

z/OS Communications Server



# SNA Operation

*Version 2 Release 1*

**Note:**

Before using this information and the product it supports, be sure to read the general information under “Notices” on page 617.

This edition applies to Version 2 Release 1 of z/OS (5650-ZOS), and to subsequent releases and modifications until otherwise indicated in new editions.

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# Contents

<b>Figures</b> . . . . .	<b>vii</b>
<b>Tables</b> . . . . .	<b>ix</b>
<b>About this document</b> . . . . .	<b>xi</b>
Who should read this document . . . . .	xi
How this document is organized . . . . .	xi
Artwork used in this document . . . . .	xii
How to use this document . . . . .	xii
Determining whether a publication is current. . . . .	xiii
How to contact IBM service . . . . .	xiii
Conventions and terminology that are used in this document . . . . .	xiii
How to read a syntax diagram. . . . .	xiv
Prerequisite and related information . . . . .	xvii
<b>Summary of changes</b> . . . . .	<b>xxiii</b>
Changes made in z/OS Version 2 Release 1, as updated February 2015. . . . .	xxiii
Changes made in z/OS Version 2 Release 1, as updated September 2014 . . . . .	xxiii
Summary of changes for z/OS Version 2 Release 1 . . . . .	xxiii
<b>Chapter 1. Introducing an operator to VTAM</b> . . . . .	<b>1</b>
Monitoring VTAM . . . . .	2
Controlling VTAM . . . . .	5
Starting VTAM . . . . .	5
Stopping VTAM . . . . .	5
Changing VTAM with VARY commands . . . . .	5
Changing VTAM with MODIFY commands . . . . .	6
<b>Chapter 2. VTAM operator commands</b> . . . . .	<b>9</b>
VTAM operator command fundamentals . . . . .	9
Entering operator commands . . . . .	9
Controlling operator messages . . . . .	10
Using wildcard names . . . . .	11
Using MVS system symbols . . . . .	13
Unformatted system services command syntax . . . . .	14
DISPLAY ADJCLUST command . . . . .	15
DISPLAY ADJCP command . . . . .	16
DISPLAY ADJSSCPS command . . . . .	20
DISPLAY APING command . . . . .	28
DISPLAY APINGDTP command . . . . .	33
DISPLAY APINGTP command . . . . .	34
DISPLAY APPLS command . . . . .	36
DISPLAY APPNTOSA command . . . . .	41
DISPLAY AUTOLOG command . . . . .	41
DISPLAY BFRUSE command . . . . .	44
DISPLAY BNCOSMAP command . . . . .	51
DISPLAY CDRMS command. . . . .	52
DISPLAY CDRSCS command . . . . .	56
DISPLAY CLSTRS command . . . . .	61
DISPLAY CNOS command . . . . .	67
DISPLAY CONVID command . . . . .	69
DISPLAY COS command . . . . .	73
DISPLAY CPCP command . . . . .	75
DISPLAY CSDUMP command . . . . .	78

DISPLAY CSM command . . . . .	80
DISPLAY CSMUSE command . . . . .	83
DISPLAY DIRECTRY command . . . . .	87
DISPLAY DISK command . . . . .	91
DISPLAY DLURS command . . . . .	92
DISPLAY EE command . . . . .	93
DISPLAY EEDIAG command . . . . .	106
DISPLAY EXIT command . . . . .	128
DISPLAY GRAFFIN command . . . . .	130
DISPLAY GROUPS command . . . . .	131
DISPLAY GRPREFS command . . . . .	135
DISPLAY ID command . . . . .	136
DISPLAY INOPCODE command . . . . .	188
DISPLAY INOPDUMP command . . . . .	189
DISPLAY LINES command . . . . .	190
DISPLAY LMTBL command . . . . .	195
DISPLAY LUGROUPS command . . . . .	197
DISPLAY MAJNODES command . . . . .	201
DISPLAY MODELS command . . . . .	202
DISPLAY NCPSTOR command . . . . .	206
DISPLAY NETSRVR command . . . . .	208
DISPLAY PATHS command . . . . .	212
DISPLAY PATHTAB command . . . . .	213
DISPLAY PENDING command . . . . .	215
DISPLAY ROUTE command . . . . .	217
DISPLAY RSCLIST command . . . . .	223
DISPLAY RTPS command . . . . .	232
DISPLAY SAMAP command . . . . .	239
DISPLAY SATOAPPN command . . . . .	239
DISPLAY SESSIONS command . . . . .	240
DISPLAY SNSFILTR command . . . . .	249
DISPLAY SRCHINFO command . . . . .	249
DISPLAY STATIONS command . . . . .	256
DISPLAY STATS command . . . . .	261
DISPLAY STORUSE command . . . . .	271
DISPLAY TABLE command . . . . .	277
DISPLAY TERMS command . . . . .	280
DISPLAY TGPS command . . . . .	285
DISPLAY TNSTAT command . . . . .	288
DISPLAY TOPO command . . . . .	288
DISPLAY TRACES command . . . . .	311
DISPLAY TRL command . . . . .	319
DISPLAY TSOUSER command . . . . .	326
DISPLAY USERVAR command . . . . .	328
DISPLAY VTAMOPTS command . . . . .	329
DISPLAY VTAMSTOR command . . . . .	338
HALT command . . . . .	343
HALT CANCEL command . . . . .	344
HALT QUICK command . . . . .	345
MODIFY ALSLIST command . . . . .	346
MODIFY APINGDTP command . . . . .	349
MODIFY APINGTP command . . . . .	350
MODIFY BFRUSE command . . . . .	351
MODIFY CDRM command . . . . .	352
MODIFY CHKPT command . . . . .	354
MODIFY CNOS command . . . . .	355
MODIFY COMPRESS command . . . . .	360
MODIFY CSALIMIT command . . . . .	362
MODIFY CSDUMP command . . . . .	365
MODIFY CSM command . . . . .	370
MODIFY DEFAULTS command . . . . .	372

MODIFY DEFINE command . . . . .	373
MODIFY DIRECTRY command . . . . .	377
MODIFY DR command . . . . .	380
MODIFY DUMP command . . . . .	384
MODIFY ENCR command . . . . .	390
MODIFY EXIT command . . . . .	392
MODIFY GR command . . . . .	396
MODIFY IMR command . . . . .	397
MODIFY INOPCODE command . . . . .	398
MODIFY INOPDUMP command . . . . .	401
MODIFY IOPD command . . . . .	402
MODIFY IOPURGE command . . . . .	403
MODIFY LINEDEF command . . . . .	404
MODIFY LL2 command . . . . .	405
MODIFY LOAD command . . . . .	407
MODIFY MSGMOD command . . . . .	414
MODIFY NCP command . . . . .	415
MODIFY NEG POLL command . . . . .	416
MODIFY NOTNSTAT command . . . . .	416
MODIFY NOTRACE command . . . . .	417
MODIFY POLL command . . . . .	436
MODIFY PPOLOG command . . . . .	437
MODIFY PROFILES command . . . . .	438
MODIFY QUERY command . . . . .	439
MODIFY RESOURCE command . . . . .	439
MODIFY RTP command . . . . .	445
MODIFY SECURITY command . . . . .	445
MODIFY SESSION command . . . . .	449
MODIFY SUPP command . . . . .	450
MODIFY TABLE command . . . . .	451
MODIFY TGP command . . . . .	459
MODIFY TNSTAT command . . . . .	460
MODIFY TOPO command . . . . .	462
MODIFY TRACE command . . . . .	467
MODIFY USERVAR command . . . . .	494
MODIFY VTAMOPTS command . . . . .	498
START command . . . . .	507
VARY ACQ command . . . . .	527
VARY ACT command . . . . .	531
VARY ANS command . . . . .	561
VARY AUTOLOG command . . . . .	562
VARY CFS command . . . . .	563
VARY DIAL command . . . . .	564
VARY DRDS command . . . . .	565
VARY HANGUP command . . . . .	567
VARY INACT command . . . . .	568
VARY INOP command . . . . .	581
VARY LOGON command . . . . .	582
VARY NOLOGON command . . . . .	584
VARY PATH command . . . . .	586
VARY REL command . . . . .	588
VARY TERM command . . . . .	591
<b>Chapter 3. Logon manager operator commands . . . . .</b>	<b>597</b>
Command fundamentals . . . . .	597
Syntax notation . . . . .	597
Entering operator commands . . . . .	597
Using MVS system symbols . . . . .	597
Correct and incorrect commands . . . . .	598
MODIFY HELP command . . . . .	598
MODIFY INFO command . . . . .	599

MODIFY MEMBER command . . . . .	600
MODIFY MINLINK command . . . . .	601
MODIFY STOP command . . . . .	601
START command . . . . .	602
<b>Appendix A. Cross-reference for VTAM DISPLAY commands . . . . .</b>	<b>603</b>
<b>Appendix B. Architectural specifications. . . . .</b>	<b>611</b>
<b>Appendix C. Accessibility . . . . .</b>	<b>613</b>
<b>Notices . . . . .</b>	<b>617</b>
Policy for unsupported hardware. . . . .	625
Trademarks . . . . .	625
<b>Bibliography. . . . .</b>	<b>627</b>
<b>Index . . . . .</b>	<b>631</b>
<b>Communicating your comments to IBM . . . . .</b>	<b>647</b>

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## Figures

1. Conventions used in network illustrations . . . . .	xii
2. Sample VTAM network . . . . .	2
3. DISPLAY TOPO topology example 1 . . . . .	292
4. DISPLAY TOPO topology example 2 . . . . .	292
5. Resource and trace reference . . . . .	479
6. Valid resource types for VARY ACT . . . . .	539
7. Mutually exclusive (X) operands for VARY ACT . . . . .	540
8. Valid resource types for VARY INACT . . . . .	573
9. DISPLAY output cross reference (A-E) (part 1 of 2) . . . . .	604
10. DISPLAY output cross reference (A-E) (part 2 of 2) . . . . .	605
11. DISPLAY output cross reference (G-P) (part 1 of 2) . . . . .	606
12. DISPLAY output cross reference (G-P) (part 2 of 2) . . . . .	607
13. DISPLAY output cross reference (P-W) (part 1 of 2) . . . . .	608
14. DISPLAY output cross reference (P-W) (part 2 of 2) . . . . .	609





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## Tables

1. Buffer pools . . . . .	47
2. LOCSIZE values . . . . .	296
3. Active and inactive status requirements for MODIFY DR for an NCP . . . . .	381
4. Active and inactive status requirements for MODIFY DR for local peripheral nodes . . . . .	382
5. Relationship between ACTION and IPLTIME operands . . . . .	410
6. Examples of time specifications for IPLTIME . . . . .	413
7. Precedence of values when SAVEMOD and DUMPLOAD are specified . . . . .	541
8. Results when LOADFROM=HOST or LOADFROM is not specified . . . . .	542
9. Results when LOADFROM=EXT is specified . . . . .	543
10. Actions to be taken for unsuccessful DUMP and LOAD . . . . .	543
11. Active and inactive status requirements for dynamic reconfiguration of an NCP . . . . .	557
12. Active and inactive status requirements for dynamic reconfiguration for a local SNA major node . . . . .	559
13. Active and inactive status requirements for VARY DRDS for an NCP . . . . .	566
14. Active and inactive status requirements for VARY DRDS for local SNA major nodes . . . . .	567



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## About this document

This document is intended to help network operators use VTAM<sup>®</sup> commands and messages to control and maintain a telecommunication network. It contains descriptions of VTAM commands.

You can use this document as a reference for specific operator commands and as background reading to help understand how to operate VTAM.

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.

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## Who should read this document

This document is primarily a reference for network operators. It also contains introductory material intended for a new operator. The system programmer can use this document as a reference about command syntax and function to write a local operating procedure.

To make the best use of this document, both the operator and the system programmer should be familiar with the local operating system.

