 Address of the current TGREC trace table entry. This is the last trace entry where data was recorded.

Five TGREC trace table entries are displayed after the header. The information about the creation of the TGREC is recorded in the first TGREC trace entry. This entry remains unchanged for the life of the TGREC. Recording of trace events will continue in the remaining four trace table entries, with the trace wrapping back to the second entry after the fifth entry is completed.

TGREC trace record descriptions

This topic contains the TGREC trace record descriptions. The entries are listed alphabetically by entry name.

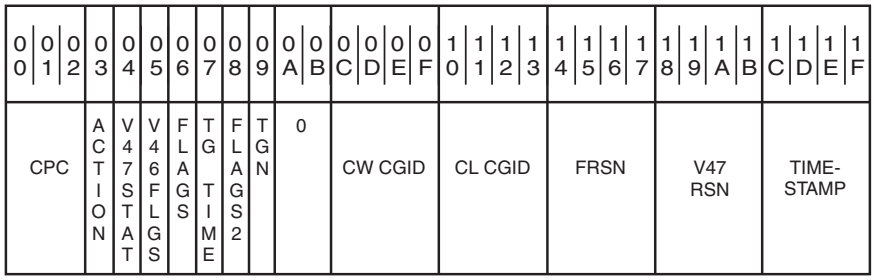
TGREC CPC entry for CP-CP session changes for a TG

Entry: CPC

Event: CP-CP session status changes in a TG record

Modules Generating Entry:
ISTTRPCS

This trace record is issued for a TG record when the status of a CP-CP session using a local TG has changed.



Byte (hex)
Contents

00–02 Record ID: C"CPC"

03 Action

- C"U" Update TG characteristics

04 Status byte from the CV47

05 Flag byte from the CV4680

06 Flag byte

Bit **Meaning**

111. ....
TG type from TGREC

B'000' Endpoint TG

B'001' Intermediate routing TG

B'010' Interchange TG

B'011' Intersubnet TG

B'100' Branch Extender TG

...1 ....
Garbage collection indicator from TGREC

.... 1...
Adjacent node's HPRTT value from TGREC

.... .11.
Local node's HPR/HPRTT values from TGREC

....1
TG carries conwinner CP-CP session indicator from TGREC

07 Number of days left before TGREC is garbage collected

08 Flag2 byte

Bit **Meaning**

11.. ....
CP-CP session status from CP status IPS

B'01' Pending active

B'11' Active

B'00' Inactive

..11 ....
CP-CP session type from CP status IPS

B'01' Conwinner

B'00' Conloser

B'10' Both conwinner and conloser

.... 1...
Adjacent node type from CP status IPS

B'0' End node

B'1' Network node

.... .1..
Adjacent node's non-native indicator from CP status IPS

B'0' Native

B'1' Non-native (can still have the same NETID)

.... ..1.
Adjacent node's border node indicator from CP status IPS

B'0' Not a BN

B'1' BN

....1
Adjacent node's border node supported indicator from CP status IPS

B'0' BN not supported

B'1' BN supported

09 TG number from CP status IPS (from RTP only)

0A-0B 0

0C-0F Conwinner CGID from CP status IPS

10-13 Conloser CGID from CP status IPS

14-17 Last FRSN received by adjacent node (from this host node) from CP status IPS

18-1B Resource sequence number from CV47

1C-1F First word of timestamp for trace entry

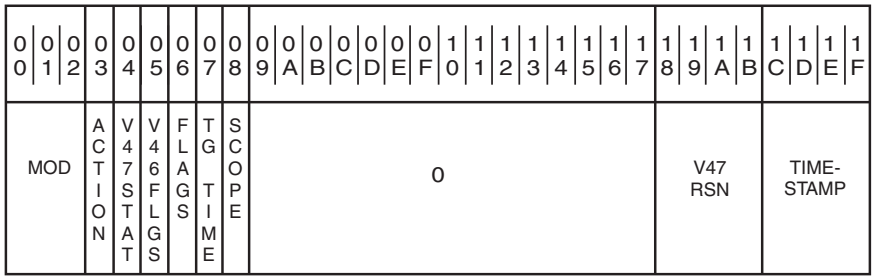
TGREC MOD entry for MODIFY TOPO command

Entry: MOD

Event: MODIFY TOPO operator command

Modules Generating Entry:
ISTTROMT

This trace record is issued when the MODIFY TOPO command with the FUNCTION=QUIESCE or FUNCTION=NORMAL operand is entered by an operator.



00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
MOD			ACTION	V47STAT	V46FLGS	FLAGS	TG TIME	SCOPE	0															V47 RSN				TIME-STAMP			

Byte (hex)
Contents

00–02 Record ID: C"MOD"

03 Action
- C"Q" FUNCTION=QUIESCE
- C"N" FUNCTION=NORMAL

04 Status byte from the CV47

05 Flags byte from the CV4680

06 Flag byte

Bit **Meaning**

111. ....
TG type from TGREC

B'000' Endpoint TG

B'001' Intermediate routing TG

B'010' Interchange TG

B'011' Intersubnet TG

B'100' Branch extender TG

...1 ....
Garbage collection indicator from TGREC

.... 1...
Adjacent node's HPRTT value from TGREC

.... .11.
Local node's HPR/HPRTT values from TGREC

07 Number of days left before TGREC is garbage collected

08 Scope of the MODIFY TOPO command
- C"L" SCOPE =LOCAL
- C"N" SCOPE =NETWORK

09–17 0

18–1B Resource sequence number from CV47

1C–1F First word of timestamp for trace entry

TGREC TDU entry for topology database update

Entry: TDU

Event: Topology database update for a TG

Modules Generating Entry:
ISTTRIAT

This trace record is issued when a TG record is created or updated when a TDU is received for a TG and the information in the TDU about that TG is more recent than the information already in the TGREC.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
TDU			ACTION	V47STAT	V46FLGS	FLAGS	TG TIME	ADJACENT NODE SENDING TDU								CURRENT FRSN				LAST FRSN				V47 RSN				TIME-STAMP			

Byte (hex)
Contents

00–02 Record ID: C"TDU"

03 Action
- C"C" Create TG record
- C"I" TG became inoperative
- C"O" TG became operational

04 Status byte from the CV47

05 Flag byte from the CV4680

06 Flag byte

Bit Meaning

111. ....
TG type from TGREC

B'000' Endpoint TG

B'001' Intermediate routing TG

B'010' Interchange TG

B'011' Intersubnet TG

B'100' Branch extender TG

...1 ....
Garbage collection indicator from TGREC

.... 1...
Adjacent node's HPRTT value from TGREC

.... .11.
Local node's HPR/HPRTT values from TGREC

07 Number of days left before TGREC is garbage collected

08–0F CPNAME of the adjacent node sending the TDU. The CPNAME is not

network qualified. This is the node that forwarded the TDU and is not necessarily the originator of the TDU information.

10–13 Current FRSN (flow reduction sequence number)

14–17 Last FRSN previously sent from the adjacent node that forwarded this TDU

18–1B Resource sequence number from CV47

1C–1F First word of timestamp for trace entry

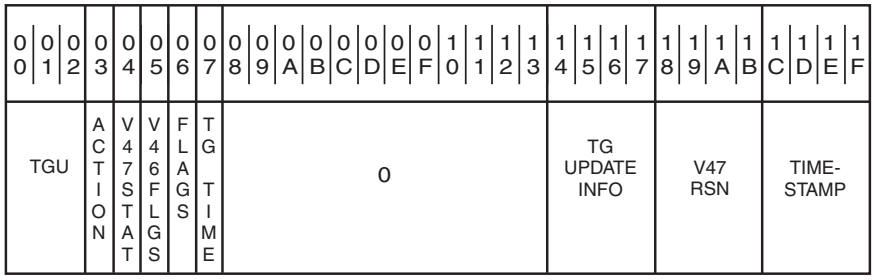
TGREC TGU entry for TG update

Entry: TGU

Event: TG created or updated because of a TG update signal

Modules Generating Entry:
ISTTRTTG

This trace record is issued when a TG record is created or the TG status is changed because of a TG update signal.



Byte (hex)
Contents

00–02 Record ID: C"TGU"

03 Action
- C"C" Create TG record
- C"I" TG became inoperative
- C"O" TG became operational

04 Status byte from the CV47

05 Flag byte from the CV4680

06 Flag byte

Bit **Meaning**

111. ....
TG type from TGREC

B'000' Endpoint TG

B'001' Intermediate routing TG

B'010' Interchange TG

B'011' Intersubnet TG

B'100' Branch extender TG

...1 ....
Garbage collection indicator from TGREC

.... 1...
Adjacent node's HPRTT value from TGREC

.... .11.
Local node's HPR/HPRTT values from TGREC

07 Number of days left before TGREC is garbage collected

08–13 0

14–17 Information from the TG update signal

14 TG type

X'01' Endpoint TG

X'02' Interchange TG

X'03' Intermediate routing TG

X'04' Intersubnet TG

X'05' Branch Extender TG

15 TG status

X'01' Active

X'02' Inactive

16 Partner node type

X'01' Network node

X'02' Virtual node

X'03' End node

17 Direction of OP/INOP status

X'01' IN

X'02' OUT

X'03' IN/OUT

18–1B Resource sequence number from CV47

1C–1F First word of timestamp for trace entry

TGREC TOP entry for topology data set create

Entry: TOP

Event: TG created from a checkpointed topology data set

Modules Generating Entry:
ISTTRHTG

This trace record is issued when a TG record is created from a checkpointed topology data set.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
TOP			ACTION	V47STAT	V46FLGS	FLAGS	TG TIME	0								TOPO CURRENT FRSN				TOPO LAST FRSN				V47 RSN				TIME-STAMP			

Byte (hex)
Contents

00–02 Record ID: C'TOP'

03 Action
- C'C' Create TG record

04 Status byte from the CV47

05 Flags byte from the CV4680

06 Flag byte

Bit **Meaning**

111. ....
TG type from TGREC

B'000' Endpoint TG

B'001' Intermediate routing TG

B'010' Interchange TG

B'011' Intersubnet TG

B'100' Branch extender TG

...1 ....
Garbage collection indicator from TGREC

.... 1...
Adjacent node's HPRTT value from TGREC

.... .11.
Local node's HPR/HPRTT values from TGREC

07 Number of days left before TGREC is garbage collected

08–0B 0

0C-0F Current flow reduction sequence number (FRSN), from the TOPO data set, for topology database updates (TDUs) that include unknown topology control vectors (any topology control vectors other than CV46 and CV47)

10–13 Current FRSN, from the TOPO data set, for TDUs that do not include unknown topology control vectors (any topology control vectors other than CV46 and CV47)

14–17 Last FRSN received from the TOPO data set

18–1B Resource sequence number (RSN) from CV47 in the TOPO data set

1C–1F First word of timestamp for trace entry

The TRS common topology trace table

In the TRS (topology and routing services component of VTAM) common topology trace table, the deletion of NDRECs (node records) and TGRECs (TG records) are recorded.

The TRS common topology trace table is located in extended private storage. At TRS initialization, a 40-K buffer of storage is allocated for the TRS topology trace. When that buffer is filled with trace entries, another buffer is allocated to continue the trace. Buffer allocation continues until a maximum of 30 buffers is allocated for the TRS topology trace. When all buffers of the TRS topology trace are full of trace entries, the trace wraps back to the first entry on the first buffer of the trace table.

The TRS topology trace table is pointed to from the TRDAT. The following information about the TRS topology trace table is included in the TRDAT:

- A pointer to the first buffer of the TRS topology trace
- A pointer to the last buffer of the TRS topology trace
- A pointer to the current buffer of the TRS topology trace
- A pointer to the current TRS topology trace entry
- The number of trace records that have been used in the current buffer of the TRS topology trace
- The number of times the TRS topology trace table has wrapped
- The number of TRS topology trace table buffers allocated

Figure 6 on page 529 shows the TRS topology trace table format:

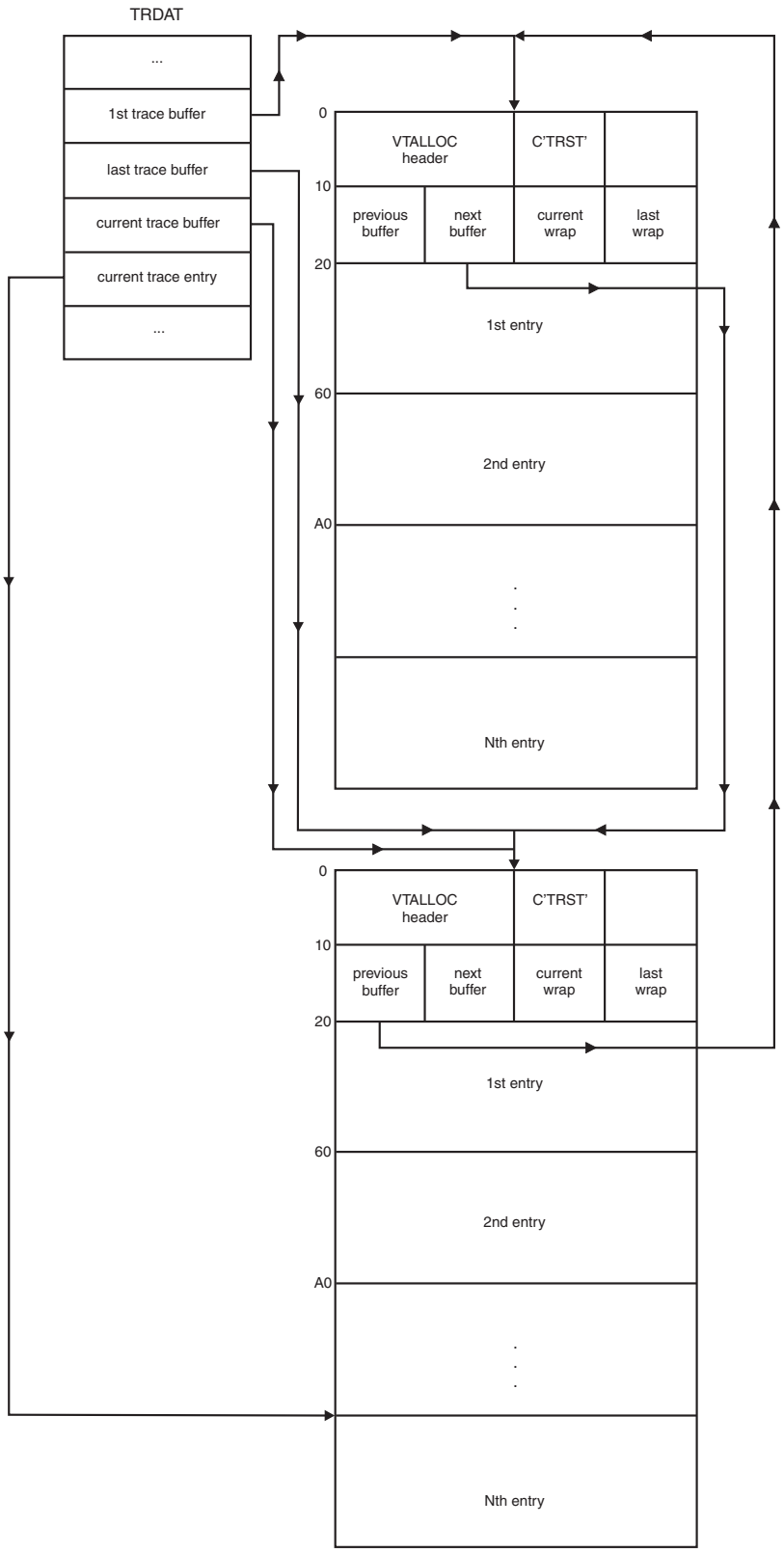


Figure 6. TRS common topology trace table with two buffers allocated

The first X'18' bytes of the allocated buffer of TRS topology trace table is the header, which contains the following information:

Byte (hex)
Contents

00–03 TRS topology trace control block ID – C"TRTR"

04–07 0

08–0B Address of the previous buffer of the TRS topology trace. The previous buffer pointer is 0 for the first buffer of the trace.