As a VTAM operator, you should have background knowledge of VTAM and a background knowledge of network programs offered by IBM. Information in *System Network Architecture Technical Overview* might also be of use to a new operator.

A more experienced operator might want to consult *z/OS Communications Server: SNA Network Implementation Guide*.

A system programmer preparing a local operating procedure should know how to plan a VTAM installation, include VTAM in an MVS<sup>™</sup> operating system, and define a VTAM domain. A prerequisite publication for system programmers who use this document is *z/OS Communications Server: SNA Network Implementation Guide*.

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## How this document is organized

This document is organized into the following information:

- Chapter 1, "Introducing an operator to VTAM," on page 1 provides an overview of how an operator controls VTAM.
- The following topics contain VTAM operator command descriptions and the syntax required to enter these commands. The description of each command includes the command format, a summary of the purpose of the command, and a description of each operand. The commands are arranged within each topic alphabetically by operation and operand. (For example, VARY is considered an operation, and ACT in VARY ACT is considered the operand.) The topics are:
  - Chapter 2, "VTAM operator commands," on page 9 contains descriptions and the syntax of VTAM operator commands.
  - Chapter 3, "Logon manager operator commands," on page 597 contains descriptions and the syntax of logon manager operator commands.

- Appendix A, “Cross-reference for VTAM DISPLAY commands,” on page 603 contains a cross-reference of the output from VTAM operator commands.
- Appendix B, “Architectural specifications,” on page 611 lists documents that provide architectural specifications for the SNA protocol.
- Appendix C, “Accessibility,” on page 613 describes accessibility features to help users with physical disabilities.
- “Notices” on page 617 contains notices and trademarks used in this document.
- “Bibliography” on page 627 contains descriptions of the documents in the z/OS® Communications Server library.

## Artwork used in this document

Figure 1 shows the conventions used in this document to illustrate the parts of a network.

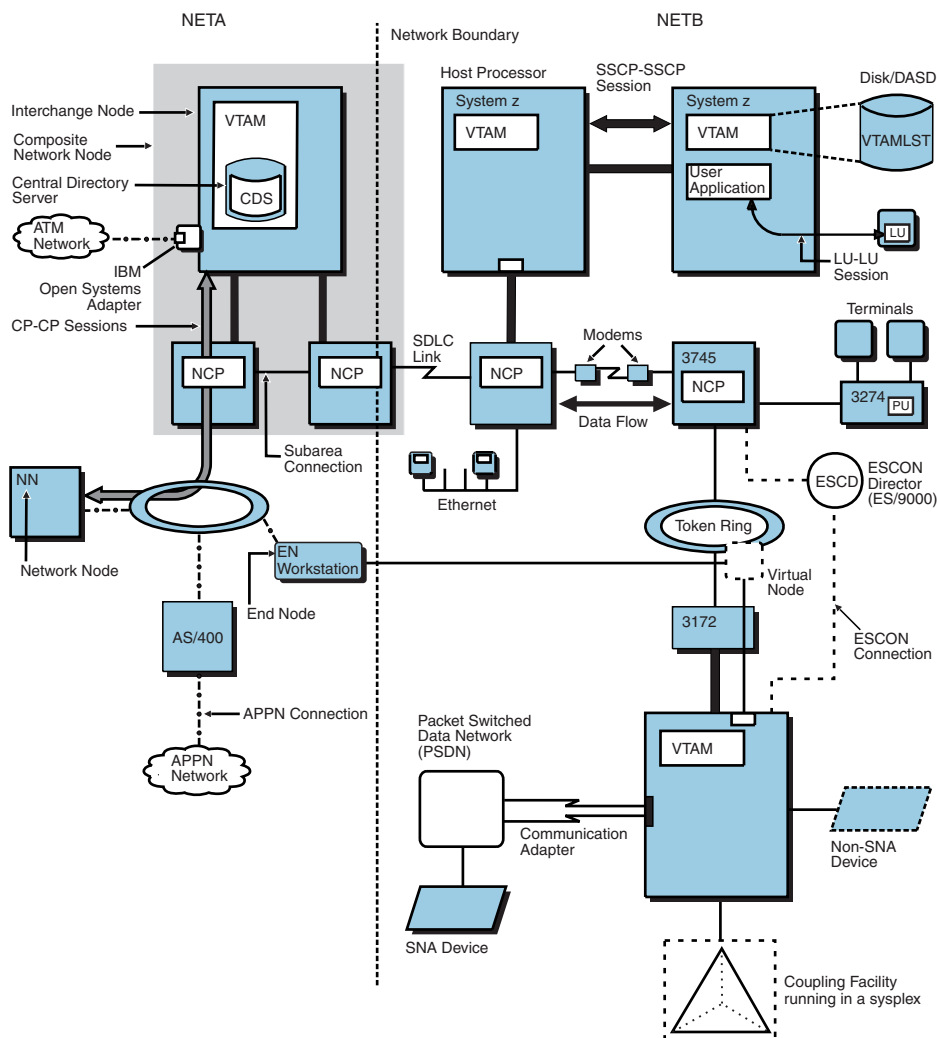


Figure 1. Conventions used in network illustrations

## How to use this document

To use this document, you should be familiar with the basic concepts of telecommunication, SNA, and VTAM.

## 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/commsserver/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 647.

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## 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

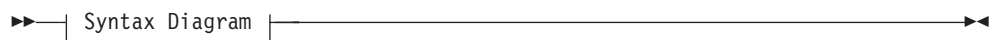
**Result** Indicates the outcome

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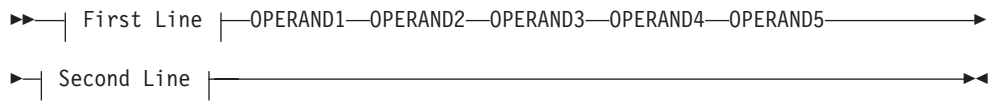
## How to read a syntax diagram

This section describes how to read the syntax diagrams used in this book.

- Read the diagrams from left-to-right, top-to-bottom, following the main path line. Each diagram begins on the left with double arrowheads (▶▶) and ends on the right with two arrowheads facing each other (◀▶).



- If a diagram is longer than one line, the first line ends with a single arrowhead (▶) and the second line begins with a single arrowhead.



- Required operands and values appear on the main path line.

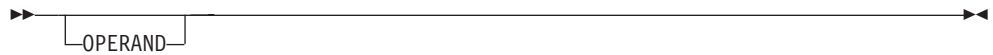


You must code required operands and values.

If there is more than one mutually exclusive required operand or value to choose from, they are stacked vertically in alphanumeric order.

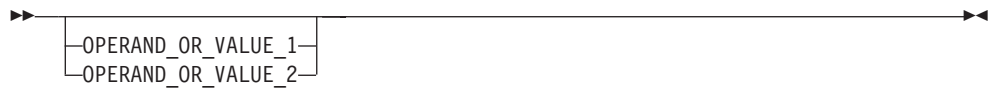


- Optional operands and values appear below the main path line.



You can choose not to code optional operands and values.

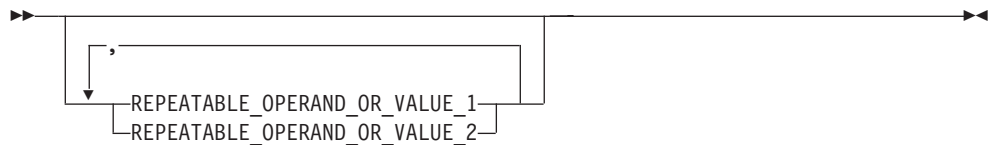
If there is more than one mutually exclusive optional operand or value to choose from, they are stacked vertically in alphanumeric order below the main path line.



- An arrow returning to the left above an operand or value on the main path line means that the operand or value can be repeated. The comma means that each operand or value must be separated from the next by a comma.



- An arrow returning to the left above a group of operands or values means more than one can be selected, or a single one can be repeated.



- A word in all uppercase is an operand or value you must spell exactly as shown. In this example, you must code *OPERAND*.

**Note:** VTAM and IP commands are not case sensitive. You can code them in uppercase or lowercase. If the operand is shown in both uppercase and lowercase, the uppercase portion is the abbreviation (for example, OPERand).

▶▶—OPERAND—◀◀

If an operand or value can be abbreviated, the abbreviation is described in the text associated with the syntax diagram.

- If a diagram shows a character that is not alphanumeric (such as parentheses, periods, commas, and equal signs), you must code the character as part of the syntax. In this example, you must code *OPERAND=(001,0.001)*.

▶▶—OPERAND=—(—001—,—0.001—)—◀◀

- If a diagram shows a blank space, you must code the blank space as part of the syntax. In this example, you must code *OPERAND=(001 FIXED)*.

▶▶—OPERAND=—(—001— —FIXED—)—◀◀

- Default operands and values appear above the main path line. VTAM uses the default if you omit the operand entirely.

▶▶—

DEFAULT
OPERAND

—◀◀

- A word in all lowercase italics is a *variable*. Where you see a variable in the syntax, you must replace it with one of its allowable names or values, as defined in the text.

▶▶—*variable*—◀◀

- References to syntax notes appear as numbers enclosed in parentheses above the line. Do not code the parentheses or the number.

(1)  
▶▶—OPERAND—◀◀

#### Notes:

1 An example of a syntax note.

- Some diagrams contain *syntax fragments*, which serve to break up diagrams that are too long, too complex, or too repetitious. Syntax fragment names are in mixed case and are shown in the diagram and in the heading of the fragment. The fragment is placed below the main diagram.

▶▶—| Reference to Syntax Fragment |—◀◀

#### Syntax Fragment:

|—1ST\_OPERAND—,—2ND\_OPERAND—,—3RD\_OPERAND—|



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## 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 627, 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
<i>IBM System z Redbooks Collection</i>	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 <a href="http://www-03.ibm.com/systems/z/os/zos/zfavorites/">http://www-03.ibm.com/systems/z/os/zos/zfavorites/</a> .

### 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](http://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
<i>DNS and BIND</i> , Fifth Edition, O'Reilly Media, 2006	ISBN 13: 978-0596100575
<i>Routing in the Internet</i> , Second Edition, Christian Huitema (Prentice Hall 1999)	ISBN 13: 978-0130226471
<i>sendmail</i> , Fourth Edition, Bryan Costales, Claus Assmann, George Jansen, and Gregory Shapiro, O'Reilly Media, 2007	ISBN 13: 978-0596510299
<i>SNA Formats</i>	GA27-3136

<b>Title</b>	<b>Number</b>
<i>TCP/IP Illustrated, Volume 1: The Protocols</i> , W. Richard Stevens, Addison-Wesley Professional, 1994	ISBN 13: 978-0201633467
<i>TCP/IP Illustrated, Volume 2: The Implementation</i> , Gary R. Wright and W. Richard Stevens, Addison-Wesley Professional, 1995	ISBN 13: 978-0201633542
<i>TCP/IP Illustrated, Volume 3: TCP for Transactions, HTTP, NNTP, and the UNIX Domain Protocols</i> , W. Richard Stevens, Addison-Wesley Professional, 1996	ISBN 13: 978-0201634952
<i>TCP/IP Tutorial and Technical Overview</i>	GG24-3376
<i>Understanding LDAP</i>	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
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.

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

Title	Number
<i>TCP/IP Tutorial and Technical Overview</i>	GG24-3376
<i>Threadsafe Considerations for CICS</i>	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/](http://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/atmastr.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 III1334.

**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](http://www-01.ibm.com/support/knowledgecenter/zosbasics/com.ibm.zos.zbasics/homepage.html)



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## 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.

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### 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 Operation, SC27-3673-01, which supported z/OS Version 2 Release 1.

#### Changed information

- Shared Memory Communications over RDMA adapter (RoCE) virtualization, see the following topics:
  - “DISPLAY ID command” on page 136
  - “DISPLAY TRL command” on page 319
  - “MODIFY CSDUMP command” on page 365
  - “START command” on page 507

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### Changes made in z/OS Version 2 Release 1, as updated September 2014

This document contains information previously presented in z/OS Communications Server: SNA Operation, SC27-3673-00, which supported z/OS Version 2 Release 1.

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### 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





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## Chapter 1. Introducing an operator to VTAM

The most common types of operator tasks are those associated with monitoring and controlling the network. The portion of a network that you can control varies from one organization to another.

*Sphere of control* refers to the portion of the network you control and what operations you can perform on that portion of the network. Your sphere of control is limited by any restrictions on which portions of the network you can affect and which commands you can issue. Within your sphere of control, you can both monitor and control VTAM's domain. This means that you can view what is happening in your network and change network status as needed.

Your individual network will differ from that of other operators. The following information about monitoring and controlling the domain of VTAM includes a few examples of results of commands issued by an operator in the sample network.

Assume that the sample network consists of the resources shown in Figure 2 on page 2. This picture shows:

- Two sessions. One is between application CICS01 and logical unit L3A3767A. The other is between CICS01 and logical unit L3A3278A.
- Two cluster controllers. They are physical units P3A3767A and P3A3274A.
- Four workstations, identified as LUs.

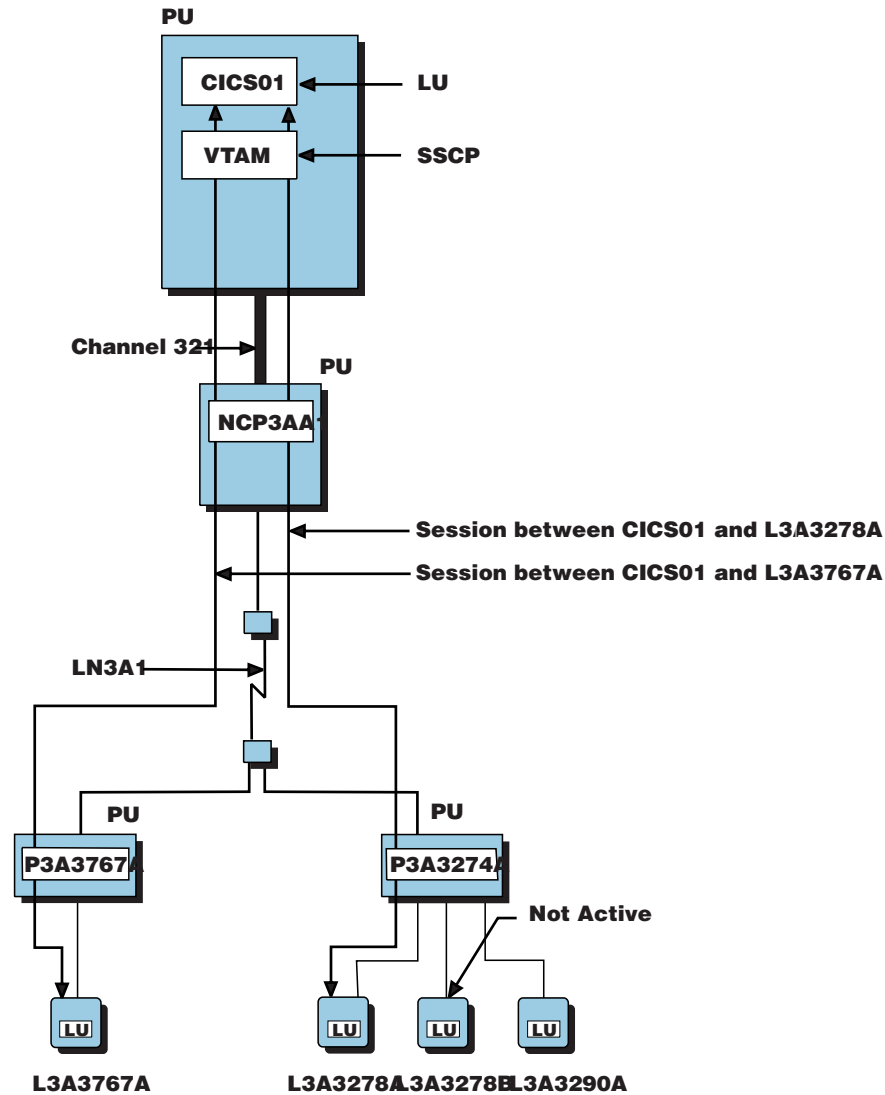


Figure 2. Sample VTAM network

## Monitoring VTAM

The term *monitor* means to watch something change, in order to ensure that the network is operating as planned. As you monitor VTAM, you can check on the status of the sessions between resources by using the various DISPLAY commands. A DISPLAY command enables VTAM to show information about your workstation screen.

This topic does not provide details of what each of the commands can do. You can find details about specific commands in Chapter 2, “VTAM operator commands,” on page 9.

Using the DISPLAY commands, you can see the status of the network or its resources. Status shows whether the network or its individual resources are up

(active) or down (inactive). DISPLAY commands also provide information about which resources have been defined to VTAM and where they are in the network hierarchy.

The following example illustrates the use of a DISPLAY command. The operator for the sample network shown in Figure 2 on page 2 enters the following DISPLAY command:

```
d net,id=CICS01,scope=all
```

**Note:** In VTAM, the operator can use the abbreviation “d” instead of “DISPLAY” in the command DISPLAY NET,ID=CICS01,SCOPE=ALL.

Within this topic, the abbreviated forms of commands (d=DISPLAY, v=VARY, and f=MODIFY) are used. VTAM accepts commands in either lowercase or uppercase.

The displays shown in the scenarios might differ from what you would see in your network. For example, if the MSGMOD=YES start option is specified in your network, the output would differ from these samples, which reflect MSGMOD=NO.

When you enter this command, VTAM shows all active sessions with the CICS01 application program. Details about this and other commands used in this scenario are provided in Chapter 2, “VTAM operator commands,” on page 9.

The display shows VTAM's response:

```
d net,id=CICS01,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.CICS01, TYPE = APPL
IST486I STATUS= ACT/S, DESIRED STATE= ACTIV
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I APPL MAJOR NODE = APPL1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST271I JOBNAME = ECHO, STEPNAME = ECHO, DSPNAME = 0AAACIST
IST228I ENCRYPTION = OPTIONAL, TYPE = DES
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST171I ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST634I NAME      STATUS      SID          SEND RECV VR TP NETID
IST635I L3A3278A  ACTIV-S    EAABEEC3FF8D8965 0000 0000 4 0 NETA
IST635I L3A3767A  ACTIV-P    F6ABEEC3028D8998 0000 0000 4 0 NETA
IST314I END
```

**Note:** The highlighted fields and values in this and later samples are explained in the text.

In this display:

- IST486I indicates that the application program is active with sessions (ACT/S) and that the desired state for this application program is active.
- IST171I shows that there are two sessions with this application program and that no session requests are pending.
- IST635I lists the logical units that are in session with this application program.

In your network, you can also display information about physical and logical resources, check to see whether your domain's VTAM is connected to any other VTAM domains, and view routes (logical connections) that are being used.

The operator enters another DISPLAY command as follows:

```
d net,id=LN3A1,scope=all
```

The operator uses this command to display line LN3A1 and the resources that are attached to the line.

The display shows VTAM's response:

```
d net,id=LN3A1,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = LN3A1, TYPE = LINE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = LEASED , CONTROL = SDLC
IST134I GROUP = GRP3A1, MAJOR NODE = NCP3AA1
IST084I NETWORK NODES:
IST089I P3A3767A TYPE = PHYSICAL UNIT , ACTIV
IST089I L3A3767A TYPE = LOGICAL UNIT , ACTIV
IST089I P3A3274A TYPE = PHYSICAL UNIT , ACTIV
IST089I L3A3278A TYPE = LOGICAL UNIT , ACTIV
IST089I L3A3278B TYPE = LOGICAL UNIT , NEVAC
IST089I L3A3290A TYPE = LOGICAL UNIT , ACTIV
IST314I END
```

In this display:

- IST087I indicates that the line is a leased (nonswitched) line.
- IST089I shows two physical units and four logical units attached to the communication controller.
- One of the logical units (L3A3278B) has never been activated (NEVAC).

The operator enters another DISPLAY command as follows:

```
d net,id=L3A3278B,scope=all
```

VTAM displays the following information about logical unit L3A3278B:

```
d net,id=L3A3278B,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.L3A3278B, TYPE = LOGICAL UNIT
IST486I STATUS= NEVAC, DESIRED STATE= INACT
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=MODETAB2 USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU INHIBITED,SLU INHIBITED,SESSION LIMIT 00000001
IST081I LINE NAME = LN3A1, LINE GROUP = GRP3A1, MAJNOD = NCP3AA1
IST135I PHYSICAL UNIT = P3A3274A
IST082I DEVTYPE = LU
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST228I ENCRYPTION = NONE, TYPE = DES
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST172I NO SESSIONS EXIST
IST314I END
```

In this display, IST486I indicates that the current state of the logical unit is NEVAC, which means the logical unit was never activated, and that the desired state is INACT. It indicates that VTAM is not attempting to activate its subordinate resources because no request was made to do so.

---

## Controlling VTAM

The term *control*, within VTAM, means that VTAM can be started or stopped, or that VTAM and the network resources can be changed. The types of commands that you use to start, stop, or change VTAM are:

- START
- HALT
- VARY
- MODIFY

### Starting VTAM

You use the START command to activate VTAM. This command uses some defaults set by the system programmer (as part of the network definition). When you use the START command, you might be required to enter changes or additions to the defaults. If so, your system programmer can tell you what commands to enter.

The defaults for the START command are contained in the configuration list and start list that are defined by the system programmer. The *configuration list* contains a list of VTAM resources. VTAM uses this list to find out what resources to activate when VTAM is first started. A network can have more than one configuration list; this allows different configurations to be started at start time.

The *start list* contains VTAM operating system options. For example, it defines how storage is to be used and indicates whether VTAM suppresses or shows messages. The start list also identifies which configuration list is to be used for startup.

### Stopping VTAM

You can use the HALT commands to shut down (deactivate) the network.

Different versions of the HALT command cause varying degrees of disruption to a network. When selecting which HALT command to use, be sure to check your local operating procedure to ensure that you use the appropriate command for your situation.

One reason for being cautious with use of the HALT command is that you could interrupt productive work for everyone using the system. The results of halting VTAM are similar to disconnecting all phone lines for an office building.

### Changing VTAM with VARY commands

One way you can change VTAM is by using a VARY command. The VARY commands affect the status of each physical resource and session. They enable you to activate and deactivate individual resources or sessions. Using VARY commands, you can change the status of all resources, and you can change VTAM internal operations, such as path definitions.

In an earlier scenario, the inactive logical unit L3A3278B was shown as being downstream from NCP3AA1. To review the status of this LU, the operator enters:

```
d net,id=L3A3278B,scope=all
```

The display shows that the logical unit is still inactive.

```

d net,id=L3A3278B,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.L3A3278B, TYPE = LOGICAL UNIT
IST486I STATUS= NEVAC, DESIRED STATE= INACT
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=MODETAB2 USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU INHIBITED,SLU INHIBITED,SESSION LIMIT 00000001
IST081I LINE NAME = LN3A1, LINE GROUP = GRP3A1, MAJNOD = NCP3AA1
IST135I PHYSICAL UNIT = P3A3274A
IST082I DEVTYPE = LU
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST228I ENCRYPTION = NONE, TYPE = DES
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST172I NO SESSIONS EXIST
IST314I END

```

To activate the previously inactive logical unit, the operator enters:

```
v net,act,id=L3A3278B
```

The display shows:

```

v net,act,id=L3A3278B
IST097I VARY ACCEPTED
IST093I L3A3278B ACTIVE

```

If the operator reissues the DISPLAY command, the display changes as shown:

```

d net,id=L3A3278B,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.L3A3278B, TYPE = LOGICAL UNIT
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=MODETAB2 USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU INHIBITED,SLU ENABLED ,SESSION LIMIT 00000001
IST081I LINE NAME = LN3A1, LINE GROUP = GRP3A1, MAJNOD = NCP3AA1
IST135I PHYSICAL UNIT = P3A3274A
IST082I DEVTYPE = LU
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST228I ENCRYPTION = NONE, TYPE = DES
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST172I NO SESSIONS EXIST
IST314I END

```

In this display, IST486I indicates that the desired and current states are now active.