0C–0F Address of the next buffer of the TRS topology trace. The next buffer pointer is 0 for the last buffer of the trace.

10–13 Timestamp (first word) when the trace most recently wrapped back to the beginning. The timestamp is present only on the first buffer of the TRS topology trace.

14–17 Prior timestamp (first word) when the trace wrapped back to the beginning. The timestamp is present only on the first buffer of the TRS topology trace.

TRS common topology trace record descriptions

This topic contains the TRS topology trace record descriptions. Each TRS topology trace entry is X'40' bytes long. The record ID in the first two characters of the record indicates the following information:

- Byte 0 Reason for the record deletion or TDU entry. See the individual record descriptions for reasons.
- Byte 1 Type of entry

  C"N" Node

  C"T" TG

TRS DELETE entry for NDREC deletion

Event: Node record deletion

This trace record is issued when a node record is deleted from the topology database.

00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F
DELETE	ID	V4580 FLAGS			FLAGS	NODE CPNAME																	0								

20	21	22	23	24	25	26	27	28	29	2A	2B	2C	2D	2E	2F	30	31	32	33	34	35	36	37	38	39	3A	3B	3C	3D	3E	3F
0								CREATE		SOURCE	0	CREATE RSN				DELETE RSN				CREATE TIME				DELETE TIME				NDREC ADDRESS			

Byte (hex)
Contents

00–01

Record ID	Calling module	Reason for node deletion
C"GN"	ISTTRGTM	Garbage collection
C"MN"	ISTTROMT	MODIFY TOPO,DELETE,SCOPE=LOCAL
C"SN"	ISTTRGTM	Garbage collection because of MODIFY TOPO,DELETE,SCOPE=NETWORK
C"TN"	ISTTRGTM	Garbage collection because of receipt of a TDU with the GCI bit on

02–04 Flag bytes from the CV4580

05 Flag byte

Bit **Meaning**

11.. ....
Node type from NDREC

B'00' End node

B'01' Network node

B'10' Virtual node

..1. ....
Adjacent node indicator from NDREC

...1 ....
Garbage collection indicator from NDREC

.... .1..
DLUR end node indicator from NDREC

.... ..1.
Scope of MODIFY TOPO

B'0' Local

B'1' Network

06–16 Network qualified CPNAME of the node being deleted

17–27 0

28–2A Source of the node record creation

- C"TDU" Created because of TDU received from an adjacent node
- C"TGU" Created as the result of a TG update signal
- C"TOP" Created from a checkpointed data set at VTAM initialization with INITDB=TOPO

2B 0

2C–2F Resource sequence number at the time the node record was created

30–33 Resource sequence number at the time the node record was deleted

34–37 First word of timestamp when the node record was created

38–3B First word of timestamp when the node record was deleted

3C–3F Address of the node record being deleted

TRS DELETE entry for TGREC deletion

Event: TG record deletion

This trace record is issued when a TG record is deleted from the topology database.

00	01	02	03	04	05	06 07 08 09 0A 0B 0C 0D 0E 0F 10 11 12 13 14 15 16	17 18 19 1A 1B 1C 1D 1E 1F
DELETE ID		TGN	V47STAT	V46FLGS	FLAGS	ORIGIN CPNAME	DESTINATION CPNAME

20 21 22 23 24 25 26 27	28 29 2A	2B	2C 2D 2E 2F	30 31 32 33	34 35 36 37	38 39 3A 3B	3C 3D 3E 3F
DESTINATION CPNAME (CONT)	CREATE SOURCE	0	CREATE RSN	DELETE RSN	CREATE TIME	DELETE TIME	TGREC ADDRESS

Byte (hex)
Contents

00–01

Record ID	Calling module	Reason TG deletion
C"BT"	ISTTRPCS	Node role change from EN to BN
C"CT"	ISTTRINP	Node role change through a TDU
C"DT"	ISTTRPSS	Deactivation of CPSERVR
C"FT"	ISTTRIAT	Zero FRSN received on a TDU from an EN
C"GT"	ISTTRGTM	Garbage collection
C"HT"	ISTTRTTG	Node role change by way of a TG update
C"MT"	ISTTROMT	MODIFY TOPO,DELETE,SCOPE=LOCAL
C"NT"	ISTTRGNR	Deleted as the result of a node deletion
C"RT"	ISTTRGTR	Reverse TG deletion
C"ST"	ISTTRGTM	Garbage collection because of MODIFY TOPO,DELETE,SCOPE=NETWORK

Record ID	Calling module	Reason TG deletion
C"TT"	ISTTRGTM	Garbage collection because of receipt of a TDU with the GCI bit on

02 TG number from the CV4680

03 Status byte from the CV47

04 Flag byte from the CV4680

05 Flag byte

Bit	Meaning
111.	TG type from TGREC
	B'000' Endpoint TG
	B'001' Intermediate routing TG
	B'010' Interchange TG
	B'011' Intersubnet TG
	B'100' Branch extender TG
...1	Garbage collection indicator from TGREC
.... ..1.	Scope of MODIFY TOPO
	B'0' Local
	B'1' Network

06–16 Network qualified CPNAME of the origin node of the TG being deleted

17–27 Network qualified CPNAME of the destination node of the TG being deleted

28–2A Source of the TG record creation

- C"TDU" Created because of TDU received from an adjacent node
- C"TGU" Created as the result of a TG update signal
- C"TOP" Created from a checkpointed data set at VTAM initialization with INITDB=TOPO

2B 0

2C–2F Resource sequence number at the time the TG record was created

30–33 Resource sequence number at the time the TG record was deleted

34–37 First word of timestamp when the TG record was created

38–3B First word of timestamp when the TG record was deleted

3C–3F Address of the TG record being deleted

Appendix C. First Failure Support Technology (FFST) probes

This appendix contains the following topics:

- "FFST probe index"
- "FFST probe information" on page 536
- "FFST probe naming conventions" on page 536
- "FFST probe descriptions" on page 536

See "First Failure Support Technology (FFST) for VTAM" on page 1 for additional information.

FFST probe index

The following table provides an index of FFST probes in alphanumeric order by probe name:

Table 9. FFST probe index

Probe name	Component	See
ISTALCxx	APPN Over Logical Link Control	"APPN over logical link control probes" on page 537
ISTATCxx	APPN TG Management	"APPN TG management" on page 538
ISTAUCxx	Enterprise Extender	"Enterprise Extender probes" on page 555
ISTCMCxx	Common Management Information Protocol (CMIP) Services	"Common Management Information Protocol (CMIP) services probes" on page 538
ISTCOCxx	Control Operator	"Control operator probes" on page 540
ISTCSCxx	Configuration Services	"Configuration services probes" on page 539
ISTDLCxx	Dependent LU Server	"Dependent LU server probes" on page 547
ISTDRCxx	Directory Services	"Directory services probes" on page 548
ISTFSCxx	Coupling Facility Services	"Coupling facility services probes" on page 541
ISTIUTxx	Logical Link Control	"Logical link control" on page 556
ISTMTCxx	Management Services Transport	"Management services transport probes" on page 557
ISTNACxx	Network Resource Management	"Network resource management probes" on page 558
ISTNSCxx	LU Network Services	"LU network services probes" on page 557
ISTORCxx	Storage Management	"Storage management probes" on page 569
ISTPSCxx	Presentation Services	"Presentation services probes" on page 559
ISTRACxx	Trace Services	"Trace services probes" on page 570
ISTRMCxx	LU Resource Manager	"LU resource manager probes" on page 557
ISTRVMxx	Recovery Manager	"Recovery manager (RV) probes" on page 559
ISTSCCxx	Session Services CP-CP	"Session services CP-CP probes" on page 560
ISTSLCxx	Session Services LU-LU	"Session services LU-LU probes" on page 562
ISTSSCxx	Session Services	"Session services probes" on page 560
ISTTACxx	VTAM Topology Agent	"VTAM topology agent probes" on page 572
ISTTCCxx	TC-DLC (Transmission Control-Data Link Control)	"Transmission control — Data link control (TC-DLC) probes" on page 570

Table 9. FFST probe index (continued)

Probe name	Component	See
ISTTRCxx	Topology and Routing Services	"Topology and routing services probes" on page 569
ISTTSCxx	Transmission Subsystem	"Transmission subsystem probes" on page 571

FFST probe information

When a VTAM FFST probe is triggered, an unexpected condition has occurred in the network. The process that received the condition might not complete normally. The VTAM program will attempt to recover from the unexpected condition and will continue processing subsequent requests. Recovery might not be possible for some system conditions, and subsequent requests might fail, terminals might hang, and other abnormal conditions might occur.

Dump data is collected to assist in identifying the source of the problem. The processing element is freed and processing continues. If the probe triggers multiple times you might need to halt and restart VTAM.

Contact the appropriate IBM Support Center and supply the service representative with the console listing that is written at the time of the error and the dump data produced by the probe.

For information about using FFST dumps, see "First Failure Support Technology (FFST) for VTAM" on page 1.

FFST probe naming conventions

The following table describes the naming convention for the FFST probe name. **ISTRAC01** is used as an example for VTAM.

Table 10. FFST probe naming conventions

Characters	Example	Description
1,2,3	IST	These characters represent the product identifier. For VTAM probes, these characters are IST.
4, 5	RA	These characters represent the VTAM component identifier. In this example, RA is the component identifier for the Trace Services component.
6	C	For VTAM probes, this character is C.
7, 8	01	These characters represent the probe identification number. This number is not duplicated.

FFST probe descriptions

This information includes a table for each component that contains FFST probe instructions. The components are in alphabetical order, and the probes for each component are in alphanumeric order by probe name. "FFST probe index" on page 535 provides an index of FFST probes in alphanumeric order by probe name. Each table in this information shows the probe name, the module that issues it, and whether the probe creates a full or minidump when triggered.

"FFST probe index" on page 535 provides an index of FFST probes in alphanumeric order by probe name.

For information about using FFST dumps, see “First Failure Support Technology (FFST) for VTAM” on page 1.

APPN over logical link control probes

Table 11. FFST probes for APPN over logical link

Probe name	Module	Description	Dump type
ISTALC01	ISTALCAL	The APPN over logical link control (ALLC) line index control block OSLIN indicates that ALNCB line entries are available, but none can be found. The maximum number of ATM native ALNCB line entries is 65535.	Mini
ISTALC02	ISTALCPE	An unusable primitive was received by ISTALCPE.	Mini
ISTALC03	ISTALCPF	An unusable work element was queued to the ALLC port finite state machine (FSM) processor ISTALCPF.	Mini
ISTALC04	ISTALCPF	The work in progress field (ALPOR_WIP) in the ALLC port control block ALPOR has not been set and should have been set during DACTLINK processing.	Mini
ISTALC05	ISTALCPF	Disable confirmation was received and the filter has never gone inactive.	Mini
ISTALC06	ISTALCPF	The work element address (WEA) field in the request processing header control block RPH does not point to an ALLC parameter list (ALCPL).	Mini
ISTALC07	ISTALCLF	An unusable work element was received by ISTALCLF.	Mini
ISTALC08	ISTALCIF	An unusable work element was received by ISTALCIF.	Mini
ISTALC09	ISTALCOF	An unusable work element was received by ISTALCOF.	Mini
ISTALC10	ISTALCCF	An unusable work element was received by ISTALCCF.	Mini
ISTALC11	ISTALCOC	An unusable AAL signal was received by ISTALCOC from the AAL FSM handler ISTALCAF.	Mini
ISTALC12	ISTALCIC	An unusable AAL signal was received by ISTALCIC from the AAL FSM handler ISTALCAF.	Mini
ISTALC13	ISTALCOL	An unusable XID signal was received by ISTALCOL from the XID FSM handler ISTALCXF.	Mini
ISTALC14	ISTALCIL	An unusable XID signal was received by ISTALCIL from the XID FSM handler ISTALCXF.	Mini

APPN TG management

Table 12. FFST probes for APPN TG management

Probe name	Module	Description	Dump type
ISTATC01	ISTATCUP	Total connection count corrupted	FULL

Common Management Information Protocol (CMIP) services probes

Table 13. FFST probes for CMIP services (ISTCMCxx)

Probe name	Module	Description	Dump type
ISTCMC01	ISTCMAFR	CMIP services was dispatched with a work element type that it does not support or does not support in the current state.	Full
ISTCMC02	ISTCMCRT	CMIP services was dispatched with a work element type that it does not support or does not support in the current state.	Full
ISTCMC03	ISTCMDCR	CMIP services was dispatched with a work element type that it does not support or does not support in the current state.	Full
ISTCMC04	ISTCMIOS	CMIP services was dispatched with a work element type that it does not support or does not support in the current state.	Full
ISTCMC05	ISTCMMBR	CMIP services was dispatched with a work element type that it does not support or does not support in the current state.	Full
ISTCMC06	ISTCMRPR	CMIP services was dispatched with a work element type that it does not support or does not support in the current state.	Full
ISTCMC07	ISTCMSSR	CMIP services was dispatched with a work element type that it does not support or does not support in the current state.	Full
ISTCMC08	ACYCMLNC	CMIP services attempted to send an internal CMIP services signal to a destination that is not valid.	Full
ISTCMC09	ACYCMPTC	CMIP services called the PTIO_OPEN function and sent parameters that are not valid.	Full

Configuration services probes

Table 14. FFST probes for configuration services (ISTCSCxx)