## Changing VTAM with MODIFY commands

You can use the MODIFY commands to change the start list options and other operating system options, such as: mode table definitions, how storage is to be used, and what type of trace is to be used.

To display an input or output (I/O) trace for the host PU specified in the start options (in this case, ISTPUS), the operator enters:

```
d net,id=ISTPUS,scope=all
```

The display shows:

```

d net,id=ISTPUS,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = ISTPUS, TYPE = PU T4/5 060
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST596I IRN TRACE = OFF
IST1656I VTAMTOPO = INCLUDE, NODE REPORTED - YES

```

```
IST484I SUBAREA = 1
IST925I DYNAMIC PATH DEFINITION PATH1A STATUS = ACTIV
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST170I LINES:
IST080I 091C-L  ACTIV----I
IST314I END
```

To start the trace, the operator enters:

```
f net,trace,type=io,id=istpus
```

**Note:** The abbreviation for MODIFY is **f** and the procedure name (procname) is NET. See “VTAM operator command fundamentals” on page 9 for an explanation about the purpose and use of procname.

The display shows:

```
f net,trace,type=io,id=istpus
IST097I MODIFY ACCEPTED
IST1515I IO TRACE ACTIVE
IST513I TRACE INITIATED FOR NODE ISTPUS
IST315I VTAM INTERNAL TRACE ACTIVE - MODE = INT, SIZE = 0010 MB
IST199I OPTIONS = API APPC CFS CIO CMIP CSM ESC HPR LCS LOCK MSG NRM
IST199I OPTIONS = PIU PSS SMS SSCP TCP VCNS XBUF XCF
IST315I VTAM INTERNAL TRACE ACTIVE - MODE = EXT, SIZE = 0002 BUFFERS
IST199I OPTIONS = NONE
IST314I END
```

If the operator reissues the DISPLAY command, the display changes:

```
d net,id=ISTPUS,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = ISTPUS, TYPE = PU T4/5 070
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST596I IRN TRACE = OFF
IST1656I VTAMTOPO = INCLUDE, NODE REPORTED - YES
IST484I SUBAREA = 1
IST925I DYNAMIC PATH DEFINITION PATH1A STATUS = ACTIV
IST654I I/O TRACE = ON, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST170I LINES:
IST080I 091C-L  ACTIV----I
IST314I END
```





---

## Chapter 2. VTAM operator commands

This topic is a reference to VTAM operator commands. It provides a description of the format and the applicable operands of each command. The commands are arranged alphabetically.

---

### VTAM operator command fundamentals

A VTAM operator command consists of the command name or its abbreviation, and various operands that describe the operation to perform. Each VTAM operator command has a procedure name, referred to as *procname* in the command syntax, which tells the operating system to route the command to VTAM for processing. Values for *procname* vary according to the command and the operating system but *procname* must always appear as the first operand of a command.

For example, the following command includes the verb (DISPLAY) and the *procname* (NET): DISPLAY

```
NET,LMTBL,ID=applname,TYPE=LUNAME,LUNAME=luname
```

- The value of *procname* for VTAM commands, other than the MODIFY command, is **NET**.
- The value of *procname* for the MODIFY commands depends on the value specified in the START command:
  - If *procname* was specified in the START command in the form *startname.ident*, where *startname* is the name of the VTAM start procedure and *ident* is an optional procedure name identifier, then *procname* can be specified as either *startname.ident* or simply *ident* for the MODIFY command.

For example, if the specification in the START command uses the *.ident* extension (NETID.ident), then the MODIFY command can use either of the following specifications:

```
MODIFY NETID.ident,NOTRACE,TYPE=BUF,ID=name,SCOPE=ONLY
```

```
MODIFY ident,NOTRACE,TYPE=BUF,ID=name,SCOPE=ONLY
```

- If *procname* was specified in the START command in the form *startname*, where *startname* is the name of the VTAM start procedure, then it must also be specified as *startname* for the MODIFY command.

So, if the *procname* specified in the START command is NETID, the MODIFY command shown in the following sample must also have the same *procname* specification:

```
MODIFY NETID,NOTRACE,TYPE=BUF,ID=name,SCOPE=ONLY
```

To avoid needless repetition, the NET operand is not described for every command. However, for MODIFY commands whose *procnames* depend upon the type of operating system used, each possibility is described.

### Entering operator commands

Operator commands are entered and VTAM messages are received at the system console or the remote network console.

VTAM operator commands and their formats are described later in this topic.

The length of a VTAM operator command that can be entered at a console is limited by operator command input devices, certain operator application programs, the VTAM program operator interface, and VTAM itself. In most cases, VTAM requires operator commands to be entered on a single input line. Two exceptions are:

- If you need to enter more start options than will fit on one input line, end the line with a comma. Then VTAM prompts you for additional start options.
- If a command that exceeds VTAM's command length limit is entered on the input line, the command is rejected even though it might fit on the input line. A message indicating the additional length limitation imposed by VTAM is issued. VTAM's command length limit can be reduced if PPOLOG=YES is specified in the START or MODIFY PPOLOG commands.

### **Valid and not valid commands**

VTAM issues messages that tell you whether the commands you entered were accepted or rejected. The acceptance of a command does not imply command completion. When a command is entered correctly, with valid operands, VTAM issues a message of acknowledgment. If a syntax error is made in entering a command, VTAM issues one or more error messages and rejects the command.

See *z/OS Communications Server: SNA Messages* for an explanation of error messages you might encounter.

### **Command verification exit routine**

In VTAM, you can use a command verification exit routine (ISTCMMND) to screen and manipulate commands issued by a VTAM operator. (The term operator includes a program operator.) The primary purpose of this installation-wide exit routine is to screen command requests that affect critical nodes in the network.

See the "MODIFY EXIT command" on page 392 for information about modifying an installation-wide exit routine. See *z/OS Communications Server: SNA Customization* for information about the command verification exit routine.

## **Controlling operator messages**

The message-flooding prevention facility identifies and suppresses duplicate messages which could overrun the operator console and conceal critical information. VTAM bases its suppression on the similarity of variable text in an original and subsequent message and a specified time interval between the two messages.

VTAM provides an external message-flooding prevention table that can be modified with the FLDTAB, FLDENT, and FLDEND macros. Using the FLDTAB start option or the MODIFY TABLE command, you can tell VTAM to use the default table supplied by IBM, use a user-defined table, or deny message-flooding prevention.

**Note:** You can specify only one message-flooding prevention table per VTAM.

The message-flooding prevention table identifies a list of messages that are candidates for flooding suppression. For each candidate message, the table identifies the criteria that must be met before VTAM suppresses duplicate messages. The suppression criteria include:

- The amount of time between the original and subsequent message
- An indication of which variable text fields are to be compared

- Whether a message is suppressed from the system hardcopy log

If the message is reissued within the specified time interval and the specified variable text fields contain the same information, VTAM suppresses the message.

You do not have to code anything to get message-flooding prevention; VTAM uses an internal default table when VTAM is initialized. To specify a user-defined table, code the name of that table under the FLDTAB start option. This table is built dynamically when VTAM is initialized. If errors are found while building the table, VTAM issues a message indicating that the table has errors and uses the internal default table. If you code FLDTAB=NONE as a start option, VTAM does not provide any message-flooding prevention.

You can also use the MODIFY TABLE command to replace the table, or to change or delete resource associations to the table without affecting other VTAM operations. While VTAM is building the new message-flooding prevention table, it uses the current table. When VTAM verifies that the new table has been successfully built, VTAM replaces the existing table and begins using the new table. If you issue the MODIFY TABLE command to build a message-flooding prevention table, and there are unrecoverable errors in the table, VTAM continues using the previous message-flooding prevention table (if one was in use) until the new table successfully builds.

While you are using a message-flooding prevention table, be aware of the effect on problem determination. If a command is issued twice within the time span specified in the message-flooding prevention table, any message sent to the operator by that command that is also a member of the table is suppressed for the second command. Because the table prevents messages from being issued by VTAM, this could affect CLISTS or automated operations facilities.

For messages that are part of a message group, VTAM searches the message-flooding prevention table for the header message of the group. If the header message is found and meets the suppression criteria, VTAM suppresses the whole message group. If the header message is not found in the table, VTAM will not suppress any message in the message group, including those that are listed in the table.

## Using wildcard names

A wildcard is a character used to represent an unspecified resource name or an unspecified part of a resource name. It is used by the VTAM operator to broaden the scope of a display or to find the name of a resource. Depending on the value of the DSPLYWLD start option, the use of wildcards might be allowed in the value specified for the ID operand of the following DISPLAY commands:

```
DISPLAY APPLS
DISPLAY CDRMS
DISPLAY CDRSCS
DISPLAY CLSTRS
DISPLAY CPCP
DISPLAY GRAFFIN
DISPLAY GROUPS
DISPLAY LINES
DISPLAY RSCLIST
DISPLAY STATIONS
```

DISPLAY TERMS  
DISPLAY TGPS  
DISPLAY TOPO  
DISPLAY TRACES

**Note:** For most of the referenced DISPLAY commands, the ID operand identifies the name of a major node. The use of wildcards in the value of the ID operand does not extend the display to include subordinate nodes. To display the subordinate nodes, use the DISPLAY RSCLIST command with the IDTYPE operand.

You cannot specify wildcards in the value of the ID operand on the DISPLAY TOPO command if you specify LIST=ALL or LIST=SUMMARY.

Depending on the value of the DSDPLYWLD start option, you might be able to specify wildcards in the value you specify for the ORIG, VRN, and DEST operands of the DISPLAY TOPO,LIST=UNRCHTIM command.

You can specify wildcards in the value for the EXCLUDE operand of the DISPLAY RSCLIST command, and in the values for the LU and GNAME operands of the DISPLAY GRAFFIN command.

**Attention:** Specifying a wildcard name might degrade performance because VTAM checks every resource of a particular type in the network, depending on the command and operands issued.

VTAM recognizes two wildcard characters for these commands:

**asterisk (\*)**

Represents a string of unspecified characters

**question mark (?)**

Represents a single unspecified character.

The following examples show how to use wildcard names with the DISPLAY RSCLIST command:

**ID=\*** Displays all resource names

**ID=APP\***

Displays resource names that start with *APP*

**ID=\*01**

Displays resource names that end with *01*

**ID=APPL\*01**

Displays resource names that begin with *APPL* and end with *01*

**ID=APPL0??**

Displays resource names that begin with *APPL0* followed by exactly two characters

**ID=A\*P?1**

Displays resource names that start with *A* and end with *Px1* where *x* is any single character

**ID=?APP\***

Displays resource names that begin with any single character followed by *APP* and followed by any other characters

**ID=??\***

Displays resource names of two or more characters

**ID=(AA00,APP\*,\*01)**

Displays the first resource, then all resource names that start with *APP*, then all resources names that end with *01*.

The following examples show how to use wildcard names with network-qualified names (DISPLAY RSCLIST, DISPLAY TOPO, and DISPLAY TRACES,TYPE=NODES commands):

**ID=NETA.APP\***

Displays resource names in NETA that begin with *APP*

**ID=NET\*.A\***

Displays resource names that start with *A* and have a network-qualified name that begins with *NET*

**ID=N\*A.A01**

Displays all resources with the name *A01* with a network-qualified name that begins with *N* and ends with *A*

**ID=NETA.\***

Displays all resources in NETA

**ID=\*.??**

Displays resources in any network with exactly two characters

**ID=(A\*,NETB.AP\*,APPL2\*,T??)**

Displays:

- Resource names that begin with *A*
- Resource names in NETB that begin with *AP*
- APPL2
- Resources in any network whose name begins with *T* followed by exactly two characters

**Restriction:** The CPNAME and FIRSTCP operands of the D NET,RTPS operator command allow a restricted use of the asterisk. Their use of the asterisk might be only of the form *netid.\**, and is not governed by the DSPLYWLD start option. The following two examples show how to use the asterisk for the D NET,RTPS operands:

**CPNAME=NETA.\***

Only HPR pipes whose destination CP is in the netid of NETA are displayed.

**FIRSTCP=NETB.\***

Only HPR pipes whose first hop is to a CP with a netid of NETB are displayed.

## Using MVS system symbols

You can use the following MVS system symbols in the values you specify on VTAM network operator commands:

**&SYSCONE**

Represents a 1–2-character shorthand notation for the name of the system

**&SYSNAME**

Represents a 1–8-character system name

**&SYSPLEX**

Represents a 1–8-character sysplex name

**&SYSR1**

Represents a 1–6-character sysres volume

***&installation-defined system symbol***

Represents a 1–8-character identifier. You can define this symbol to be any identifier you want.

The substitution text for these system symbols is defined in MVS and is substituted by MVS in place of the symbols when commands are processed. See *z/OS MVS Initialization and Tuning Reference* for information about how to define the symbols in MVS.

MVS system symbols can be used to eliminate the need to know the exact name of a resource on the system from which a command is issued.

## Unformatted system services command syntax

The unformatted system services (USS) table defines the format or syntax of commands that the operator enters. USS commands that can be found in this table include all:

- DISPLAY commands
- MODIFY commands
- VARY commands

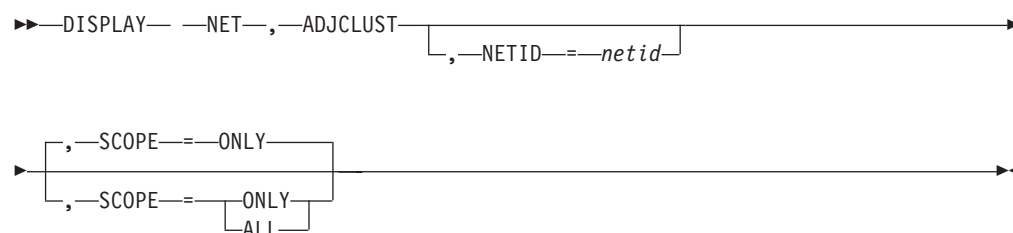
When one of the preceding commands is entered by a VTAM operator (including a program operator), USS performs the following actions:

- Supplies default values for omitted operands.
- Detects duplicate or conflicting operands. In either case the command is rejected and an error message is issued.
- Converts abbreviations or user-defined keywords into keywords acceptable to VTAM command processors. For example, if `OPT=CIO` is entered on the `MODIFY TRACE` command, USS converts it to `OPTION=CIO` because `OPT` is defined as an abbreviation for the `OPTION` operand.

The command conversions that are to be done by USS are defined in the IBM-supplied USS table, `ISTINCNO`. The system programmer can supply a modified syntax for these commands by using USS facilities. If the syntax of a command has been changed, it is the responsibility of the system programmer to supply the operator with an explanation of the new command syntax. For more information about USS tables, see the *z/OS Communications Server: SNA Resource Definition Reference*.

Enter the procedure name or *procname* as the first operand in a USS command. You can enter additional operands in any order. Exceptions to this include operands that normally contain a keyword, but can be abbreviated with a single value (for example, `SCOPE=ALL` can be abbreviated as `ALL` on the `VARY ACT` command and `TYPE=IMMED` can be abbreviated as `IMMED` or `I` on the `VARY INACT` command). In cases when an operand is coded using an abbreviation and the abbreviation does not include the keyword, the operand must not immediately follow the procedure name.

## DISPLAY ADJCLUST command



### Abbreviations

Operand	Abbreviation
DISPLAY	D
SCOPE=ALL	EVERY or E
SCOPE=ONLY	NONE or N

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for SCOPE=ALL, code only EVERY or E. Do not code SCOPE=E.

### Purpose

The DISPLAY ADJCLUST (adjacent cluster table) command displays the adjacent cluster (routing) tables and their entries in the order to be used for APPN searches. The entries in the tables include all user-defined entries, along with any dynamic entries that have been added, based on the current value of the BNDYN start option.

**Note:** The order of the entries for a search can be affected by APPN directory entries and the directory services management exit.

### Operands

#### NETID=*netid*

Specifies the destination network for the adjacent cluster table to be displayed.

#### SCOPE

Determines the range of adjacent cluster tables to be displayed.

#### SCOPE=ALL

Specifies that all adjacent cluster tables are to be displayed. This option is ignored if the NETID operand is specified.

#### SCOPE=ONLY

- If the NETID operand is specified, VTAM displays adjacent cluster definitions that match the destination network.
- If the NETID operand is not specified, VTAM displays adjacent cluster definitions for the default destination network.

### Resulting display

The resulting display shows whether the table is a user-defined, default, or dynamically built table, the level of dynamics used for the table, and the status of



## DISPLAY ADJCLUST

each entry. Defined entries are displayed regardless of their status. If a defined entry is displayed as inactive, it will not be included in a search. Dynamic entries are displayed only if they are active.

- A user-defined table indicates that adjacent cluster definition statements exist for the specified NETID.
- A default routing table is used when no defined entries exist for the specified NETID, but a default table has been coded. A default table indicates how to route requests when the specified NETID is not defined.
- A dynamically-built routing table is created when no defined or default routing table exists. This table is created completely from active dynamic routing information.

### Examples

Displaying the user-defined adjacent cluster table for a specific network:

```
d net,adjclust,netid=neta
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = ADJACENT CLUSTER TABLE
IST2207I DEFINED TABLE FOR NETA
IST2208I BNDYN = LIMITED FROM START OPTION
IST2208I BNORD = PRIORITY FROM START OPTION
IST1326I CP NAME          TYPE    STATE    STATUS    SNVC
IST1327I NETA.BN3        DEFINED ACTIVE  FOUND     003
IST1327I NETA.BN2        DEFINED NOT ACTIVE NOT SEARCHED 003
IST1327I NETA.BN1        DYNAMIC ACTIVE  NOT SEARCHED N/A
IST314I END
```

Displaying a default adjacent cluster table for a specific network:

```
d net,adjclust,netid=netb
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = ADJACENT CLUSTER TABLE
IST2207I DEFAULT TABLE FOR NETB
IST2209I BNDYN = LIMITED FROM ADJCLUST TABLE
IST2208I BNORD = PRIORITY FROM START OPTION
IST1326I CP NAME          TYPE    STATE    STATUS    SNVC
IST1327I NETB.BN4        DEFINED ACTIVE  NOT SEARCHED 004
IST1327I NETB.BN5        DYNAMIC ACTIVE  NOT SEARCHED 003
IST314I END
```

Displaying a dynamically built adjacent cluster table:

```
d net,adjclust,netid=netc
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = ADJACENT CLUSTER TABLE
IST2207I DYNAMIC TABLE FOR NETC
IST2208I BNDYN = LIMITED FROM START OPTION
IST2208I BNORD = PRIORITY FROM START OPTION
IST1326I CP NAME          TYPE    STATE    STATUS    SNVC
IST1327I NETC.BN6        DYNAMIC ACTIVE  FOUND     003
IST314I END
```

---

## DISPLAY ADJCP command

►►—DISPLAY— —NET—,—ADJCP—,—ID—=*adjacent\_cp\_name*—►►





## Abbreviations

Operand	Abbreviation
DISPLAY	D
SCOPE=ALL	EVERY or E
SCOPE=ONLY	NONE or N

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for SCOPE=ALL, code only EVERY or E. Do not code SCOPE=E.

## Purpose

The DISPLAY ADJCP (adjacent control point) command displays the attributes of a specific adjacent node and the connections in which it is currently involved.

**Note:** With high performance routing (HPR), a control point does not have to be physically adjacent to be displayed by this command. Each endpoint of an RTP connection considers the other endpoint an adjacent control point, even though there may be intermediate ANR-capable nodes between the two endpoints.

This command is valid only when it is issued at an APPN node (network node, end node, interchange node, or migration data host).

## Operands

### ID=adjacent\_cp\_name

Specifies the network-qualified name of the adjacent control point. If the network identifier is not provided, it is assumed to be the issuing network's network identifier. You can specify \* (or \*NETWORK) as the network ID portion of a network-qualified adjacent CP name in order to display adjacent CPs that do not currently have a network identifier assigned to them. For example, the following command is valid if A01N currently does not have a network ID associated with it:

```
D NET,ADJCP,ID=*.a01n
```

### SCOPE

Specifies the required scope of the display.

#### SCOPE=ONLY

Displays the status and the major node name for the adjacent control point.

#### SCOPE=ALL

Displays the status, the major node name, the node type, and detailed connection information for the adjacent control point.

## Resulting display

The resulting VTAM display shows:

## DISPLAY ADJCP

- For SCOPE=ONLY, the status and the major node name for the adjacent control point.
- For SCOPE=ALL:
  - Status of the adjacent CP
  - Major node name
  - Node type
  - Number of connections
  - Number of CP-CP capable connections
  - An indication of whether the node being displayed is in the same subnetwork as the node where you are issuing the display
  - Resource name and status
  - TG number
  - An indication of CP-CP session capability
  - TG characteristics
  - Rapid transport protocol (RTP) summary

For a byte-by-byte explanation of the TG characteristics, see the “DISPLAY TGPS command” on page 285.

### Examples

Displaying an adjacent CP:

```
d net,adjcp,id=a01n,scope=only
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = ADJACENT CONTROL POINT
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1197I ADJCP MAJOR NODE = ISTDJCP
IST314I END
```

Displaying detailed information for a physically adjacent CP with no RTP connection:

```
d net,adjcp,id=sscpaa,scope=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = ADJACENT CONTROL POINT
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV - TRACE= OFF
IST1197I ADJCP MAJOR NODE = ISTDJCP
IST1101I ADJCP DISPLAY SUMMARY FOR NETA.SSCPAA
IST1102I NODENAME          NODETYPE CONNECTIONS CP CONNECTIONS NATIVE
IST1103I NETA.SSCPAA      NN          1          1          YES
IST2157I ALIASRCH = *NA
IST1104I CONNECTION SUMMARY FOR NETA.SSCPAA
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I PU1A7B4 AC/R    21 YES    988D000000000000000017100808
IST1493I RTP SUMMARY FOR NETA.SSCPAA COUNT = 1 RTPONLY = NA
IST172I NO RTPS FOUND
IST314I END
```

Displaying detailed information for a physically adjacent CP with an RTP connection:

```
d net,adjcp,id=sscp2a,scope=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = ADJACENT CONTROL POINT
IST486I STATUS= ACT/S, DESIRED STATE= ACTIV
IST1197I ADJCP MAJOR NODE = ISTDJCP
IST1101I ADJCP DISPLAY SUMMARY FOR NETA.SSCP2A
IST1102I NODENAME          NODETYPE CONNECTIONS CP CONNECTIONS NATIVE
IST1103I NETA.SSCP2A      NN          1          1          YES
```

```

IST2157I ALIASRCH = *NA
IST1104I CONNECTION SUMMARY FOR NETA.SSCP2A
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I AHHCPU1 AC/R 21 YES 988D0000000000000000000014C00808080
IST1500I STATE TRACE = OFF
IST1493I RTP SUMMARY FOR NETA.SSCP2A COUNT = 1 RTPONLY = NA
IST1486I RTP NAME STATE DESTINATION CP MNPS TYPE
IST1487I CNR00001 CONNECTED NETA.SSCP2A NO CPCP
IST314I END