Probe name	Module	Description	Dump type
ISTCSC01	ISTACCQ3	This probe detects control vector (or subvector) lengths that are not valid on request contact (REQCONT) RUs. It produces information about the failing request unit processing element (RUPE), request/response unit (RU), and variable work area (VWA). If available, the resource definition table entry (RDTE) for the LINE and PU is also reported.	Mini
ISTCSC02	ISTCSCRC	Resource registration failure was detected.	Mini
ISTCSC03	ISTCSCRE	Resource registration failure was detected.	Mini
ISTCSC04	ISTCSCRF	Resource registration failure was detected.	Mini
ISTCSC05	ISTCSCRJ	Resource registration failure was detected.	Mini
ISTCSC06	ISTCSCRK	Resource registration failure was detected.	Mini
ISTCSC07	ISTCSCRH	Resource registration failure was detected.	Mini
ISTCSC09	ISTDECQE	The resource definition table entry (RDTE) for the dependent LU requester CDRSC was not found.	Full
ISTCSC10	ISTDECQD	The resource definition table entry (RDTE) for the dependent LU requester CDRSC was not found.	Full
ISTCSC11	ISTDECP3	The resource definition table entry (RDTE) for the dependent LU requester CDRSC was not found.	Full
ISTCSC12	ISTDECP4	The resource definition table entry (RDTE) for the dependent LU requester CDRSC was not found.	Full
ISTCSC13	ISTDECQ4	A protocol violation was detected.	Full
ISTCSC14	ISTDECQ4	A topology database update (TDU) error was detected.	Full
ISTCSC15	ISTACCQE	An attempt to add the resource definition table entry (RDTE) for the DLUS-supported LU failed because the network address is already in use or was not properly freed by a previous user. Related pointer values are provided in the secondary symptom string.	Full
ISTCSC16	ISTDECLL	The GETRDTE for the higher-level resource failed.	Full
ISTCSC18	ISTACCQ3	REQCONT failure RU is not valid.	Mini

Control operator probes

Table 15. FFST probes for control operator (ISTCOCxx)

Probe name	Module	Description	Dump type
ISTCOC01	ISTCOCDL	A suspended log mode is not found. Check the mode the application program specifies on the APPCCMD CONTROL=OPRCNTRL, QUALIFY=RESTORE macroinstruction. You can use the following VTAM dump functions to display advanced program-to-program communication (APPC)-related information: • APPLCONV • APPLMODE • APPMODAL • PARTNRLU For information about these functions, see the information about using VTAM dump analysis tools in z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures.	Full
ISTCOC02	ISTCOCSC	A suspended log mode is not found. Check the mode the application program specifies on the APPCCMD CONTROL=OPRCNTRL, QUALIFY=RESTORE macroinstruction. You can use the following VTAM dump functions to display advanced program-to-program communication (APPC)-related information: • APPLCONV • APPLMODE • APPMODAL • PARTNRLU For information about these functions, see the information about using VTAM dump analysis tools in z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures.	Full

Table 15. FFST probes for control operator (ISTCOCxx) (continued)

Probe name	Module	Description	Dump type
ISTCOC03	ISTCOCVR	A suspended log mode is not found. Check the mode the application program specifies on the APPCCMD CONTROL=OPRCNTRL, QUALIFY=RESTORE macroinstruction. You can use the following VTAM dump functions to display advanced program-to-program communication (APPC)-related information: • APPLCONV • APPLMODE • APPMODAL • PARTNRLU For information about these functions, see the information about using VTAM dump analysis tools in z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures.	Full

Coupling facility services probes

Table 16. FFST probes for coupling facility services (ISTFSCxx)

Probe name	Module	Description	Dump type
ISTFSC00	ISTFSUMT	An unexpected return code *xxxx* and reason code *yyyy* were returned for IXLLIST when VTAM attempted to move an entry to the end of a list.	Mini
ISTFSC01	ISTFSNRT	A work element that was not recognized by coupling facility services (CFS) was queued to the CFS connection services PAB.	Mini
ISTFSC02	ISTFSNRT	A work element was recognized by coupling facility services (CFS), but it contained incorrect information.	Mini
ISTFSC03	ISTFSNCF	An unexpected input was received for the current state of the connection finite state machine.	Mini
ISTFSC04	ISTFSNST	An unexpected return code *xxxx* and reason code *yyyy* were returned for the IXLDISC macro.	Mini
ISTFSC05	ISTFSURB	An unexpected return code *xxxx* and reason code *yyyy* were returned for the IXLREBLD macro.	Mini
ISTFSC06	ISTFSURS	An unexpected return code *xxxx* and reason code *yyyy* were returned for the IXLEERSP macro.	Mini

Table 16. FFST probes for coupling facility services (ISTFSCxx) (continued)

Probe name	Module	Description	Dump type
ISTFSC07	ISTFSUUS	An unexpected return code *xxxx* and reason code *yyyy* were returned for the IXLUSYNC macro.	Mini
ISTFSC08	ISTFSUFC	An unexpected return code *xxxx* and reason code *yyyy* were returned for the IXLFORCE macro.	Mini
ISTFSC09	ISTFSNCN	An unexpected return code *xxxx* and reason code *yyyy* were returned for the IXLCONN macro.	Mini
ISTFSC0A	ISTFSUDC	VTAM was connected to an unexpected structure type.	Mini
ISTFSC0B	ISTFSUDC	The connection name returned in the IXLCONN answer area was not the name specified on IXLCONN.	Mini
ISTFSC0C	ISTFSGLR	VTAM was not able to find a local generic mapping while rebuilding the coupling facility structure with local data.	Mini
ISTFSC0D	ISTFSDRT	A work element that was not recognized was received by a Sysplex Wide Security Associations structure object PAB.	Mini
ISTFSC0E	ISTFSGG1	VTAM made a counting error associated with a generic resource.	Mini
ISTFSC0F	ISTFSUUS	Unexpected input was received for current state of the user sync point finite state machine (FSM).	Mini
ISTFSC10	ISTFSCA3	VTAM was unable to invoke the IWMGRREG macroinstruction for registering a generic name to the work load manager.	Mini
ISTFSC11	ISTFSUDC	VTAM has disconnected from the generic resources coupling facility structure because a timed process did not complete within the given time.	Full
ISTFSC12	ISTFSUXJ	An unexpected return code *xxxx* and reason code *yyyy* were returned from IXCJOIN when VTAM attempted to join an XCF group.	Mini
ISTFSC13	ISTFSUAL	An unexpected return code *xxxx* and reason code *yyyy* were returned from IXLALTER when VTAM attempted to alter coupling facility structure attributes.	Mini

Table 16. FFST probes for coupling facility services (ISTFSCxx) (continued)

Probe name	Module	Description	Dump type
ISTFSC14	ISTFSLML	An unexpected return code *xxxx* and reason code *yyyy* were returned from IXLLIST when VTAM attempted to establish list monitoring.	Mini
ISTFSC15	ISTFSNPG	An unexpected return code *xxxx* and reason code *yyyy* were returned from IXLPURGE when VTAM attempted to purge outstanding structure access request.	Mini
ISTFSC16	ISTFSLRM	An unexpected return code *xxxx* and reason code *yyyy* were returned from IXLLIST when VTAM attempted to read multiple entries from a list.	Mini
ISTFSC17	ISTFSLDM	An unexpected return code *xxxx* and reason code *yyyy* were returned from IXLLIST when VTAM attempted to delete multiple entries.	Mini
ISTFSC18	ISTFSLWC	An unexpected return code *xxxx* and reason code *yyyy* were returned from IXLLIST when VTAM attempted to update the list control area.	Mini
ISTFSC19	ISTFSLVC	An unexpected return code *xxxx* was returned from IXLVECTR when VTAM attempted to modify or test the list notification vector.	Mini
ISTFSC1A	ISTFSURL	An unexpected return code *xxxx* and reason code *yyyy* were returned for IXLLIST when VTAM attempted to read a list entry.	Mini
ISTFSC1B	ISTFSUUL	An unexpected return code *xxxx* and reason code *yyyy* were returned for IXLLIST when VTAM attempted to update a list entry.	Mini
ISTFSC1C	ISTFSUCL	An unexpected return code *xxxx* and reason code *yyyy* were returned for IXLLIST when VTAM attempted to create a list entry.	Mini
ISTFSC1D	ISTFSUHT	An unexpected return code *xxxx* and reason code *yyyy* were returned for IXLLIST when VTAM attempted to read and move a list entry.	Mini
ISTFSC1E	ISTFSKRT	An unexpected return code *xxxx* and reason code *yyyy* were returned for IXLLIST when VTAM attempted to set a lock entry.	Mini

Table 16. FFST probes for coupling facility services (ISTFSCxx) (continued)

Probe name	Module	Description	Dump type
ISTFSC1F	ISTFSKRT	An unexpected return code *xxxx* and reason code *yyyy* were returned for IXLLIST when VTAM attempted to release a lock entry.	Mini
ISTFSC20	ISTFSKRT	An unexpected return code *xxxx* and reason code *yyyy* were returned for IXLLIST when VTAM attempted to release a lock entry for a failed connector.	Mini
ISTFSC21	ISTFSCFG	VTAM found a name defined as both a generic resource name and a USERVAR.	Mini
ISTFSC22	ISTFSDRT	A work element was recognized by a Sysplex Wide Security Associations structure object PAB, but it contained incorrect data.	Mini
ISTFSC23	ISTFSUDL	An unexpected return code *xxxx* and reason code *yyyy* were returned for IXLLIST when VTAM attempted to delete a list entry.	Mini
ISTFSC24	ISTFSUEN	An unexpected return code *xxxx* and reason code *yyyy* were returned for IXLLIST when VTAM attempted to read list control information.	Mini
ISTFSC25	ISTFSURH	An unexpected return code *xxxx* and reason code *yyyy* were returned for IXLLIST when VTAM attempted to read a list entry from the head of a list.	Mini
ISTFSC26	ISTFSUWT	An unexpected return code *xxxx* and reason code *yyyy* were returned for IXLLIST when VTAM attempted to write a list entry to the end of a list.	Mini
ISTFSC27	ISTFSLDE	An unexpected return code *xxxx* and reason code *yyyy* were returned from IXLLIST when VTAM attempted to delete a list of entries.	Mini
ISTFSC28	ISTFSUQS	An unexpected return code and reason code were returned from IXCQUERY when VTAM attempted to obtain sysplex-related information.	Mini
ISTFSC29	ISTFSPDN	A pointer to a buffer containing NLP entry IDs for an IXLLIST DELETE_ENTRYLIST request that was being retried was zero. NLP entries may not be deleted from a multinode persistent session coupling facility structure.	Full

Table 16. FFST probes for coupling facility services (ISTFSCxx) (continued)

Probe name	Module	Description	Dump type
ISTFSC2A		A coupling facility user deregistered but did not provide an area to pass back a work element when one existed. The storage for the work element is not freed.	Mini
ISTFSC2B		A coupling facility user attempted to unregister, but provided a user token that was not valid.	Mini
ISTFSC2C		A coupling facility user indicated that a process was complete, but provided a user token that was not valid.	Mini
ISTFSC2D	ISTFSGRO	When attempting to alter the entry-to-element ratio for the generic resource structure, the new ratio was not valid. Either the entry portion was zero, the element portion was zero, or the entry portion divided by the element portion was greater than the maximum number of data elements.	Mini
ISTFSC2E	ISTFSLRO	When attempting to alter the entry-to-element ratio for a VTAM list structure, the new ratio was not valid. Either the entry portion was zero, the element portion was zero, or the entry portion divided by the element portion was greater than the maximum number of data elements.	Mini
ISTFSC30	ISTFSPDN	An unexpected return code of X'0008' and reason code of X'0082B' were received for IXLLIST while attempting to delete NLP entries in the multinode persistent coupling facility structure. A start or stop index was given that was not valid.	Mini
ISTFSC31	ISTFSPDN	An unexpected return code *xxxx* and reason code *yyyy* were received for IXLLIST while attempting to delete NLP entries in the multinode persistent coupling facility structure. NLP entries may not be deleted.	Mini
ISTFSC32	ISTFSPRT	A work element that was not recognized was received by a multinode persistent session structure object PAB.	Mini

Table 16. FFST probes for coupling facility services (ISTFSCxx) (continued)

Probe name	Module	Description	Dump type
ISTFSC33	ISTFSPRT	A work element was recognized by a multinode persistent session structure object PAB, but it contained incorrect data.	Mini
ISTFSC34	ISTFSPRV	An unexpected return code and reason code were returned from IXLLIST while attempting to read in a multinode persistent session (MNPS) application program's data during an MNPS recovery. Sessions will not be recovered.	Mini
ISTFSC35	ISTFSLRL	An unexpected return code and reason code were returned from IXLLIST when attempting to read multiple entries from a list.	Mini
ISTFSC36	ISTFSPDD	An unexpected return code and reason code were returned from IXLLIST when attempting to delete data associated with a multinode persistent session application program. The state of the application program will remain in CLEANUP and may be cleaned up by another VTAM.	Mini
ISTFSC37	ISTFSDDD	An unexpected return code and reason code were returned from IXLLIST when attempting to delete data associated with a TCP/IP stack using Sysplex Wide Security Associations.	Mini
ISTFSC38	ISTFSDRD	An unexpected return code and reason code were returned from IXLLIST when attempting to read data associated with a TCP/IP stack using Sysplex Wide Security Associations.	Mini
ISTFSC39	ISTFSVRT	A work element that was not recognized was received by a Sysplexports structure object PAB.	Mini
ISTFSC3A	ISTFSVRT	A work element was recognized by a Sysplexports structure object PAB, but it contained incorrect data.	Mini
ISTFSC3C	ISTFSLLO	An unexpected return code and reason code were returned from IXLLIST when attempting to lock data associated with a structure object.	Mini
ISTFSC3D	ISTFSVDD	An unexpected return code and reason code were returned from IXLLIST when attempting to delete data associated with a TCP/IP stack using Sysplexports.	Mini

Table 16. FFST probes for coupling facility services (ISTFSCxx) (continued)

Probe name	Module	Description	Dump type
ISTFSC3E	ISTFSCFG	Data that was not valid was returned by IXLLIST when attempting to read the generic resource mapping list of the generic resource structure.	Full

Dependent LU server probes

Table 17. FFST probes for dependent LU server (ISTDLCxx)

Probe name	Module	Description	Dump type
ISTDLC01	ISTDLCRD	Element representing the dependent LU requester could not be found	Mini
ISTDLC02	ISTDLCRD	Element representing the PU could not be found.	Mini
ISTDLC03	ISTDLCDP	Element representing the dependent LU requester could not be found.	Mini
ISTDLC04	ISTDLCDR	Element representing the dependent LU requester could not be found.	Mini
ISTDLC07	ISTDLCAL	Element representing the dependent LU requester could not be found.	Mini
ISTDLC08	ISTDLCAL	Element representing the PU could not be found.	Full
ISTDLC09	ISTDLCAS	Element representing the dependent LU requester could not be found.	Mini
ISTDLC10	ISTDLCRT	Element representing the dependent LU requester could not be found.	Mini
ISTDLC11	ISTDLCRT	Unrecognized signal; received signal is not supported by dependent LU server.	Mini
ISTDLC13	ISTDLCSI	During processing, if a CP_SVR_SESS_STAT(inactive) signal is sent by the LRM component when CP-SVR pipe is deactivated, the combination of the contention winner and contention loser finite state machine states was found to be not valid. As a result, the final cleanup associated with the pipe deactivation could not be performed.	Full
ISTDLC20	ISTDLCRP	Element representing the PU could not be found.	Mini
ISTDLC21	ISTDLCAP	Element representing the dependent LU requester could not be found.	Mini
ISTDLC24	ISTDLCTD	Element representing the dependent LU requester could not be found.	Mini
ISTDLC26	ISTDLCDL	Element representing the dependent LU requester could not be found.	Mini
ISTDLC27	ISTDLCDL	Element representing the PU could not be found.	Mini
ISTDLC28	ISTDLCDL	Element representing DLUS-supported LU could not be found.	Mini

Table 17. FFST probes for dependent LU server (ISTDLCxx) (continued)

Probe name	Module	Description	Dump type
ISTDLC29	ISTDLCSA	DLR FSM not found	Mini
ISTDLC30	ISTDLCAQ	DLR PU FSM not expecting ACTPU REQ	Full
ISTDLC31	ISTDLCAQ	DLR element not freed after inactive	Mini
ISTDLC33	ISTDLCED	Element representing the dependent LU requester could not be found.	Mini

Directory services probes

Table 18. FFST probes for directory services (ISTDRCxx)

Probe name	Module	Description	Dump type
ISTDRC00	ISTDRCRT	An unrecognized request element was received.	Full
ISTDRC01	ISTDRCRT	An unrecognized interprocess signal was received.	Full
ISTDRC02	ISTDROBO	An unrecognized function code was received.	Full
ISTDRC04	ISTDROFO	A build of a found CV80 is required but is not present.	Full
ISTDRC05	ISTDROFO	A build of a found CV3C is required but is not present.	Full
ISTDRC06	ISTDROFO	A build of a found CV3C is required but is not present.	Full
ISTDRC07	ISTDROFO	A build of a found CV3D is required but is not present.	Full
ISTDRC08	ISTDROFO	A build of a found CV3E is required but is not present.	Full
ISTDRC09	ISTDROFO	A build of a found CV40 is required but is not present.	Full
ISTDRC0A	ISTDROLM	A build of a locate GDS variable is required but is not present.	Full
ISTDRC0B	ISTDROLM	A build of a locate GDS variable is required but is not present.	Full
ISTDRC0C	ISTDROLM	A build of a found GDS variable is required but is not present.	Full
ISTDRC0D	ISTDROLM	A build of a register GDS variable is required but is not present.	Full
ISTDRC0E	ISTDROLM	A build of a CDINIT GDS variable is required but is not present.	Full
ISTDRC0F	ISTDROLM	A build of an IOCD GDS variable is required but is not present.	Full
ISTDRC11	ISTDRO0E	A build of a CV0E failed because the requested name was not recognized.	Full
ISTDRC12	ISTDRO60	A build of a CV60 failed because the requested name was not recognized.	Full
ISTDRC13	ISTDROCG	The search type that was requested was not recognized.	Full

Table 18. FFST probes for directory services (ISTDRCxx) (continued)

Probe name	Module	Description	Dump type
ISTDRC14	ISTDROLM	A build of a notify GDS variable is required but is not present.	Full
ISTDRC15	ISTDRDUE	An unknown entry type was received.	Full
ISTDRC16	ISTDRDDD	Either an unknown resource or no resource was found for a resource delete request.	Full
ISTDRC17	ISTDRDDD	The associated network ID information was not found for a resource delete request.	Full
ISTDRC18	ISTDRDDD	A release of storage associated with a resource failed to complete.	Full
ISTDRC19	ISTDRDDD	A release of storage associated with a resource failed to complete.	Full
ISTDRC1A	ISTDRDDD	A release of storage associated with a resource failed to complete.	Full
ISTDRC1B	ISTDRDUD	An update directory request was received, but no list elements were found.	Full
ISTDRC1C	ISTDRDCD	A release of storage associated with a resource failed to complete.	Full
ISTDRC1D	ISTDRDCD	A release of storage associated with a CACHE_DATA interprocess signal failed to complete.	Full
ISTDRC1E	ISTDRDCD	A CACHE_DATA interprocess signal failed because the requested name was not recognized.	Full
ISTDRC1F	ISTDRAPC	A CP_STATUS interprocess signal failed because the requested name was not recognized.	Full
ISTDRC20	ISTDRAUA	Cannot remove an adjacent control point from the list.	Full
ISTDRC21	ISTDRAUA	Cannot add an adjacent control point to the list.	Full
ISTDRC22	ISTDRAUA	ISTDRAUA received an action code indicating that an unexpected condition has occurred.	Full
ISTDRC23	ISTDRAUA	ISTDRAUA was unable to process an unrecognized action code.	Full
ISTDRC24	ISTDREDS	An unexpected interprocess signal was received.	Full
ISTDRC25	ISTDRFCH	An unrecognized interprocess signal was received for a node role.	Full
ISTDRC26	ISTDRFLE	The sender of a request cannot be identified.	Full
ISTDRC27	ISTDRFNV	An unknown verify indicator value was received.	Full
ISTDRC28	ISTDRFSI	An unrecognized CV35 vector was received from a VTAM component.	Full
ISTDRC29	ISTDRF35	VTAM detected a software error while processing a CV35 vector.	Full

Table 18. FFST probes for directory services (ISTDRCxx) (continued)

Probe name	Module	Description	Dump type
ISTDRC2A	ISTDRFLE	A protocol error was detected while processing an interprocess signal from a VTAM component.	Full
ISTDRC2B	ISTDRFNV	An unrecognized name was received from a VTAM component.	Full
ISTDRC2C	ISTDRFSI	A CV35 vector was received while the keep indicator was set.	Full
ISTDRC2D	ISTDRFPQ	An unrecognized network-qualified name was received.	Full
ISTDRC2E	ISTDRFPY	An unrecognized network-qualified name was received.	Full
ISTDRC2F	ISTDROLO	A build of a Locate CV80 is required, but none is present.	Full
ISTDRC30	ISTDROLO	A build of a Locate CV60 is required, but none is present.	Full
ISTDRC31	ISTDROLO	A build of a Locate CV81 is required, but none is present.	Full
ISTDRC32	ISTDROLO	A build of a Locate CV2B is required, but none is present.	Full
ISTDRC33	ISTDROLO	A build of a Locate CV0E is required, but none is present.	Full
ISTDRC34	ISTDROLO	A build of a Locate CV35 is required, but none is present.	Full
ISTDRC35	ISTDROFI	A build of a Find CV80 is required, but none is present.	Full
ISTDRC36	ISTDROFI	A build of a Find CV3C is required, but none is present.	Full
ISTDRC37	ISTDROFI	A build of a Find CV3C is required, but none is present.	Full
ISTDRC38	ISTDROFI	A build of a Find CV3D is required, but none is present.	Full
ISTDRC39	ISTDROFI	A build of a Find CV3E is required, but none is present.	Full
ISTDRC3A	ISTDROFI	A build of a Find CV81 is required, but none is present.	Full
ISTDRC3B	ISTDROFI	A build of a Find CV81 is required, but none is present.	Full
ISTDRC3C	ISTDROFI	A build of a Find CV82 is required, but none is present.	Full
ISTDRC3D	ISTDRMCH	An unrecognized input was detected.	Full
ISTDRC3E	ISTDRMCS	An unrecognized interprocess signal was received.	Full
ISTDRC3F	ISTDRMCS	An unrecognized state was detected.	Full
ISTDRC40	ISTDRMDO	An unrecognized action was requested.	Full
ISTDRC41	ISTDRMDO	An unexpected interprocess signal was received.	Full

Table 18. FFST probes for directory services (ISTDRCxx) (continued)

Probe name	Module	Description	Dump type
ISTDRC42	ISTDRMDO	Unexpected elements were found in a locate search.	Full
ISTDRC43	ISTDRMDO	An unexpected interprocess signal was received.	Full
ISTDRC44	ISTDRMDO	An unrecognized state was detected.	Full
ISTDRC45	ISTDRMDO	An unexpected return code was received.	Full
ISTDRC46	ISTDRMDO	A list requiring at least one element was empty.	Full
ISTDRC47	ISTDRMFN	An unexpected interprocess signal was received.	Full
ISTDRC48	ISTDRMFN	An unrecognized state was detected.	Full
ISTDRC49	ISTDRMNV	An unexpected return code was received.	Full
ISTDRC4A	ISTDRMNV	An unexpected return code was received.	Full
ISTDRC4B	ISTDRMNV	An unexpected interprocess signal was received.	Full
ISTDRC4C	ISTDRMSA	An unexpected interprocess signal was received.	Full
ISTDRC4D	ISTDRMSA	An unrecognized state was detected.	Full
ISTDRC4E	ISTDRMTD	An unexpected interprocess signal was received.	Full
ISTDRC4F	ISTDRMTD	An unrecognized state was detected.	Full
ISTDRC50	ISTDRRSD	Unrecognized inputs for state were detected.	Full
ISTDRC51	ISTDRRSR	Unrecognized inputs for state were detected.	Full
ISTDRC52	ISTDRRTP	A work element was received when none was expected.	Full
ISTDRC53	ISTDRSBR	ISTDRSBR was unable to add a locate control block to the list.	Full
ISTDRC54	ISTDRSNB	An unrecognized state was detected.	Full
ISTDRC55	ISTDRSCH	An unexpected interprocess signal was received.	Full
ISTDRC56	ISTDRSDB	An unexpected interprocess signal was received.	Full
ISTDRC57	ISTDRSDB	An unrecognized state was detected.	Full
ISTDRC58	ISTDRSDS	An unexpected return code was received.	Full
ISTDRC59	ISTDRSDS	An unexpected return code was received.	Full
ISTDRC5A	ISTDRSDS	An unexpected return code was received.	Full
ISTDRC5B	ISTDRSDS	An unexpected return code was received.	Full
ISTDRC5C	ISTDRSDS	An unexpected return code was received.	Full
ISTDRC5D	ISTDRSDS	An unexpected interprocess signal was received.	Full
ISTDRC5E	ISTDRSDS	An unrecognized state was detected.	Full

Table 18. FFST probes for directory services (ISTDRCxx) (continued)

Probe name	Module	Description	Dump type
ISTDRC5F	ISTDRSFP	An unrecognized combination of node roles was detected.	Full
ISTDRC60	ISTDRSIC	An unrecognized state was received.	Full
ISTDRC61	ISTDRSIC	An unrecognized status was received.	Full
ISTDRC62	ISTDRSIN	An unrecognized search status for a called task was received.	Full
ISTDRC63	ISTDRSMD	An unrecognized function parameter was received.	Full
ISTDRC64	ISTDRSNV	An unrecognized function was specified.	Full
ISTDRC65	ISTDRSNV	An unexpected interprocess signal was received.	Full
ISTDRC66	ISTDRSOH	An unrecognized function code was received.	Full
ISTDRC67	ISTDRSOH	An unrecognized combination of inputs was received.	Full
ISTDRC68	ISTDRSOH	An unrecognized combination of inputs was received.	Full
ISTDRC69	ISTDRSOH	An unexpected interprocess signal was received.	Full
ISTDRC6A	ISTDRSOH	An unrecognized state was detected.	Full
ISTDRC6B	ISTDRSQS	An unrecognized function was detected.	Full
ISTDRC6C	ISTDRSSQ	An unrecognized search task was requested.	Full
ISTDRC6D	ISTDRSYB	VTAM was unable to remove a locate control block from the list.	Full
ISTDRC6E	ISTDRYCD	An unrecognized query function was detected.	Full
ISTDRC6F	ISTDRSCA	An unrecognized entry type was specified.	Full
ISTDRC70	ISTDRDDD	A release of storage associated with a resource failed to complete.	Full
ISTDRC71	ISTDROLO	A build of a Locate CV82 is required, but none is present.	Full
ISTDRC72	ISTDROFI	A build of a Find CV40 is required, but none is present.	Full
ISTDRC73	ISTDRMAC	The input received is not recognized for the current state.	Full
ISTDRC74	ISTDRMAC	The input received is not recognized for the current state.	Full
ISTDRC75	ISTDRMAC	An unrecognized state was received.	Full
ISTDRC76	ISTDRMAC	An unexpected return code was received.	Full
ISTDRC77	ISTDRRCF	An unrecognized state was received.	Full
ISTDRC78	ISTDRRCP	A register GDS variable is required, but is not present.	Full
ISTDRC79	ISTDRRCR	An unexpected return code was received.	Full
ISTDRC7A	ISTDRRNE	An unexpected return code was received.	Full

Table 18. FFST probes for directory services (ISTDRCxx) (continued)

Probe name	Module	Description	Dump type
ISTDRC7B	ISTDRRNF	An unrecognized state was received.	Full
ISTDRC7C	ISTDRRNF	The input received is not recognized for the current state.	Full
ISTDRC7D	ISTDRRNF	The input received is not recognized for the current state.	Full
ISTDRC7E	ISTDRRNF	The input received is not recognized for the current state.	Full
ISTDRC7F	ISTDRRNF	The input received is not recognized for the current state.	Full
ISTDRC80	ISTDRRNF	The input received is not recognized for the current state.	Full
ISTDRC81	ISTDRRNF	The input received is not recognized for the current state.	Full
ISTDRC82	ISTDRRNF	The input received is not recognized for the current state.	Full
ISTDRC83	ISTDRRNF	The input received is not recognized for the current state.	Full
ISTDRC84	ISTDRRNP	A locate control block is required but is not present.	Full
ISTDRC85	ISTDRRNP	An unrecognized state was detected.	Full
ISTDRC86	ISTDRRNR	An unexpected return code was received.	Full
ISTDRC87	ISTDRRNR	The available length is not sufficient for a required GDS variable.	Full
ISTDRC88	ISTDRRNR	The available length is not sufficient for a required GDS variable.	Full
ISTDRC89	ISTDRRNR	An unexpected return code was received.	Full
ISTDRC8A	ISTDRRNR	The available length is not sufficient for a required GDS variable.	Full
ISTDRC8B	ISTDRSBC	A parsed locate element is required, but is not present.	Full
ISTDRC8C	ISTDRSNB	A state that is not valid was detected upon entry to ISTDRSNB.	Full
ISTDRC8D	ISTDRSSD	An unknown task was loaded.	Full
ISTDRC8E	ISTDRFDS	A directory server notify was received with an empty list.	Full
ISTDRC8F	ISTDRFDS	An unexpected return code was received.	Full
ISTDRC90	ISTDRSHR	An unexpected input operation was received.	Full
ISTDRC91	ISTDRSHR	An unrecognized max hierarchy was detected.	Full
ISTDRC92	ISTDRSHR	An unexpected resource CV combination was detected.	Full
ISTDRC93	ISTDRSHR	An unexpected max hierarchy combination was detected.	Full
ISTDRC94	ISTDRSNI	An unrecognized locate was detected.	Full

Table 18. FFST probes for directory services (ISTDRCxx) (continued)