```

Displaying detailed information for a CP that is not physically adjacent, but has an RTP connection:

```

d net,adjcp,id=sscpaa,scope=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = ADJACENT CONTROL POINT
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV - TRACE= OFF
IST1197I ADJCP MAJOR NODE = ISTADJCP
IST1101I ADJCP DISPLAY SUMMARY FOR NETA.SSCPAA
IST1102I NODENAME          NODETYPE CONNECTIONS CP CONNECTIONS NATIVE
IST1103I NETA.SSCPAA      NN          0          0          *NA*
IST2157I ALIASRCH = *NA
IST1104I CONNECTION SUMMARY FOR NETA.SSCPAA
IST172I NO CONNECTIONS FOUND
IST1493I RTP SUMMARY FOR NETA.SSCPAA COUNT = 1 RTPONLY = NA
IST1486I RTP NAME STATE DESTINATION CP MNPS TYPE
IST1487I CNR00001 CONNECTED NETA.SSCPAA NO CPCP
IST314I END

```

From a border node, displaying detailed information for a CP that is not physically adjacent, but has an RTP connection:

```

d net,adjcp,id=sscpaa,scope=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = ADJACENT CONTROL POINT
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV - TRACE= OFF
IST1197I ADJCP MAJOR NODE = ISTADJCP
IST1101I ADJCP DISPLAY SUMMARY FOR NETA.SSCPAA
IST1102I NODENAME          NODETYPE CONNECTIONS CP CONNECTIONS NATIVE
IST1103I NETA.SSCPAA      NN          0          0          *NA*
IST2157I ALIASRCH = *NA
IST1104I CONNECTION SUMMARY FOR NETA.SSCPAA
IST172I NO CONNECTIONS FOUND
IST1493I RTP SUMMARY FOR NETA.SSCPAA COUNT = 1 RTPONLY = NA
IST1486I RTP NAME STATE DESTINATION CP MNPS TYPE
IST1487I CNR00001 CONNECTED NETA.SSCPAA NO CPCP
IST314I END

```

From a border node, displaying detailed information for a physically adjacent non-native CP with RTP connections:

```

d net,adjcp,id=netb.sscpba,scope=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = ADJACENT CONTROL POINT
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1197I ADJCP MAJOR NODE = ADJCP1A
IST1101I ADJCP DISPLAY SUMMARY FOR NETB.SSCPBA
IST1102I NODENAME          NODETYPE CONNECTIONS CP CONNECTIONS NATIVE
IST1103I NETB.SSCPBA      NN          1          1          NO
IST2157I ALIASRCH = NO
IST2251I AUTHORIZED NETID LIST FOR BORDER NODE SEARCHING:
IST2252I NETA      NETC      NETZ
IST1104I CONNECTION SUMMARY FOR NETB.SSCPBA
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I AHHCPU1 AC/R 21 YES 988D00000000000000000000100014C00808080
IST1500I STATE TRACE = OFF
IST1493I RTP SUMMARY FOR NETB.SSCPBA COUNT = 2 RTPONLY = NO

```

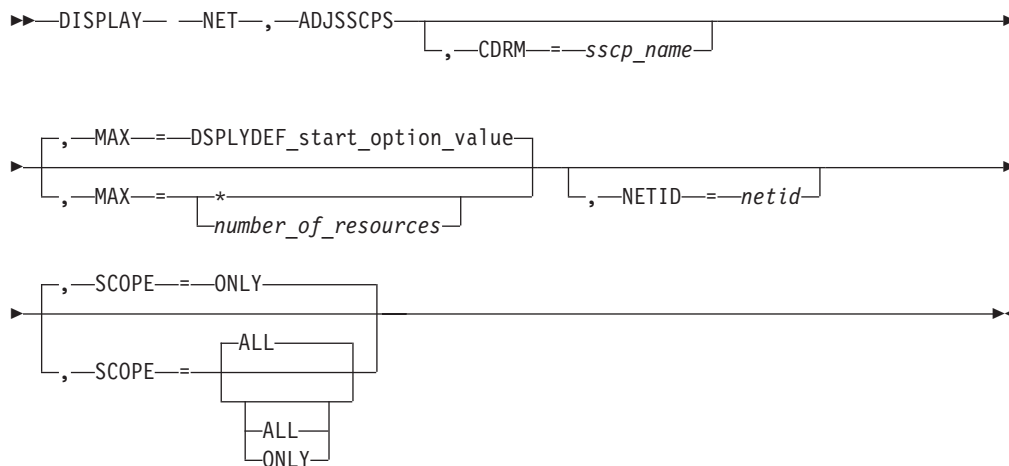
## DISPLAY ADJCP

IST1486I	RTP NAME	STATE	DESTINATION CP	MNPS	TYPE
IST1487I	CNR00002	CONNECTED	NETB.SSCPBA	NO	CPCP
IST1487I	CNR00001	CONNECTED	NETB.SSCPBA	NO	CPCP
IST314I	END				

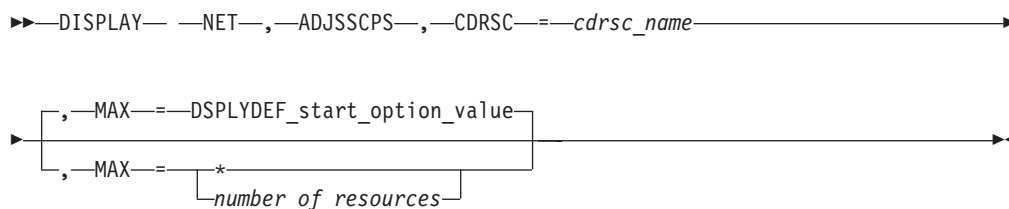
---

## DISPLAY ADJSSCPS command

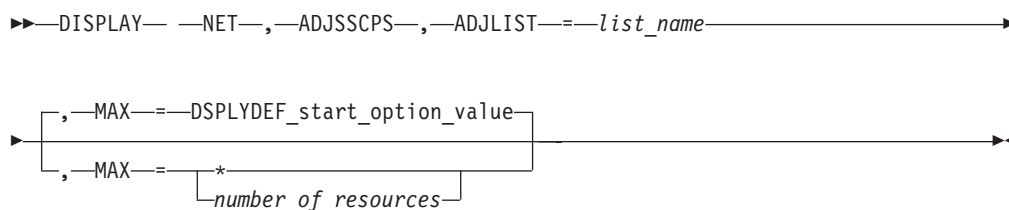
### Display user-defined and dynamic adjacent SSCP tables:



### Display the adjacent SSCP table for a specific cross-domain resource:

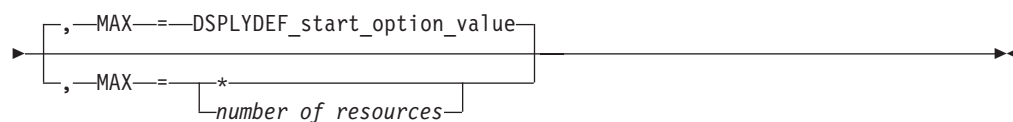


### Display a specific list of adjacent CDRMs used for session requests:



### Display all lists of adjacent CDRMs:





## Abbreviations

Operand	Abbreviation
DISPLAY	D
SCOPE=ALL	EVERY or E
SCOPE=ONLY	NONE or N

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for SCOPE=ALL, code only EVERY or E. Do not code SCOPE=E.

## Purpose

The DISPLAY ADJSSCPS (adjacent system services control points) command displays user-defined and dynamically built adjacent SSCP tables and user-defined adjacent CDRM lists. If a user-defined adjacent SSCP table or CDRM list exists, VTAM displays information from that table or list. If no user-defined table exists, or if there is a table, but it does not contain any applicable entries, VTAM displays information from the dynamic adjacent SSCP table.

If you specify a CDRSC on this command, VTAM displays the dynamic adjacent SSCP table for the cross-domain resource, along with status information for the resource.

## Operands

### ADJLIST

Specifies that one or more lists of adjacent CDRMs are to be displayed. If you specify ADJLIST, do not specify any other operands on the command.

#### ADJLIST=list\_name

Displays the list of adjacent CDRMs identified by *list\_name*.

#### ADJLIST=\*

Displays all lists of adjacent CDRMs.

### CDRM=sscp\_name

Specifies that information is to be displayed about the adjacent SSCP table or tables for the specified CDRM. The *sscp\_name* may not be a network-qualified name; however, you can use the NETID operand to specify the network. If you specify CDRM, do not specify CDRSC on the same command.

### CDRSC=cdrsc\_name

Specifies that information is to be displayed about the adjacent SSCP table that is used to establish a session with the specified CDRSC. You can specify CDRSC as a network-qualified name. If you specify CDRSC, do not specify CDRM, NETID, or SCOPE on the same command.

The setting of the NQNMODE start option might affect how VTAM processes this operand. See the z/OS Communications Server: SNA Resource Definition Reference for an explanation of NQNMODE.

## DISPLAY ADJSSCPS

You can specify the name of a conventionally defined CDRSC, a model CDRSC, a clone CDRSC built from a model CDRSC, or a dynamic CDRSC. You can use wildcard characters in the name you specify. The use of the wildcard characters does not depend on the value of the DSPLYWLD start option. However, unlike wildcard characters in other commands, the wildcard characters you specify here do not represent unspecified characters. They are interpreted as actual characters, an asterisk (\*) and a question mark (?). Therefore, if you specify `D NET,ADJSSCPS,CDRSC=APPL*`, VTAM will display information related to the model CDRSC named `APPL*`, but it will not display information about any other CDRSCs whose names begin with `APPL`.

### MAX

Specifies the maximum number of adjacent SSCP tables or adjacent CDRM lists that VTAM displays for this command.

#### MAX=\*

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

#### MAX=number\_of\_resources

Specifies the number of adjacent SSCP tables or adjacent CDRM lists to display for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer adjacent SSCP tables or adjacent CDRM lists are found than you have specified on MAX, VTAM displays only the adjacent SSCP tables or adjacent CDRM lists that are found.

### NETID=netid

Specifies the destination network for the adjacent SSCP table or tables to be displayed. If you specify NETID, do not specify CDRSC on the same command.

### SCOPE

Determines the domain of the search for an adjacent SSCP table or tables.

**Note:** If you specify the SCOPE operand without specifying a value `SCOPE=ALL` is assumed.

If you specify SCOPE, do not specify CDRSC on the same command.

#### SCOPE=ALL

- If neither NETID nor CDRM is specified:
  1. VTAM displays all user-defined ADJSSCP tables.
  2. If no user-defined tables exist, VTAM displays the dynamic table if it exists.
- If you specify NETID (and not CDRM):
  1. VTAM displays all ADJSSCP tables for all CDRMs for the specified network.
  2. If there are no tables for individual CDRMs in the specified network, VTAM displays the default table for the specified network.
  3. If there is no default table for the specified network, VTAM displays the dynamic table if it exists.
- If you specify CDRM (and not NETID):

1. VTAM displays all ADJSSCP tables for the specified CDRM in all networks.
  2. If there are no tables for the specified CDRM, VTAM displays the default table for all networks.
  3. If there is no default table for all networks, VTAM displays the dynamic table if it exists.
- If you specify both NETID and CDRM:
    1. VTAM displays the ADJSSCP for the specified CDRM in the specified network.
    2. If there is no table for the specified CDRM in the specified network, VTAM displays the default table for the specified network.
    3. If there is no default table for the specified network, VTAM displays the ADJSSCP table for the specified CDRM in the default network.
    4. If there is no table for the specified CDRM, VTAM displays the default table for all networks.
    5. If there is no default table for all networks, VTAM displays the dynamic table if it exists.