Probe name	Module	Description	Dump type
ISTDRC95	ISTDRSNI	An unrecognized node role was identified in an LCB.	Full
ISTDRC96	ISTDRDUP	A DBUPDATE was attempted at a VTAM end node.	Full
ISTDRC97	ISTDRDQP	A DBQUERY was attempted at a VTAM end node.	Full
ISTDRC98	ISTDRDDP	A DBDELETE was attempted at a VTAM end node.	Full
ISTDRC99	ISTDRERT	The DS PAB router received an unrecognized IPS.	Full
ISTDRC9A	ISTDROCG	Unrecognized parameter value was received.	Full
ISTDRC9B	ISTDRRNF	Input not valid for current finite state machine (FSM) state	Full
ISTDRC9C	ISTDRRNF	Input not valid for current finite state machine (FSM) state	Full
ISTDRC9D	ISTDRRNF	Input not valid for current finite state machine (FSM) state	Full
ISTDRC9E	ISTDROFI	A build of a FIND CV26 is required, but none is present.	Full
ISTDRC9F	ISTDROFO	A build of a FOUND CV26 is required, but none is present.	Full
ISTDRCA1	ISTDREDC	DSME exit returned a central directory server (CDS) list that was not valid.	Full
ISTDRCA7	ISTDRMBO	An unrecognized interprocess signal was received.	Full
ISTDRCA8	ISTDRMBO	An unrecognized interprocess signal was received.	Full
ISTDRCA9	ISTDRMBO	An unrecognized interprocess signal was received.	Full
ISTDRCAA	ISTDRMBO	An unrecognized state was detected.	Full
ISTDRCA2	ISTDRMNV	Not valid DLLU_FSM Input.	Full
ISTDRCAB	ISTDREBN	An unrecognized state was detected.	Full
ISTDRCAC	ISTDRMBN	An unrecognized state was detected.	Full
ISTDRCAD	ISTDRMGS	An unrecognized interprocess signal was received.	Full
ISTDRCAE	ISTDRMGS	An unrecognized state was detected.	Full
ISTDRCAF	ISTDRFGS	An unrecognized control vector was detected; CV0E was expected but is not present.	Full
ISTDRCB0	ISTDRFGS	An unrecognized control vector was detected; CV35 was expected but is not present.	Full
ISTDRCB1	ISTDRFGU	An unrecognized control vector was detected; CV35 was expected but is not present.	Full

Table 18. FFST probes for directory services (ISTDRCxx) (continued)

Probe name	Module	Description	Dump type
ISTDRCB2	ISTDROIE	A build of a CV0E failed because of an unrecognized name.	Full
ISTDRCB3	ISTDROIE	A build of a Find CV0E is required, but none is present.	Full
ISTDRCB4	ISTDRFMH	Incorrect hierarchy was passed to module.	Full
ISTDRCB5	ISTDRFBN	An unrecognized network-qualified name was detected.	Full
ISTDRCB6	ISTDRFBN	List operation failed.	Full
ISTDRCB7	ISTDRFBN	An unrecognized network-qualified name was detected.	Full
ISTDRCB8	ISTDRFBN	An attempt to free storage failed.	Full
ISTDRCB9	ISTDRSPC	List operation failed.	Full
ISTDRCBA	ISTDRSPC	List operation failed.	Full
ISTDRCBB	ISTDRSPC	List operation failed.	Full
ISTDRCBC	ISTDRSPC	List operation failed.	Full
ISTDRCBD	ISTDRSPC	Attempt to free storage failed.	Full
ISTDRCBE	ISTDREIN	An unrecognized state was detected.	Full
ISTDRCC1	ISTDRSDT	An unrecognized state was detected on entry.	Full
ISTDRCC2	ISTDROFI	Build of a find CV4A required, but none were present.	Full
ISTDRCC3	ISTDROFO	Build of a found CV4A required, but none were present.	Full
ISTDRCC4	ISTDRSLT	RDS search request is hung.	Full
ISTDRCC5	ISTDRSOA	Attempted to add an OSCB to a list when it is already on a list.	Full

Half-session services probes

Table 19. FFST probes for half-session services (ISTHSCxx)

Probe name	Module	Description	Dump type
ISTHSC01	ISTTSCUD	A problem occurred trying to free a CSM buffer.	Full

Enterprise Extender probes

Table 20. FFST probes for Enterprise Extender (ISTAUCxx)

Probe name	Module	Description	Dump type
ISTAUC01	ISTAUCPF	Unusable work element was queued to Enterprise Extender port finite state machine (FSM) processor ISTAUCPF.	Mini
ISTAUC02	ISTAUCPF	Work-in-progress field (IPNCB_WIP) in the Enterprise Extender port control block IPNCB has not been set and should have been set during DACTLINK processing.	Mini

Table 20. FFST probes for Enterprise Extender (ISTAUCxx) (continued)

Probe name	Module	Description	Dump type
ISTAUC03	ISTAUCPF	Work element address (WEA) field in the request parameter header control block (RPH) does not point to an AUDP parameter list (AUCPL).	Mini
ISTAUC04	ISTAUCLF	Unusable work element was queued to the Enterprise Extender line finite state machine (FSM) processor ISTAUCLF.	Mini
ISTAUC05	ISTAUCIF	Unusable work element was queued to the Enterprise Extender call-in finite state machine (FSM) processor ISTAUCIF.	Mini
ISTAUC06	ISTAUCOF	Unusable work element was queued to the Enterprise Extender call-out finite state machine (FSM) processor ISTAUCOF.	Mini
ISTAUC07	ISTAUCCF	Unusable work element was queued to the Enterprise Extender connection processor ISTAUCCF.	Mini
ISTAUC08	ISTAUCOL	An XID signal that is not valid was received by the outbound signal processor ISTAUCOL.	Mini
ISTAUC09	ISTAUCIL	An XID signal that is not valid was received by the inbound signal processor ISTAUCIL.	Mini

Logical link control

Table 21. FFST probes for logical link control

Probe name	Module	Description	Dump type
ISTIUT02	IUTLLCII	Primitive is not valid.	Mini
ISTIUT03	IUTLLCI0	Primitive is not valid.	Mini
ISTIUT04	IUTLLCRD	Unrecognized primitive.	Mini
ISTIUT05	IUTLLCRD	Input is not a response.	Mini
ISTIUT06	IUTALCII	Primitive is not valid.	Mini
ISTIUT14	IUTLLC9D	Unrecognized primitive.	Mini
ISTIUT15	IUTLLC9D	Input is not a valid request.	Mini
ISTIUT38	CMLOC$AC	Act_SAP_CNF - state error	Mini
ISTIUT42	CMLOC$EC	Enable_IC_Cnf - state error	Mini
ISTIUT44	CMLOC$EI	Enable_IC_Ind - state error	Mini
ISTIUT49	CMLOC$SC	Call_Setup_Cnf - state error	Mini
ISTIUT50	CMLOC$TC	Deactivate_SAP_Cnf - state error	Mini
ISTIUT51	CMLOC$SI	Call_Setup_Ind - state error	Mini
ISTIUT65	REGMGSRK	Resolve_Token - object address is zero	Mini
ISTIUT66	REGMGRUK	Reuse_Token - token is not valid	Mini
ISTIUT67	REGMGRIK	Invalidate_Token - object address is zero	Mini
ISTIUT72	IUTLLCRM	Registration manager initialization FSM error	Mini

Table 21. FFST probes for logical link control (continued)

Probe name	Module	Description	Dump type
ISTIUT73	ISTLLCM8	Unusable input has been received by IDX GROUP CONTROL (LLCM8).	Mini
ISTIUT74	ISTLLCM8	IDX GROUP CONTROL (LLCM8) was unable to obtain an RU processing element (RUPE) for a critical identification exchange (IDX) function.	Mini
ISTIUT75	ISTLLCM8	IDX GROUP CONTROL (LLCM8) received an unexpected RU processing element.	Mini
ISTIUT76	IUTLLCTP	Lost PDUS - The READ side of the HPDT connection detected a lost packet.	Full

LU network services probes

Table 22. FFST probes for LU network services (ISTNSCxx)

Probe name	Module	Description	Dump type
ISTNSC01	ISTNSCRS	A suspended log mode is not found. Check the mode the application program specifies on the APPCCMD CONTROL=OPRCNTRL, QUALIFY=RESTORE macroinstruction. You can use the following VTAM dump functions to display advanced program-to-program communication (APPC)-related information: • APPLCONV • APPLMODE • APPMODAL • PARTNRLU	Full

LU resource manager probes

Table 23. FFST probes for LU resource manager (ISTRMCxx)

Probe name	Module	Description	Dump type
ISTRMC01	ISTRMCLR	A QUERY_SNASVCMG response was received, but none was outstanding.	Full
ISTRMC02	ISTRMCLR	The mode name for the specified LU was not found in the LU 6.2 logmode table.	Full
ISTRMC03	ISTRMCTP	The mode name for the specified LU was not found in the LU 6.2 logmode table.	Full

Management services transport probes

Table 24. FFST probes for management services transport (ISTMTCxx)

Probe name	Module	Description	Dump type
ISTMTC01	ISTMTCFF	The main router received an unrecognized request-unit processing element.	Mini

Table 24. FFST probes for management services transport (ISTMTCxx) (continued)

Probe name	Module	Description	Dump type
ISTMTC02	ISTMTCFF	The main router received an unrecognized work element.	Full
ISTMTC03	ISTMTCFF	The START_TP_REPLY signal that is received contains a return code that is incorrect or unrecognized for this leg.	Mini
ISTMTC04	ISTMTCFF	An unexpected condition is detected when a query request is sent to the NetView application program's programmable peripheral interface (PPI) queue.	Mini
ISTMTC05	ISTMTCFF	An unexpected condition is detected while defining the VTAM queue to the NetView application program's programmable peripheral interface (PPI).	Mini
ISTMTC06	ISTMTCFF	An unexpected condition is detected while sending data from VTAM to the NetView processor across the programmable peripheral interface (PPI).	Mini
ISTMTC07	ISTMTCFF	The main router received an unrecognized work element.	Mini
ISTMTC08	ISTMTCFF	Unrecognized data is received from the NetView application program across the programmable peripheral interface (PPI).	Mini
ISTMTC09	ISTMTCFF	Unrecognized data is received from the NetView application program.	Mini
ISTMTC10	ISTMTCFF	The PPI queue received from the NetView application program contains unrecognized data.	Mini
ISTMTC11	ISTMTCFF	VTAM could not create a process scheduling table for MI.	Mini
ISTMTC12	ISTMTCFF	The MDS-MU received from the NetView application program is unrecognized.	Mini
ISTMTC13	ISTMTCFF	An expected outstanding request unit is not found on the outstanding request unit list.	Mini
ISTMTC14	ISTMTCFF	An expected outstanding request unit is not found on the outstanding request unit list.	Mini
ISTMTC15	ISTMTCFF	An expected session list entry is not found, but an ATL entry is found.	Mini

Network resource management probes

Table 25. FFST probes for network resource management (ISTNACxx)

Probe name	Module	Description	Dump type
ISTNAC01	ISTNACTT	VTAM cannot complete a normal CLOSE ACB and must force the CLOSE ACB.	Full

Presentation services probes

Table 26. FFST probes for presentation services (ISTPSCxx)

Probe name	Module	Description	Dump type
ISTPSC01	ISTPSCMD	CSM pool control block corrupted.	Mini
ISTPSC02	ISTPSCMD	A pool token was specified that is not valid.	Mini
ISTPSC03	ISTPSCMD	CSM detected an MVS system error.	Mini
ISTPSC04	ISTPSCMD	An unexpected CSM reason code was encountered.	Mini
ISTPSC06	ISTPSCFR	A buffer token was specified that is not valid.	Mini
ISTPSC07	ISTPSCFR	CSM detected an MVS system error.	Mini
ISTPSC08	ISTPSCFR	An unexpected CSM reason code was encountered.	Mini
ISTPSC09	ISTPSCFP	A buffer token was specified that is not valid.	Mini
ISTPSC10	ISTPSCFP	CSM detected an MVS system error.	Mini
ISTPSC11	ISTPSCFP	An unexpected CSM reason code was encountered.	Mini
ISTPSC12	ISTPSCMD	Data resides in a fixed I/O buffer instead of a CSM buffer.	Full
ISTPSC13	ISTPSCBM	Unexpected CSM reason code.	Full
ISTPSC14	ISTPSCMF	Unexpected CSM reason code.	Full

Recovery manager (RV) probes

The field RVM_FFST_ID within the ISTRVM control block contains additional information about the location from which the FFST PROBE was triggered.

Table 27. FFST probes for recovery manager (ISTRVMxx)

Probe name	Module	Description	Dump type
ISTRVM00	ISTRVMRT	Unexpected condition	Mini
ISTRVM01	ISTRVMRT	Unexpected RUPE	Mini
ISTRVM02	ISTRVMRT	Unexpected Data Recovered signal	Mini
ISTRVM03	ISTRVMIN	Unexpected condition	Mini
ISTRVM04	ISTRVMOS	Unexpected Data Recovered signal	Mini
ISTRVM05	ISTRVMCR	Unexpected condition	Mini
ISTRVM06	ISTRVMDL	Unexpected condition	Mini
ISTRVM07	ISTRVMDL	Unexpected condition	Mini
ISTRVM08	ISTRVMDS	Unexpected condition	Mini
ISTRVM0A	ISTRVRPI	Unknown RUPE from RCM	Mini
ISTRVM0B	ISTRVRPI	Incorrect state	Mini
ISTRVM0C	ISTRVRPI	Received RTPALS in wrong FSM state	Mini
ISTRVM0D	ISTRVRPI	Received COMPLETE in wrong FSM state	Mini
ISTRVM0E	ISTRVRPQ	Unknown RUPE from SS	Mini
ISTRVM0F	ISTRVRPQ	Unexpected CV on sessinfo rsp	Mini

Table 27. FFST probes for recovery manager (ISTRVMxx) (continued)

Probe name	Module	Description	Dump type
ISTRVM10	ISTRVRCM	Unexpected failure from TSCM5	Mini
ISTRVM11	ISTTSCM2	Unexpected control block in chain	Mini
ISTRVM12	ISTTSCM3	Unexpected control block in chain	Mini
ISTRVM13	ISTRVRCM	Unexpected failure from GETENTRY	Mini
ISTRVM14	ISTRVMXF	Unexpected failure	Full
ISTRVM15	ISTTSM1D	TREE ADD failed	Full
ISTRVM16	ISTTSM1E	TREE ADD failed	Full
ISTRVM17	ISTRVMLM	LM table restore failure	Full
ISTRVM18	ISTRVRPI	Received APPCINFO in wrong FSM	Full
ISTRVM19	ISTTSM1A	Duplicate FID5 address in HIT	Full

Session services probes

Table 28. FFST probes for session services (ISTSSCxx)

Probe name	Module	Description	Dump type
ISTSSC01	ISTSSCTM	RU parsing error.	Mini
ISTSSC02	ISTSSCXM	Address conflict was detected during merge.	Mini
ISTSSC03	ISTSSCXV	An SRT was missing for an autologon session. As a result, session setup failed.	Full
ISTSSC04	ISTSSCFC	FREEBLK failure	Full
ISTSSC05	ISTSSCXY	FREEBLK failure	Full
ISTSSC06	ISTSSCKI	FREEBLK failure	Full
ISTSSC07	ISTSXCQ1	No session control block could be located for the FQPCID supplied by the recovery PAB on the multinode persistent Session Started signal flow.	Full
ISTSSC08	ISTSXCU5	Session services could not locate the correct recovery PAB when attempting to send a response to the recovery PAB's request to recover a multinode persistent session.	Full
ISTSSCZ1	ISTSSCYC	An attempt was made to dequeue an SIB from a PU's SIB queue, but the SIB was not on the queue.	Full
ISTSSCZ2	ISTSSCZY	A loop was detected in ISTSSCZY.	Full

Session services CP-CP probes

Table 29. FFST probes for session services CP-CP (ISTSCCxx)

Probe name	Module	Description	Dump type
ISTSCC01	ISTSCCRT	A request processing element is received that contained an unrecognized request unit processing element (RUPE).	Mini

Table 29. FFST probes for session services CP-CP (ISTSCCxx) (continued)

Probe name	Module	Description	Dump type
ISTSCC02	ISTSCRCA	SSC attempted to add an adjacent node control block to the adjacent node control block list, but the add failed to complete normally.	Mini
ISTSCC03	ISTSCCFM	The SSC coordinator finite state machine processor received null input in an unexpected state when one or more of the CP-CP sessions was in active or pending active status.	Mini
ISTSCC04	ISTSCUAR	An internal SSC module passed an unrecognized session status to ISTSCUAR.	Mini
ISTSCC05	ISTSCUAR	An internal SSC module passed an unrecognized session type to ISTSCUAR.	Mini
ISTSCC06	ISTSCUBS	An internal SSC module passed an unrecognized session type to ISTSCUBS.	Mini
ISTSCC07	ISTSCUBS	An internal SSC module passed an unrecognized session status to ISTSCUBS.	Mini
ISTSCC08	ISTSCUDS	An internal SSC module passed an unrecognized session type to ISTSCUDS.	Mini
ISTSCC09	ISTSCUNO	SSC entered an unexpected state on a contention-winner session.	Mini
ISTSCC10	ISTSCUNO	SSC entered an unexpected state on a contention-loser session.	Mini
ISTSCC11	ISTSCUNO	An internal SSC module passed an unrecognized session type to ISTSCUNO.	Mini
ISTSCC15	ISTSCCFM	The SSC coordinator finite state machine processor received nonnull input in an unexpected state when one or more of the CP-CP sessions is in active or pending active status.	Mini
ISTSCC16	ISTSCTRQ	The REQUEST_CP_CAPABILITIES_TP received as input a signal that is neither an ACT_CP_CP_SESSION request nor a CONTINUE_CW response.	Mini
ISTSCC19	ISTSCTRC	The SEND_REJECT_CONVGRP_TP received an input signal other than a DEACTIVATE_CP_CP_SESSION request.	Mini
ISTSCC20	ISTSCCFM	The SSC coordinator finite state machine processor encountered a should-not-occur condition and no CP-CP session cleanup is required.	Mini
ISTSCC21	ISTSCCRT	An adjacent node control block is not found for the received signal.	Full
ISTSCC23	ISTSCCRT	A processing element is queued to session services CP-CP (SSC) but is not recognized to be either a request unit processing element (RUPE) or a timer queue element.	Mini

Session services LU-LU probes

The following table contains the LU-LU session services (SSL) software probes. When an SSL software probe is triggered, an error has occurred while processing network session services for an LU-LU connection. The search, session initiation, or request causing the error is rejected. VTAM will attempt to recover from the error and continue processing subsequent requests. Recovery might not be possible for some types of errors and subsequent requests might fail, terminals might hang, and other types of errors might occur.

A system dump is taken to assist in identifying the source of the problem. A VABEND macroinstruction can also be processed if specified by the probe instruction. The processing element is freed and processing continues.

Table 30. FFST probes for session services LU-LU (ISTSLCxx)

Probe name	Module	Description	Dump type
ISTSLC01	ISTSLCRT	An unknown interprocess signal was dispatched to the SSL component process anchor block (PAB).	Mini
ISTSLC02	ISTSLRDP	Finite state machine information is missing when a SEARCH_RPY signal is processed.	Mini
ISTSLC03	ISTSLRDP	Finite state machine information is missing when a CDINIT SEARCH_RPY signal is processed.	Mini
ISTSLC04	ISTSLRDP	Finite state machine information is missing when an IOCD SEARCH_RPY signal is processed.	Mini
ISTSLC05	ISTSLRDP	Finite state machine information is missing when a NOTIFY SEARCH_RPY signal is processed.	Mini
ISTSLC06	ISTSLRDP	Finite state machine information is missing when a SEARCH_RPY signal is processed and a storage failure occurs.	Mini
ISTSLC07	ISTSLRXS	A failure occurred while performing postprocessor information processing for a signal being sent to session services.	Mini
ISTSLC08	ISTSLTPI	An unexpected combination of conditions was encountered during third-party initiated finite state machine processing.	Mini
ISTSLC09	ISTSLBXN	A failure occurred while performing postprocessor information processing for a signal being sent to session services.	Mini
ISTSLC10	ISTSLURR	Route Selection control vector (RSCV) information is missing from SSL's session initiation control block when performing a build request for a RECOMPUTE_ROUTE signal.	Mini
ISTSLC11	ISTSLBXJ	A failure occurred while performing postprocessor information processing for a signal being sent to session services.	Mini
ISTSLC12	ISTSLRXJ	Finite state machine information is missing when an INIT_OTHER_COMP signal is processed, and a storage failure occurred.	Mini

Table 30. FFST probes for session services LU-LU (ISTSLCxx) (continued)

Probe name	Module	Description	Dump type
ISTSLC13	ISTSLRXJ	Finite state machine information is missing when an INIT_OTHER_COMP signal is processed.	Mini
ISTSLC14	ISTSLBXI	A failure occurred while performing postprocessor information processing for a signal being sent to session services.	Mini
ISTSLC15	ISTSLUDS	An error occurred while the SSL component was removing a session initiation control block key from the list.	Full
ISTSLC16	ISTSLUDS	An error occurred while the SSL component was removing a session initiation control block from the list.	Mini
ISTSLC17	ISTSLUGT	The ACMDT's node type information for this node had an unknown value because it did not indicate whether this is a VTAM end node or a VTAM network node.	Mini
ISTSLC18	ISTSLUBX	A build request was received for an unrecognized interprocess signal.	Mini
ISTSLC19	ISTSLUBX	A build request was received for an unrecognized interprocess signal.	Mini
ISTSLC20	ISTSLUBX	The SSL component could not remove a fully qualified procedure correlation identifier (FQPCID) from the list.	Mini
ISTSLC21	ISTSLUBX	The SSL component could not remove a FQPCID_MODIFIER from the list.	Mini
ISTSLC22	ISTSLRXI	A failure occurred while performing postprocessor information processing for a signal being sent to session services.	Mini
ISTSLC23	ISTSLVPE	An unrecognized signal was received from directory services.	Mini
ISTSLC24	ISTSLUSC	The SSL component was unable to determine the type of signal to send to session services.	Mini
ISTSLC25	ISTSLURX	An unrecognized interprocess signal was received from session services.	Mini
ISTSLC26	ISTSLURD	An unrecognized interprocess signal was received from directory services.	Mini
ISTSLC27	ISTSLSNO	The Route Selection control vector (RSCV) information is missing from the control vector list of the session initiation control block.	Mini
ISTSLC28	ISTSLSNO	The Route Selection control vector (RSCV) information is missing from the control vector list of the session initiation control block.	Mini
ISTSLC29	ISTSLSNO	An unrecognized session initiation status was received for the current system state.	Mini

Table 30. FFST probes for session services LU-LU (ISTSLCxx) (continued)

Probe name	Module	Description	Dump type
ISTSLC30	ISTSLSNO	An unexpected combination of conditions was encountered during finite state machine processing initiated by the secondary logical unit (SLU) at a network node (NN).	Full
ISTSLC31	ISTSLUBD	A build request was received for an unrecognized interprocess signal.	Mini
ISTSLC32	ISTSLSED	An unexpected combination of conditions was encountered during finite state machine processing initiated by the secondary logical unit (SLU) at an end node (EN) destination logical unit (DLU).	Mini
ISTSLC33	ISTSLRXO	A failure occurred while performing postprocessor information processing for a signal being sent to session services.	Mini
ISTSLC34	ISTSLRXQ	Finite state machine information is missing when a QUEUED signal is processed.	Mini
ISTSLC35	ISTSLRXC	Finite state machine information is missing when a SESS_REQ_COMP signal is processed.	Mini
ISTSLC36	ISTSLRXC	Finite state machine information is missing when a SESS_REQ_COMP signal is processed and storage problems occur.	Mini
ISTSLC37	ISTSLBXV	A failure occurred while performing postprocessor information processing for a signal being sent to session services.	Mini
ISTSLC38	ISTSLBXS	A failure occurred while performing postprocessor information processing for a signal being sent to session services.	Mini
ISTSLC39	ISTSLRXD	Finite state machine information is missing when a DEQUEUE signal is processed.	Mini
ISTSLC40	ISTSLPND	An unexpected combination of conditions was encountered during finite state machine processing initiated by the primary logical unit (PLU) at a network node.	Mini
ISTSLC41	ISTSLRXV	Finite state machine information is missing when a PROV_SC signal is processed.	Mini
ISTSLC42	ISTSLPNO	The Route Selection control vector (RSCV) information is missing from the control vector list of the session initiation control block.	Mini
ISTSLC43	ISTSLPNO	The RSCV information is missing from the control vector list of the session initiation control block.	Mini
ISTSLC44	ISTSLPNO	An unexpected combination of conditions was encountered during finite state machine processing initiated by the primary logical unit (PLU) at a network node.	Full
ISTSLC45	ISTSLPNO	The RSCV information is missing from the control vector list of the session initiation control block.	Mini

Table 30. FFST probes for session services LU-LU (ISTSLCxx) (continued)

Probe name	Module	Description	Dump type
ISTSLC46	ISTSLBXQ	A failure occurred while performing postprocessor information processing for a signal being sent to session services.	Mini
ISTSLC47	ISTSLBXC	A failure occurred while performing postprocessor information processing for a signal being sent to session services.	Mini
ISTSLC48	ISTSLRTT	Finite state machine information is missing when a RECOMPUTE_ROUTE_RPY signal is processed.	Mini
ISTSLC49	ISTSLRTR	Finite state machine information is missing when a REQ_ROUTE_RPY signal is processed.	Mini
ISTSLC50	ISTSLRDR	Finite state machine information is missing when a SEARCH_REQ signal is processed.	Mini
ISTSLC51	ISTSLRTC	Class of service (COS) and transmission priority field (TPF) control vector information is missing from the control vector list of the session initiation control block.	Mini
ISTSLC52	ISTSLRTC	Finite state machine information is missing when a REQ_COS_TPF_RPY signal is processed.	Mini
ISTSLC53	ISTSLRTV	Finite state machine information is missing when a REQ_TG_VECTORS_RPY signal is processed.	Mini
ISTSLC54	ISTSLRNT	The NOTIFY generalized data stream (GDS) variable being processed contained a NOTIFY_TYPE that was unknown or not valid.	Mini
ISTSLC55	ISTSLRNT	Notify control vector 80 (CV80) information is missing from the control vector list of the session initiation control block.	Mini
ISTSLC56	ISTSLRNT	Notify CV81 information is missing from the control vector list of the session initiation control block.	Mini
ISTSLC57	ISTSLRDN	The CDINIT GDS variable information is missing from a NON_VERIFY_REQ signal received from directory services.	Mini
ISTSLC58	ISTSLRDC	Finite state machine information is missing when a CHAIN_FLOW signal is processed.	Mini
ISTSLC59	ISTSLPXR	An unexpected combination of conditions was encountered during processing of the PLU-initiate exit border node preprocessor finite state machine (FSM).	Mini
ISTSLC60	ISTSLPXT	An unexpected combination of conditions was encountered during processing of the PLU-initiate exit border node postprocessor finite state machine.	Mini

Table 30. FFST probes for session services LU-LU (ISTSLCxx) (continued)

Probe name	Module	Description	Dump type
ISTSLC61	ISTSLPYR	An unexpected combination of conditions was encountered during processing of the PLU-initiate entry border node preprocessor finite state machine.	Mini
ISTSLC62	ISTSLPNS	RSCV information is missing from the control vector list of the session initiation control block.	Mini
ISTSLC63	ISTSLPNS	An unexpected combination of conditions was encountered during finite state machine processing initiated by the primary logical unit (PLU) at a network node.	Mini
ISTSLC64	ISTSLPED	An unexpected combination of conditions was encountered during finite state machine processing initiated by the primary logical unit (PLU) at an end node destination logical unit.	Mini
ISTSLC65	ISTSLPEO	An unexpected combination of conditions was encountered during finite state machine processing initiated by the primary logical unit (PLU) at an end node origination logical unit.	Mini
ISTSLC66	ISTSLBXT	A failure occurred while performing postprocessor information processing for a signal being sent to session services.	Mini
ISTSLC67	ISTSLBXR	A failure occurred while performing postprocessor information processing for a signal being sent to session services.	Mini
ISTSLC68	ISTSLBXP	A failure occurred while performing postprocessor information processing for a signal being sent to session services.	Mini
ISTSLC69	ISTSLBXO	A failure occurred while performing postprocessor information processing for a signal being sent to session services.	Mini
ISTSLC70	ISTSLBXE	A failure occurred while performing postprocessor information processing for a signal being sent to session services.	Mini
ISTSLC71	ISTSLBXD	A failure occurred while performing postprocessor information processing for a signal being sent to session services.	Mini
ISTSLC72	ISTSLBDL	A failure occurred while performing postprocessor information processing for a signal being sent to session services.	Mini
ISTSLC73	ISTSLSND	An unrecognized session initiation status was received for the current system state in SLU-initiate finite state machine processing.	Mini
ISTSLC74	ISTSLSND	An unexpected combination of conditions occurred during SLU-initiate finite state machine processing at a network node.	Mini

Table 30. FFST probes for session services LU-LU (ISTSLCxx) (continued)

Probe name	Module	Description	Dump type
ISTSLC75	ISTSLSEO	An unexpected combination of conditions occurred during SLU-initiate finite state machine processing at an end node origination logical unit.	Mini
ISTSLC76	ISTSLUCS	The SSL component was unable to remove the key entry for the session initiation control block from the list.	Full
ISTSLC77	ISTSLRXN	Finite state machine information is missing when a PEND_SC signal is processed.	Mini
ISTSLC78	ISTSLUSL	An unrecognized LU role was provided for a session initiation control block find request.	Mini
ISTSLC79	ISTSLCRT	An unrecognized work element was dispatched to the SSL process anchor block (PAB).	Mini
ISTSLC80	ISTSLR63	The SSL component was unable to remove a CV63 from the control vector list of the session initiation control block.	Mini
ISTSLC81	ISTSLBLC	A CV82 control vector contains a network-qualified sender name that is not valid.	Mini
ISTSLC82	ISTSLBLC	A CV82 control vector contains a network-qualified host receiver name that is not valid.	Mini
ISTSLC84	ISTSLUNV	The original class of service (COS) associated with the SLU-initiate request was not found in the parent session initiation control block during a nonverify search sent in response to a SLU-initiate request.	Mini
ISTSLC85	ISTSLRDI	The SSL component received a SESS_INIT_INFO_REQ signal which contained inconsistent data.	Full
ISTSLC86	ISTSLBXB	Failure occurred when performing front-end processing for a BN_SESS_RPY signal being sent to session services.	Mini
ISTSLC87	ISTSLBXH	Failure occurred when performing front-end processing for a CACHE_BN_INFO signal being sent to session services.	Mini
ISTSLC88	ISTSLBTM	The network-qualified adjacent nonnative CP name is not valid.	Mini
ISTSLC89	ISTSLRXB	The network-qualified adjacent LU name is not valid.	Mini
ISTSLC90	ISTSLRXB	Failure occurred when performing front-end processing for a BN_SESS_RPY signal being sent to session services.	Mini
ISTSLC91	ISTSLRTM	Finite state machine information was missing when a PROCESS_MAP_COS signal from topology routing services (TRS) was being processed.	Mini