### SCOPE=ONLY

- If you specify neither NETID nor CDRM:
  1. VTAM displays the default table for all networks.
  2. If there is no default table for all networks, VTAM displays the dynamic table if it exists.
- If you specify NETID (and not CDRM):
  1. VTAM displays the default table for the specified network.
  2. If there is no default table for the specified network, VTAM displays the default table for all networks.
  3. If there is no default table for all networks, VTAM displays the dynamic table if it exists.
- If you specify CDRM (and not NETID):
  1. VTAM displays the ADJSSCP table for the specified CDRM in the default network.
  2. If there is no table for the specified CDRM in the default network, VTAM displays the default table for all networks.
  3. If there is no default table for all networks, VTAM displays the dynamic table if it exists.
- If you specify both NETID and CDRM:
  1. VTAM displays the ADJSSCP for the specified CDRM in the specified network.
  2. If there is no table for the specified CDRM in the specified network, VTAM displays the default table for the specified network.
  3. If there is no default table for the specified network, VTAM displays the ADJSSCP table for the specified CDRM in the default network.
  4. If there is no table for the specified CDRM, VTAM displays the default table for all networks.
  5. If there is no default table for all networks, VTAM displays the dynamic table if it exists.

### Resulting display

The resulting display differs depending on the operands specified and the value of VTAM start options. (For example, messages IST1704I and IST1705I are issued only if VTAM is enabled for APPN.)

If you specify the ADJLIST operand, the resulting display shows the appropriate adjacent CDRM list.

If you specify the CDRM or CDRSC operands, the resulting display shows the appropriate adjacent SSCP table. VTAM first searches for a user-defined table that satisfies the command. If a user-defined table is not found and the DYNASSCP start option has been set to YES, the dynamic adjacent SSCP table is displayed.

When DISPLAY ADJSSCPS is issued with the CDRSC operand, VTAM builds an adjacent SSCP table as if the resource were the target of a session initiation request. The table displayed is a combination of learned adjacent SSCPs which have been saved for the CDRSC and the appropriate user-defined or dynamic adjacent SSCP table. VTAM displays this table without invoking the session management exit routine for adjacent SSCP selection.

See the z/OS Communications Server: SNA Network Implementation Guide for more information about dynamically defined adjacent SSCP tables.

### Examples

Examples of the DISPLAY ADJSSCPS command are presented in a scenario because the output of the command depends on the situation. All of these examples assume that the SORDER start option is currently set to SORDER=ADJSSCP and that the SSCPORD start option is currently set to SSCPORD=PRIORITY.

- Suppose that no adjacent SSCP tables are defined and no LU-LU sessions exist, but a dynamic table was created when an SSCP-SSCP session was established with SSCP2A. To display the dynamically created table, issue:

```
d net,adjsscps (with any other operands except CDRSC or ADJLIST)
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = ADJACENT SSCP TABLE
IST623I DYNAMIC ADJACENT SSCP TABLE
IST1705I SORDER = ADJSSCP FROM START OPTION
IST1705I SSCPORD = PRIORITY FROM START OPTION
IST624I SSCP2A
IST1454I 1 RESOURCE(S) DISPLAYED
IST314I END
```

- Later you establish an LU-LU session with APPL2 in SSCP2A. To display the dynamically created, session-specific adjacent SSCP table, issue:

```
d net,adjsscps,cdrsc=appl2
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = ADJACENT SSCP TABLE
IST611I ADJACENT SSCP TABLE FOR APPL2 IN NETA
IST1705I SORDER = ADJSSCP FROM START OPTION
IST1705I SSCPORD = PRIORITY FROM START OPTION
IST1220I SSCPNAME NETID CURRENT STATE ROUTING STATUS
IST624I SSCP2A NETA ACTIV SUCCESS
IST1454I 1 RESOURCE(S) DISPLAYED
IST314I END
```

- Next you activate the following user-defined ADJSSCP table:



```
*****
*
* ADJSSCP Tables - Assumes SORDER=ADJSSCP Start Option
* and SSCPORD=PRIORITY Start Option
*****
ADJSSCP VBUILD TYPE=ADJSSCP
* Default table for all networks
DEFAULT NETWORK SORDER=APPNFRST
SSCP1A  ADJCDRM
SSCP2A  ADJCDRM
SSCP7B  ADJCDRM
SSCP9C  ADJCDRM
* CDRM SSCP2A table for all networks
SSCP2A  CDRM    SSCPORD=PRIORITY
SSCP2A  ADJCDRM
SSCP1A  ADJCDRM
* Default table for network NETA
NETA    NETWORK NETID=NETA,SORDER=APPNFRST,SSCPORD=DEFINED
SSCP1A  ADJCDRM
SSCP2A  ADJCDRM
* CDRM SSCP2A table for network NETA
SSCP2A  CDRM    SSCPORD=STARTOPT
SSCP2A  ADJCDRM
SSCP1A  ADJCDRM
* Default table for network NETB
NETB    NETWORK NETID=NETB
SSCP7B  ADJCDRM
* Default table for network NETC
NETC    NETWORK NETID=NETC
SSCP9C  ADJCDRM
* Define adjacent lists for NETA, NETB and NETC
LISTA   ADJLIST
SSCP1A  ADJCDRM
SSCP2A  ADJCDRM
LISTB   ADJLIST
SSCP7B  ADJCDRM
LISTC   ADJLIST
SSCP9C  ADJCDRM
```

- To display the new, dynamically created, session-specific adjacent SSCP table for the same resource as above, issue:

```
d net,adjsscps,cdrc=appl2
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = ADJACENT SSCP TABLE
IST611I ADJACENT SSCP TABLE FOR APPL2 IN NETA
IST1704I SORDER = APPNFRST FROM ADJACENT SSCP TABLE
IST1705I SSCPORD = PRIORITY FROM START OPTION
IST1220I SSCPNAME NETID CURRENT STATE ROUTING STATUS
IST624I ISTAPNCP NETA ACTIV ***NA**
IST624I SSCP2A NETA ACTIV SUCCESS
IST624I SSCP1A NETA ACTIV ***NA**
IST1454I 3 RESOURCE(S) DISPLAYED
IST314I END
```

- To display the user-defined, default ADJSSCP table for all networks, issue:

```
d net,adjsscps
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = ADJACENT SSCP TABLE
IST623I DEFAULT ADJACENT SSCP TABLE
IST1704I SORDER = APPNFRST FROM ADJACENT SSCP TABLE
IST1705I SSCPORD = PRIORITY FROM START OPTION
IST624I SSCP1A
IST624I SSCP2A
IST624I SSCP7B
IST624I SSCP9C
IST1454I 4 RESOURCE(S) DISPLAYED
IST314I END
```

## DISPLAY ADJSSCPS

- To display the dynamic ADJSSCP table for a model CDRSC, issue:

```
d net,adjsscps,cdrsc=applb*
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = ADJACENT SSCP TABLE
IST611I ADJACENT SSCP TABLE FOR APPLB* IN NETB
IST1705I SORDER = APPN FROM START OPTION
IST1705I SSCPORD = PRIORITY FROM START OPTION
IST1220I SSCPNAME NETID CURRENT STATE ROUTING STATUS
IST624I SSCP7B NETB NEVAC ***NA**
IST624I ISTAPNCP NETA ACTIV ***NA**
IST1454I 2 RESOURCE(S) DISPLAYED
IST314I END
```

- To display the user-defined table for a specific CDRM in the default ADJSSCP table for all networks, issue:

```
d net,adjsscps,cdrm=sscp2a
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = ADJACENT SSCP TABLE
IST611I ADJACENT SSCP TABLE FOR SSCP2A
IST1704I SORDER = APPNFRST FROM ADJACENT SSCP TABLE
IST1704I SSCPORD = PRIORITY FROM ADJACENT SSCP TABLE
IST624I SSCP2A
IST624I SSCP1A
IST1454I 2 RESOURCE(S) DISPLAYED
IST314I END
```

- To display the user-defined table for a specific CDRM in a specific network, issue:

```
d net,adjsscps,cdrm=sscp2a,netid=netb
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = ADJACENT SSCP TABLE
IST611I ADJACENT SSCP TABLE FOR SSCP2A IN NETA
IST1704I SORDER = APPNFRST FROM ADJACENT SSCP TABLE
IST1705I SSCPORD = PRIORITY FROM START OPTION
IST624I SSCP2A
IST624I SSCP1A
IST1454I 2 RESOURCE(S) DISPLAYED
IST314I END
```

- To display all user-defined ADJSSCP tables for a specific CDRM in all networks, issue:

```
d net,adjsscps,cdrm=sscp2a,scope=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = ADJACENT SSCP TABLE
IST611I ADJACENT SSCP TABLE FOR SSCP2A IN NETA
IST1704I SORDER = APPNFRST FROM ADJACENT SSCP TABLE
IST1705I SSCPORD = PRIORITY FROM START OPTION
IST624I SSCP2A
IST624I SSCP1A
IST611I ADJACENT SSCP TABLE FOR SSCP2A
IST1704I SORDER = APPNFRST FROM ADJACENT SSCP TABLE
IST1705I SSCPORD = PRIORITY FROM ADJACENT SSCP TABLE
IST624I SSCP2A
IST624I SSCP1A
IST1454I 4 RESOURCE(S) DISPLAYED
IST314I END
```

- Displaying a user-defined adjacent CDRM list (ADJLIST) by name:

```
d net,adjsscps,adjlist=lista
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = ADJACENT SSCP TABLE
IST1333I ADJLIST = LISTA
IST624I SSCP1A
IST624I SSCP2A
IST1454I 2 RESOURCE(S) DISPLAYED
IST314I END
```

- Displaying the session-specific adjacent SSCP table for a resource that specifies an adjacent CDRM list (ADJLIST):

```
d net,adjsscps,cdrrsc=appl22
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = ADJACENT SSCP TABLE
IST611I ADJACENT SSCP TABLE FOR APPL22 IN NETA
IST1704I SORDER = ADJLIST FROM ADJACENT SSCP TABLE
IST1704I SSCPORD = ADJLIST FROM ADJACENT SSCP TABLE
IST1220I SSCPNAME NETID CURRENT STATE ROUTING STATUS
IST624I SSCP1A NETA ACTIV ***NA**
IST624I SSCP2A NETA ACTIV ***NA**
IST1454I 2 RESOURCE(S) DISPLAYED
IST314I END
```

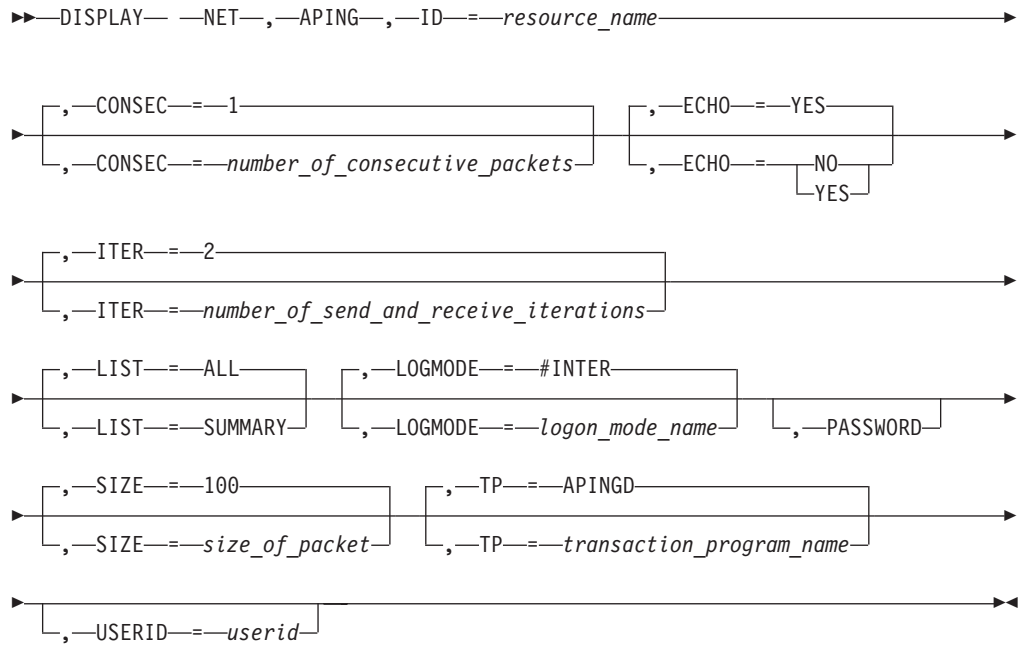
- Displaying all user-defined adjacent CDRM lists (ADJLISTs):

```
d net,adjsscps,adjlist=*
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = ADJACENT SSCP TABLE
IST1333I ADJLIST = LISTC
IST624I SSCP9C
IST1333I ADJLIST = LISTB
IST624I SSCP7B
IST1333I ADJLIST = LISTA
IST624I SSCP1A
IST624I SSCP2A
IST1454I 4 RESOURCE(S) DISPLAYED
IST314I END
```