Table 30. FFST probes for session services LU-LU (ISTSLCxx) (continued)

Probe name	Module	Description	Dump type
ISTSLC92	ISTSLUBX	The RSCV that should have been in the session initiation control block when building a CACHE_BN_INFO to session services was missing.	Mini
ISTSLC93	ISTSLRXB	The class of service (COS) was received on a BN_SESS_REQ, but the primary logical unit (PLU) COS from LOCATE time processing could not be found.	Mini
ISTSLC94	ISTSLPYT	An unexpected combination of conditions was encountered during processing of the PLU-initiate entry border node postprocessor finite state machine.	Mini
ISTSLC95	ISTSLSXR	An unexpected combination of conditions was encountered during processing of the SLU-initiate exit border node preprocessor finite state machine.	Mini
ISTSLC96	ISTSLSXT	An unexpected combination of conditions was encountered during processing of the SLU-initiate exit border node postprocessor finite state machine.	Mini
ISTSLC97	ISTSLSYR	An unexpected combination of conditions was encountered during processing of the SLU-initiate entry border node preprocessor finite state machine.	Mini
ISTSLC98	ISTSLSYT	An unexpected combination of conditions was encountered during processing of the SLU-initiate entry border node postprocessor finite state machine.	Mini
ISTSLC99	ISTSLUBR	An unexpected combination of conditions was encountered during border node request finite state machine processing.	Mini
ISTSLCA0	ISTSLUFR	The finite state machine router was called for a situation where a finite state machine (FSM) is not used.	Mini
ISTSLCA1	ISTSLSNO	Route Selection Control Vector (RSCV) missing from the session initiation control block's control vector list.	Mini
ISTSLCA2	ISTSLUAS	An unexpected combination of conditions was encountered during dependent LU requester search finite state machine processing.	Full
ISTSLCA3	ISTSLR2B	Missing subvector on CV2B (RSCV).	Full
ISTSLCA4	ISTSLRDI	The DLU is nonnative, but the previously stored DLU information and the DLU information about the SESS_INIT_INFO_REQ IPS just received do not match.	Mini
ISTSLCA5	ISTSLRDP	The DLU is nonnative, but the previously stored DLU information and the DLU information about the SEARCH_RPY IPS just received do not match.	Mini

Table 30. FFST probes for session services LU-LU (ISTSLCxx) (continued)

Probe name	Module	Description	Dump type
ISTSLCA7	ISTSLRDSD	A call to ISTSXCXS failed, either unknown RU or insufficient storage.	Mini
ISTSLCA8	ISTSLU85	SSLCNO action invoked in FSMe.	Mini

Storage management probes

Table 31. FFST probes for storage management (ISTORCxx)

Probe name	Module	Description	Dump type
ISTORC01	ISTORCHB	Unexpected I/O condition was detected. The output contains the buffer pool control block (BPCB) and one page of storage from each buffer pool expansion block (PXB).	Full
ISTORCZ1	ISTORCGB	Issued when an overlay of a GETBLKed header is detected and before the element is dequeued from the FBQE.	Full
ISTORCZ2	ISTORCFB	GETBLD header overlay	Full

Topology and routing services probes

Table 32. FFST probes for topology and routing services (ISTTRCxx)

Probe name	Module	Description	Dump type
ISTTRC01	ISTTRCRT	An unknown work element is received.	Mini
ISTTRC02	ISTTRCRT	An unknown signal is contained with the work element.	Mini
ISTTRC03	ISTTRQDN	Issued when attempting to clean up storage for a node information block that is not found.	Full
ISTTRC04	ISTTRIFP	While processing a topology database update (TDU), an unrecognized finite state machine state is encountered.	Mini
ISTTRC05	ISTTRINP	An internal parsing error has occurred. An Input_TDU is encountered with a mismatch between the number of node vectors and the number of associated transmission group (TG) vectors.	Mini
ISTTRC06	ISTTRPSH	An unrecognized transmission group (TG) type is received on a RQ_SINGLE_HOP_ROUTE signal.	Mini
ISTTRC07	ISTTRQDT	Unable to delete a node from a tree because the node cannot be found on the tree.	Full
ISTTRC08	ISTTRTLT	An unrecognized partner node type is received on a TG_UPDATE signal.	Mini
ISTTRC09	ISTTRTLT	The transmission group (TG) direction specified on a TG_UPDATE signal is not recognized.	Mini

Table 32. FFST probes for topology and routing services (ISTTRCxx) (continued)

Probe name	Module	Description	Dump type
ISTTRC10	ISTTRRPP	A problem is encountered while attempting to uncache the session trees from the topology and routing services (TRS) database.	Full
ISTTRC11	ISTTRRPP	While scanning the topology and routing services (TRS) database an unidentified resource is found.	Mini
ISTTRC12	ISTTRDGM	An unrecognized secondary LU (SLU) node identification is received on a REQ_MULTIPLE_ROUTES signal.	Mini
ISTTRC13	ISTTRRRR	A route to a gateway node is received on a REQUEST_ROUTE; however, the signal contained unrecognized information.	Mini
ISTTRC14	ISTTRATE	Unidentified resource is in database.	Mini
ISTTRCZ1	ISTTRRGT	Class of service information or node information not found.	Full
ISTTRCZ2	ISTTRCLT	Element is not on list.	Full

Trace services probes

Table 33. FFST probes for trace services (ISTRACxx)

Probe name	Module	Description	Dump yype
ISTRAC01	ISTRACZT	FFST dump from the VTAM trap module.	Full
ISTRAC02	ISTRACZT	FFST dump from the VTAM trap module consisting of the ATCVT and the VTAM internal trace (VIT).	Mini
ISTRACZ3	ISTITCAS	FFST full dump for a predetermined APPC sense code.	Full
ISTRACZ4	ISTITCAS	FFST full dump for a predetermined RPL6 return code.	Full

Transmission control — Data link control (TC-DLC) probes

Table 34. FFST probes for TC-DLC (ISTTCCxx)

Probe name	Module	Description	Dump type
ISTTCC01	ISTTCCTD	Multiple function keywords were encountered. TCP-DLC supports ACTPATH, DACTPATH, OPENPATH, and CLOSEPATH.	Full
ISTTCC02	ISTTCCRI	Registration Manager or the DLC sent an unrecognizable RUPE.	Mini
ISTTCC03	IUTLLCID	Unrecognized primitive.	Mini
ISTTCC04	ISTTCCRI	An unexpected RUPE was encountered when a RUPE was sent to Registration Manager.	Full
ISTTCC05	IUTLLCID	Input is not a RUPE response.	Mini

Transmission subsystem probes

Table 35. FFST probes for transmission subsystem (ISTTSCxx)

Probe name	Module	Description	Dump type
ISTTSC01	ISTTSCRI	Inbound path information unit (PIU) with an out-of-order sequence number was detected. The output includes the transmission subsystem control block (TSCB) containing the PIU with the unexpected sequence number and the virtual route control block (VRBLK) containing the expected sequence number.	Mini
ISTTSC02	ISTTSC8S	Unrecognized multipath channel sweep work element was detected.	Mini
ISTTSC03	ISTTSC8E	Unexpected multipath channel sweep finite state machine state was detected.	Mini
ISTTSC04	ISTTSC8I	Zero active read subchannel count was detected.	Mini
ISTTSC05	ISTTSC8E	Zero active write subchannel count was detected.	Mini
ISTTSC06	ISTTSC8E	Zero read sweep count decremented.	Mini
ISTTSC07	ISTTSC8E	Zero write sweep count decremented.	Mini
ISTTSC08	ISTTSC9L	Unexpected input in current state was received.	Mini
ISTTSC09	ISTTSC9C	Unexpected input in current state was received.	Mini
ISTTSC10	ISTTSC8E	Multipath channel incorrect path information unit (PIU) was built.	Mini
ISTTSC11	ISTTSC8D	Unexpected input was received.	Mini
ISTTSC12	ISTTSC8E	Multipath channel group lost the last read device.	Mini
ISTTSC13	ISTTSC8E	An attempt to send a data element response failed.	Mini
ISTTSC14	ISTTSC8E	Multipath channel device busy was detected.	Mini
ISTTSC15	ISTTSCM8	Multipath channel PU services process anchor block (PUPAB) finite state machine error was detected.	Mini
ISTTSC16	ISTTSCM8	Unable to obtain storage for a request unit processing element (RUPE).	Mini
ISTTSC17	ISTTSC8X	Multipath channel PUPAB finite state machine error was detected.	Mini
ISTTSC18	ISTTSC8X	Unable to obtain storage for a request unit processing element (RUPE).	Mini
ISTTSC19	ISTTSC8B	Empty node control block (NCB) pending queue was detected.	Mini
ISTTSC20	ISTTSC87	Unexpected value for request/response unit (RU) was received.	Mini
ISTTSC21	ISTTSC9X	Unexpected input in current state was received.	Mini

Table 35. FFST probes for transmission subsystem (ISTTSCxx) (continued)

Probe name	Module	Description	Dump type
ISTTSC22	ISTTSC9P	Unexpected input was received.	Mini
ISTTSC23	ISTTSC9D	Unexpected input was received.	Mini
ISTTSC24	ISTTSC8I	Unexpected multipath channel sweep finite state machine state was detected.	Mini
ISTTSC25	ISTTSC8I	Zero active write subchannel count was detected.	Mini
ISTTSC26	ISTTSC8I	Zero read sweep count decremented.	Mini
ISTTSC27	ISTTSC8I	Zero write sweep count decremented.	Mini
ISTTSC28	ISTTSCM8	Unexpected input was received.	Mini
ISTTSC29	ISTTSC8X	Unexpected input was received.	Mini
ISTTSC30	ISTTSC6F	ISTTSC6F fails to dequeue the TRGCB from ATCNCBQ during deactivation of a major node. This can result in an abend in ISTTSCWU.	Mini
ISTTSC31	ISTTSCUD	A problem occurred trying to free a CSM buffer.	Full
ISTTSC32	ISTTSC8E	Zero active write subchannel count was detected.	Mini
ISTTSC33	ISTTSC8E	Multipath channel incorrect path information unit (PIU) was built.	Mini
ISTTSC34	ISTTSC8E	An attempt to send a data element response failed.	Mini
ISTTSC35	ISTTSC8E	Multipath channel device busy was detected.	Mini
ISTTSC36	ISTTSCYD	Sense code 08150004 received.	Full
ISTTSC37	ISTTSCYD	Sense code 08090033 received.	Full
ISTTSC38	ISTBSCUB	Sense code 08150004 received.	Full
ISTTSC39	ISTBSCUB	Sense code 08090033 received.	Full
ISTTSCZ1	ISTTSCON	Negative NCBUSECT.	Mini

VTAM topology agent probes

Table 36. FFST probes for the VTAM topology agent (ISTTACxx)

Probe name	Module	Description	Dump type
ISTTAC01	ISTTACOS	The topology agent received a CMIP message string with a syntax error. The topology agent cannot process or respond to the message.	Mini
ISTTAC03	ISTTAIGP	The topology agent received a CMIP GET request with a syntax error. The topology agent cannot process or respond to the request.	Mini
ISTTAC04	ISTTAIDN	The topology agent received a distinguished name with a syntax error in a CMIP request. The topology agent cannot process or respond to the request.	Mini

Table 36. FFST probes for the VTAM topology agent (ISTTACxx) (continued)

Probe name	Module	Description	Dump type
ISTTAC05	ISTTACII	The topology agent received a request for initialization at a time when the topology agent was in an internal state other than inactive state.	Mini
ISTTAC06	ISTTACII	The topology agent received a register-accept acknowledgment at a time when the topology agent was in an internal state other than initializing.	Mini
ISTTAC07	ISTTACRT	The topology agent was dispatched with a work element type that the topology agent does not support, such as a work element other than RUPE or TQE.	Mini
ISTTAC08	ISTTACRT	The topology agent was dispatched with a RUPE work element containing an OPCODE that is not supported by the topology agent.	Mini
ISTTAC09	ISTTACRT	The topology agent received a message from CMIP services with an unknown API message type in the API header section of the message.	Mini
ISTTAC10	ISTTACOS	The topology agent received a CMIP message that was not identified as type ROIVapdu. The CMIP message was not a request or linked reply. It was identified as one of the following items, which the topology agent does not support: • RORSapdu • ROERapdu • RORJapdu	Mini
ISTTAC11	ISTTAIPA	The topology agent received a CMIP message with a syntax error in one of the following items: • Object class • Object instance • Access control • Synchronization • Scope • Filter	Mini
ISTTAC12	ISTTAOSP	The topology agent received a message from configuration services or topology and routing services indicating that a snapshot was in initial data phase when that snapshot was in a phase other than initial data phase.	Mini
ISTTAC13	ISTTAINP	The topology agent received a CMIP CANCEL-GET message with a syntax error.	Mini
ISTTAC14	ISTTAOLT	The topology agent has written a SNAlocaltopology response string in an output buffer. The string is greater than the size of the output buffer and has overlaid other storage.	Mini

Table 36. FFST probes for the VTAM topology agent (ISTTACxx) (continued)

Probe name	Module	Description	Dump type
ISTTAC16	ISTTAOAN	The topology agent has written a SNAnetwork response string in an output buffer. The string is greater than the size of the output buffer and has overlaid other storage.	Mini
ISTTAC17	ISTTAOSN	The topology agent has written a SNAnetwork response string in an output buffer. The string is greater than the size of the output buffer and has overlaid other storage.	Mini
ISTTAC18	ISTTAOLC	The topology agent has written an LUcollection response string in an output buffer. The string is greater than the size of the output buffer and has overlaid other storage.	Mini
ISTTAC19	ISTTAOLI	The topology agent has written an logicalUnitIndex response string in an output buffer. The string is greater than the size of the output buffer and has overlaid other storage.	Mini
ISTTAC20	ISTTAONO	The topology agent, in processing notifications, has written data beyond the storage allocated for it.	Mini
ISTTAC21	ISTTAOLG	The topology agent has written a transmission group distinguished name string to a data area that is smaller than the string.	Mini
ISTTAC22	ISTTAOLT	The topology agent received a SNAlocaltopology message from configuration services containing an object block specifying an unknown object type.	Mini
ISTTAC23	ISTTAOLC	The topology agent received an LUcollection message from configuration services containing an object block specifying an unknown or inappropriate object type.	Mini
ISTTAC24	ISTTAOLI	The topology agent received a logicalUnitIndex message from configuration services containing an object block specifying an unknown or inappropriate object type.	Mini
ISTTAC25	ISTTACA2	The topology agent definitionGroupName attribute builder encountered an unknown type of major node.	Mini
ISTTAC26	ISTTAOPU	The topology agent received a snapshot update data message from configuration services or topology and routing services containing an unrecognized return code.	Mini
ISTTAC27	ISTTAOPI	The topology agent received a snapshot initial data message from configuration services or topology and routing services containing an unrecognized return code.	Mini

Table 36. FFST probes for the VTAM topology agent (ISTTACxx) (continued)

Probe name	Module	Description	Dump type
ISTTAC28	ISTTAOSN	The topology agent received a SNAnetwork message from configuration services containing an object block specifying an unknown or inappropriate object type.	Mini
ISTTAC29	ISTTAISE	The topology agent has written a SET response string in an output buffer. The string is greater than the size of the output buffer and has overlaid other storage.	Mini
ISTTAC30	ISTTAOSS	The topology agent received a synchronous return code from the CMIP services API indicating a permanent error has been encountered.	Mini
ISTTAC31	ISTTAIPS	The topology agent received a CMIP SET message with a syntax error.	Mini
ISTTAC32	ISTTAOUQ	The topology agent received a snapshot update message from configuration services containing an object block specifying an unknown object type.	Mini
ISTTAC33	ISTTAOUQ	A message routed to the module for the topology agent merge queue controller contained an operation code that is not supported by that module.	Mini

Appendix D. Communications storage manager (CSM) FFST probes

The following table describes the naming conventions for the FFST probe name. **IVTSMC01** is used as an example.

Table 37. CSM FFST probe naming conventions

Characters	Example	Description
1,2,3	IVT	These characters represent the product identifier. For CSM probes, these characters are IVT.
4, 5	SM	These characters represent the CSM component identifier. In this example, SM is the component identifier for the Storage Manager component.
6	C	For CSM probes, this character is C.
7, 8	01	These characters represent the probe identification number. This number is not duplicated.

CSM probes

Table 38. FFST probes for communications storage manager (IVTSMCxx)

Probe name	Module	Description	Dump type
IVTSMC03	IVTSMCCP	Buffer size (BUFSIZE) or buffer source (BUFSOURCE) specification on a CREATE_POOL request was not valid.	Mini
IVTSMC04	IVTSMCCP	SRB schedule of IVTSMCEX failed for a CREATE_POOL request.	Full
IVTSMC05	IVTSMCGF	A storage error occurred.	Full
IVTSMC06	IVTSMCFB	SRB schedule of IVTSMCEX failed during pool contraction.	Full
IVTSMC07	IVTSMCEX	Cross-memory post failed.	Full
IVTSMC08	IVTSMCFC	SRB schedule of IVTSMCEX failed during pool contraction.	Full
IVTSMC09	IVTSMCFX	SRB schedule of IVTSMCSD failed.	Full
IVTSMC0A	IVTSMCBF	SRB schedule of IVTSMCSD failed.	Full
IVTSMC0B	IVTSMCFR	SRB schedule of IVTSMCSD failed.	Full
IVTSMC0C	IVTSMCWL	SRB schedule of IVTSMCSD failed.	Full
IVTSMC0D	IVTSMCFX	Post failed.	Full
IVTSMC0E	IVTSMCFR	Post failed.	Full
IVTSMC0F	IVTSMCFC	SRB schedule of IVTSMCSD failed.	Full
IVTSMC10	IVTSMCGB	The schedule of the SRB for the side routine failed in IVTSMCFB.	Full

Appendix E. Architectural specifications

This appendix lists documents that provide architectural specifications for the SNA Protocol.

The APPN Implementers' Workshop (AIW) architecture documentation includes the following architectural specifications for SNA APPN and HPR:

- APPN Architecture Reference (SG30-3422-04)
- APPN Branch Extender Architecture Reference Version 1.1
- APPN Dependent LU Requester Architecture Reference Version 1.5
- APPN Extended Border Node Architecture Reference Version 1.0
- APPN High Performance Routing Architecture Reference Version 4.0
- SNA Formats (GA27-3136-20)
- SNA Technical Overview (GC30-3073-04)

For more information, see the AIW documentation page at http://www.ibm.com/support/docview.wss?rs=852&uid=swg27017843.

The following RFC also contains SNA architectural specifications:

- RFC 2353 *APPN/HPR in IP Networks APPN Implementers' Workshop Closed Pages Document*

RFCs can be obtained from:

Government Systems, Inc.
Attn: Network Information Center
14200 Park Meadow Drive
Suite 200
Chantilly, VA 22021

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Use FTP to download the files, using the following format:

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RFC:RFC-INDEX.TXT
RFC:RFCnnnn.TXT
RFC:RFCnnnn.PS
```

where:

- *nnnn* is the RFC number.
- TXT is the text format.
- PS is the postscript format.

You can also request RFCs through electronic mail, from the automated NIC mail server, by sending a message to `service@nic.ddn.mil` with a subject line of `RFC nnnn` for text versions or a subject line of `RFC nnnn.PS` for PostScript versions. To request a copy of the RFC index, send a message with a subject line of `RFC INDEX`.

For more information, contact nic@nic.ddn.mil.

Appendix F. Accessibility

Publications for this product are offered in Adobe Portable Document Format (PDF) and should be compliant with accessibility standards. If you experience difficulties when using PDF files, you can view the information through the z/OS Internet Library website or IBM Knowledge Center. If you continue to experience problems, send an email to mhvrcfs@us.ibm.com or write to:

IBM Corporation
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Department H6MA, Building 707
2455 South Road
Poughkeepsie, NY 12601-5400
USA

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully. The major accessibility features in z/OS enable users to:

- Use assistive technologies such as screen readers and screen magnifier software
- Operate specific or equivalent features using only the keyboard
- Customize display attributes such as color, contrast, and font size

Using assistive technologies

Assistive technology products, such as screen readers, function with the user interfaces found in z/OS. Consult the assistive technology documentation for specific information when using such products to access z/OS interfaces.

Keyboard navigation of the user interface

Users can access z/OS user interfaces using TSO/E or ISPF. See z/OS TSO/E Primer, z/OS TSO/E User's Guide, and z/OS ISPF User's Guide Vol I for information about accessing TSO/E and ISPF interfaces. These guides describe how to use TSO/E and ISPF, including the use of keyboard shortcuts or function keys (PF keys). Each guide includes the default settings for the PF keys and explains how to modify their functions.

z/OS information

z/OS information is accessible using screen readers with the BookServer or Library Server versions of z/OS books in the Internet library at www.ibm.com/systems/z/os/zos/bkserv/.

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- Online at the z/OS Internet Library web page at www.ibm.com/systems/z/os/zos/bkserv/
- In softcopy on CD-ROM collections. See "Softcopy information" on page xx.

z/OS Communications Server library updates

An index to z/OS Communications Server book updates is at http://www.ibm.com/support/docview.wss?uid=swg21178966. Updates to documents are also available on RETAIN and in information APARs (info APARs). Go to http://www.ibm.com/software/network/commserver/zos/support to view information APARs.

z/OS Communications Server information

z/OS Communications Server product information is grouped by task in the following tables.

Planning

Title	Number	Description
z/OS Communications Server: New Function Summary	GC27-3664	This document is intended to help you plan for new IP or SNA function, whether you are migrating from a previous version or installing z/OS for the first time. It summarizes what is new in the release and identifies the suggested and required modifications needed to use the enhanced functions.
z/OS Communications Server: IPv6 Network and Application Design Guide	SC27-3663	This document is a high-level introduction to IPv6. It describes concepts of z/OS Communications Server's support of IPv6, coexistence with IPv4, and migration issues.

Resource definition, configuration, and tuning

Title	Number	Description
z/OS Communications Server: IP Configuration Guide	SC27-3650	This document describes the major concepts involved in understanding and configuring an IP network. Familiarity with the z/OS operating system, IP protocols, z/OS UNIX System Services, and IBM Time Sharing Option (TSO) is recommended. Use this document with the z/OS Communications Server: IP Configuration Reference.

Title	Number	Description
z/OS Communications Server: IP Configuration Reference	SC27-3651	This document presents information for people who want to administer and maintain IP. Use this document with the z/OS Communications Server: IP Configuration Guide. The information in this document includes: • TCP/IP configuration data sets • Configuration statements • Translation tables • Protocol number and port assignments
z/OS Communications Server: SNA Network Implementation Guide	SC27-3672	This document presents the major concepts involved in implementing an SNA network. Use this document with the z/OS Communications Server: SNA Resource Definition Reference.
z/OS Communications Server: SNA Resource Definition Reference	SC27-3675	This document describes each SNA definition statement, start option, and macroinstruction for user tables. It also describes NCP definition statements that affect SNA. Use this document with the z/OS Communications Server: SNA Network Implementation Guide.
z/OS Communications Server: SNA Resource Definition Samples	SC27-3676	This document contains sample definitions to help you implement SNA functions in your networks, and includes sample major node definitions.
z/OS Communications Server: IP Network Print Facility	SC27-3658	This document is for systems programmers and network administrators who need to prepare their network to route SNA, JES2, or JES3 printer output to remote printers using TCP/IP Services.

Operation

Title	Number	Description
z/OS Communications Server: IP User's Guide and Commands	SC27-3662	This document describes how to use TCP/IP applications. It contains requests with which a user can log on to a remote host using Telnet, transfer data sets using FTP, send and receive electronic mail, print on remote printers, and authenticate network users.
z/OS Communications Server: IP System Administrator's Commands	SC27-3661	This document describes the functions and commands helpful in configuring or monitoring your system. It contains system administrator's commands, such as TSO NETSTAT, PING, TRACERTE and their UNIX counterparts. It also includes TSO and MVS commands commonly used during the IP configuration process.
z/OS Communications Server: SNA Operation	SC27-3673	This document serves as a reference for programmers and operators requiring detailed information about specific operator commands.
z/OS Communications Server: Quick Reference	SC27-3665	This document contains essential information about SNA and IP commands.

Customization

Title	Number	Description
z/OS Communications Server: SNA Customization	SC27-3666	This document enables you to customize SNA, and includes the following information: • Communication network management (CNM) routing table • Logon-interpret routine requirements • Logon manager installation-wide exit routine for the CLU search exit • TSO/SNA installation-wide exit routines • SNA installation-wide exit routines

Writing application programs

Title	Number	Description
z/OS Communications Server: IP Sockets Application Programming Interface Guide and Reference	SC27-3660	This document describes the syntax and semantics of program source code necessary to write your own application programming interface (API) into TCP/IP. You can use this interface as the communication base for writing your own client or server application. You can also use this document to adapt your existing applications to communicate with each other using sockets over TCP/IP.
z/OS Communications Server: IP CICS Sockets Guide	SC27-3649	This document is for programmers who want to set up, write application programs for, and diagnose problems with the socket interface for CICS® using z/OS TCP/IP.
z/OS Communications Server: IP IMS Sockets Guide	SC27-3653	This document is for programmers who want application programs that use the IMS™ TCP/IP application development services provided by the TCP/IP Services of IBM.
z/OS Communications Server: IP Programmer's Guide and Reference	SC27-3659	This document describes the syntax and semantics of a set of high-level application functions that you can use to program your own applications in a TCP/IP environment. These functions provide support for application facilities, such as user authentication, distributed databases, distributed processing, network management, and device sharing. Familiarity with the z/OS operating system, TCP/IP protocols, and IBM Time Sharing Option (TSO) is recommended.
z/OS Communications Server: SNA Programming	SC27-3674	This document describes how to use SNA macroinstructions to send data to and receive data from (1) a terminal in either the same or a different domain, or (2) another application program in either the same or a different domain.
z/OS Communications Server: SNA Programmer's LU 6.2 Guide	SC27-3669	This document describes how to use the SNA LU 6.2 application programming interface for host application programs. This document applies to programs that use only LU 6.2 sessions or that use LU 6.2 sessions along with other session types. (Only LU 6.2 sessions are covered in this document.)
z/OS Communications Server: SNA Programmer's LU 6.2 Reference	SC27-3670	This document provides reference material for the SNA LU 6.2 programming interface for host application programs.
z/OS Communications Server: CSM Guide	SC27-3647	This document describes how applications use the communications storage manager.

Title	Number	Description
z/OS Communications Server: CMIP Services and Topology Agent Guide	SC27-3646	This document describes the Common Management Information Protocol (CMIP) programming interface for application programmers to use in coding CMIP application programs. The document provides guide and reference information about CMIP services and the SNA topology agent.

Diagnosis

Title	Number	Description
z/OS Communications Server: IP Diagnosis Guide	GC27-3652	This document explains how to diagnose TCP/IP problems and how to determine whether a specific problem is in the TCP/IP product code. It explains how to gather information for and describe problems to the IBM Software Support Center.
z/OS Communications Server: ACF/TAP Trace Analysis Handbook	GC27-3645	This document explains how to gather the trace data that is collected and stored in the host processor. It also explains how to use the Advanced Communications Function/Trace Analysis Program (ACF/TAP) service aid to produce reports for analyzing the trace data information.
z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures and z/OS Communications Server: SNA Diagnosis Vol 2, FFST Dumps and the VIT	GC27-3667 GC27-3668	These documents help you identify an SNA problem, classify it, and collect information about it before you call the IBM Support Center. The information collected includes traces, dumps, and other problem documentation.
z/OS Communications Server: SNA Data Areas Volume 1 and z/OS Communications Server: SNA Data Areas Volume 2	GC31-6852 GC31-6853	These documents describe SNA data areas and can be used to read an SNA dump. They are intended for IBM programming service representatives and customer personnel who are diagnosing problems with SNA.

Messages and codes

Title	Number	Description
z/OS Communications Server: SNA Messages	SC27-3671	This document describes the ELM, IKT, IST, IUT, IVT, and USS messages. Other information in this document includes: • Command and RU types in SNA messages • Node and ID types in SNA messages • Supplemental message-related information
z/OS Communications Server: IP Messages Volume 1 (EZA)	SC27-3654	This volume contains TCP/IP messages beginning with EZA.
z/OS Communications Server: IP Messages Volume 2 (EZB, EZD)	SC27-3655	This volume contains TCP/IP messages beginning with EZB or EZD.
z/OS Communications Server: IP Messages Volume 3 (EZY)	SC27-3656	This volume contains TCP/IP messages beginning with EZY.
z/OS Communications Server: IP Messages Volume 4 (EZZ, SNM)	SC27-3657	This volume contains TCP/IP messages beginning with EZZ and SNM.
z/OS Communications Server: IP and SNA Codes	SC27-3648	This document describes codes and other information that appear in z/OS Communications Server messages.

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Product Number: 5650-ZOS

Printed in USA

GC27-3668-01