- Displaying all user-defined ADJSSCP tables:

```
d net,adjsscps,scope=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = ADJACENT SSCP TABLE
IST623I DEFAULT ADJACENT SSCP TABLE FOR NETC
IST1705I SORDER = ADJSSCP FROM START OPTION
IST1705I SSCPORD = PRIORITY FROM START OPTION
IST624I SSCP9C
IST623I DEFAULT ADJACENT SSCP TABLE FOR NETB
IST1705I SORDER = ADJSSCP FROM START OPTION
IST1705I SSCPORD = PRIORITY FROM START OPTION
IST624I SSCP7B
IST611I ADJACENT SSCP TABLE FOR SSCP2A IN NETA
IST1704I SORDER = APPNFRST FROM ADJACENT SSCP TABLE
IST1705I SSCPORD = PRIORITY FROM START OPTION
IST624I SSCP2A
IST624I SSCP1A
IST623I DEFAULT ADJACENT SSCP TABLE FOR NETA
IST1704I SORDER = APPNFRST FROM ADJACENT SSCP TABLE
IST1704I SSCPORD = DEFINED FROM ADJACENT SSCP TABLE
IST624I SSCP1A
IST624I SSCP2A
IST611I ADJACENT SSCP TABLE FOR SSCP2A
IST1704I SORDER = APPNFRST FROM ADJACENT SSCP TABLE
IST1704I SSCPORD = PRIORITY FROM ADJACENT SSCP TABLE
IST624I SSCP2A
IST624I SSCP1A
IST623I DEFAULT ADJACENT SSCP TABLE
IST1704I SORDER = APPNFRST FROM ADJACENT SSCP TABLE
IST1705I SSCPORD = PRIORITY FROM START OPTION
IST624I SSCP1A
IST624I SSCP2A
IST624I SSCP7B
IST624I SSCP9C
IST1454I 11 RESOURCE(S) DISPLAYED
IST314I END
```

## DISPLAY APING command



### Abbreviations

Operand	Abbreviation
DISPLAY	D

### Purpose

The DISPLAY APING command tests whether a route to another LU 6.2 resource or control point is available and displays performance information for the route if the resource supports an APING server.

More than one D APING command can be executing at a time. The default limit for APING command TP instances is 10. The limit may be adjusted using the MODIFY APINGTP command. Information about the APING TP and its sessions may be displayed using the DISPLAY APINGTP command.

**Note:** Issuing an APING command to the same partner and with the same logmode may result in a failure with RCPRI=2C and RCSEC=11. This failure occurs because the second command was issued before completion of session setup for the first APING command. This condition is temporary and a subsequent APING command should work. If you want, you can issue the APING to the same partner and specify a different logmode.

See z/OS Communications Server: SNA Network Implementation Guide for more information about APING.

## Operands

### **CONSEC=number\_of\_consecutive\_packets**

Specifies the number of consecutive packets to be sent per iteration. The value for CONSEC can be any integer in the range 0–32763. The default is 1.

If you specify CONSEC=0, no data is sent or returned; only a version exchange between the transaction programs occurs.

### **ECHO**

Specifies whether data is returned to the sending transaction program, if the server transaction program supports ECHO.

#### **ECHO=NO**

Specifies that data is not returned to the sending transaction program.

#### **ECHO=YES**

Specifies that data is returned to the sending transaction program.

### **ID=resource\_name**

Specifies the name of the resource for which the APING transaction is requested.

### **ITER=number\_of\_send\_and\_receive\_iterations**

Specifies the number of times that consecutive packets are sent to the receiving transaction program and returned. The value for ITER can be any integer in the range 0–32763. The default is 2.

If you specify ITER=0, no data is sent or returned; only a version exchange between the transaction programs occurs.

### **LIST**

Specifies whether detailed statistics for iteration data exchanged should be displayed.

#### **LIST=ALL**

Specifies that all output messages should be displayed.

#### **LIST=SUMMARY**

Specifies that iteration statistics messages should be suppressed. All other messages will be included.

### **LOGMODE=logon\_mode\_name**

Specifies the logon mode name from the default logon mode table (ISTINCLM) to be used when the session is started.

**Note:** The logon mode names CPSVCMG, CPSVRMGR, and SNASVCMG are not valid for LOGMODE.

### **PASSWORD**

Specifies the password if conversation level security is requested.

This operand is valid only from an MVS console. A command with the PASSWORD operand will be rejected if it is entered from a Program Operator Application (POA) because there is no capability to suppress the password from being displayed by the Program Operator Interface.

When this operand is entered from a system console, the operator will be prompted to enter the password with message IST1660A ENTER PASSWORD FOR DISPLAY APING. When the password is entered in reply to IST1660A, it will not be displayed on the system console or in the system log, but will be replaced in the display with the word SUPPRESSED.

The value for PASSWORD can contain 1–8 characters.

## DISPLAY APING

### **SIZE=size\_of\_packet**

Specifies the size (in bytes) of the packets to be sent. The value for SIZE can be any integer in the range 1–32763. The default is 100.

### **TP=transaction\_program\_name**

Specifies the name of the transaction program to which data is to be sent. The default transaction program name is APINGD.

The value for TP can contain 1–64 characters.

### **USERID=userid**

Specifies the user ID if conversation level security is requested.

The value for USERID can contain 1–8 characters.

## Resulting display

The resulting VTAM display shows performance information and routing information in two separate message groups.

The performance information includes the following information:

- The specified destination LU and the session identifier (SID)
- An indication of whether the ECHO was performed
- The elapsed time for conversation allocation and version exchange
- The data rate calculations for each iteration and the data rate calculations for all iterations
- The elapsed time for each iteration and the total elapsed time for all iterations
- The minimum, maximum, and average elapsed time for each iteration

**Note:** No decimal values are displayed for data rate calculations in messages. If the data rate calculation includes a decimal, the value is truncated to the whole number. If the data rate calculation is less than one, zero is displayed.

If a session is allocated for the DISPLAY APING command, VTAM also displays the following routing information:

- The destination LU and the session identifier (SID)
- The Class of Service table entry and the logon mode entry used

**Note:** If the session cannot be established with the requested LOGMODE, the session is established with a default logon mode of \*BLANK\*.

- If the destination LU is found in or through a subarea network, VTAM displays:
  - The origination subarea number and the destination subarea number of the first node in the route
  - The virtual route and explicit route numbers
- If the destination LU is found in or through an APPN network, VTAM displays:
  - The APPN Class of Service toward the SLU
  - The transmission group number and type for APPN
  - The destination CP name for the TG

The routing information can be correlated to the performance information using the session identifier (SID).

**Note:** The name of the destination LU in the routing information might not match the name of the destination LU in the performance information if any name translation has occurred on the route between the LUs.

### Examples

Displaying APING information when a session to the destination exists and is using the requested logon mode:

```
d net,aping,id=sscp2a
IST1457I VTAM APING VERSION 2R33 (PARTNER TP VERSION 2R33)
IST1490I DLU=NETA.SSCP2A SID=EAABEEC3710FD9E7
IST1462I ECHO IS ON
IST1463I ALLOCATION DURATION 17717 MILLISECONDS
IST1464I PROGRAM STARTUP AND VERSION EXCHANGE: 81 MILLISECONDS
IST1465I          DURATION      DATA SENT  DATA RATE  DATA RATE
IST1466I          (MILLISECONDS) (BYTES)    (KBYTE/S)   (MBIT/S)
IST1467I          74             200         2           0
IST1467I          19543          200         0           0
IST1468I TOTALS:    19617          400         0           0
IST1469I DURATION STATISTICS:
IST1470I MINIMUM = 74 AVERAGE = 9808 MAXIMUM = 19543
IST314I END
```

Displaying APING information when the destination is in the same APPN network:

```
d net,aping,id=sscp1a
IST097I DISPLAY ACCEPTED
IST1489I APING SESSION INFORMATION
IST1490I DLU=NETA.SSCP1A SID=F6ABEEC3742C592E
IST933I LOGMODE=#INTER , COS=**BLANK*
IST875I APPNCOS TOWARDS SLU = #INTER
IST1460I TGN  CPNAME          TG TYPE      HPR
IST1461I 21  NETA.SSCP1A      APPN         RTP
IST314I END

IST1457I VTAM APING VERSION 2R33 (PARTNER TP VERSION 2R33)
IST1490I DLU=NETA.SSCP1A SID=F6ABEEC3742C592E
IST1462I ECHO IS ON
IST1463I ALLOCATION DURATION 834 MILLISECONDS
IST1464I PROGRAM STARTUP AND VERSION EXCHANGE: 174 MILLISECONDS
IST1465I          DURATION      DATA SENT  DATA RATE  DATA RATE
IST1466I          (MILLISECONDS) (BYTES)    (KBYTE/S)   (MBIT/S)
IST1467I          119             200         1           0
IST1467I          6088            200         0           0
IST1468I TOTALS:    6207            400         0           0
IST1469I DURATION STATISTICS:
IST1470I MINIMUM = 119 AVERAGE = 3103 MAXIMUM = 6088
IST314I END
```

Displaying APING information when the destination is in an adjoining subarea network:

```
d net,aping,id=sscp1a
IST097I DISPLAY ACCEPTED
IST1489I APING SESSION INFORMATION
IST1490I DLU=NETA.SSCP1A SID=EAABEE18C8567C6A
IST933I LOGMODE=#INTER , COS=**BLANK*
IST875I APPNCOS TOWARDS SLU = #INTER
IST1460I TGN  CPNAME          TG TYPE      HPR
IST1461I 21  NETA.SSCP2A      APPN         ANR
IST1461I 254 SSCP1A          INTERCHANGE  *NA*
IST314I END

IST1457I VTAM APING VERSION 2R33 (PARTNER TP VERSION 2R33)
```

## DISPLAY APING

```
IST1490I DLU=NETA.SSCP1A SID=EAABEE18C8567C6A
IST1462I ECHO IS ON
IST1463I ALLOCATION DURATION 8208 MILLISECONDS
IST1464I PROGRAM STARTUP AND VERSION EXCHANGE: 35 MILLISECONDS
IST1465I          DURATION      DATA SENT  DATA RATE  DATA RATE
IST1466I          (MILLISECONDS) (BYTES)    (KBYTE/S)  (MBIT/S)
IST1467I              26           200         7         0
IST1467I              22           200         9         0
IST1468I TOTALS:       48           400         8         0
IST1469I DURATION STATISTICS:
IST1470I MINIMUM = 22 AVERAGE = 24 MAXIMUM = 26
IST314I END
```

Displaying APING information when the destination is reached through a VRTG:

```
d net,aping,id=sscp2a
IST097I DISPLAY ACCEPTED
IST1489I APING SESSION INFORMATION
IST1490I DLU=NETA.SSCP2A SID=EAABEEC379DA83D2
IST933I LOGMODE=#INTER , COS=**BLANK*
IST875I APPNCOS TOWARDS SLU = #INTER
IST1460I TGN  CPNAME          TG TYPE    HPR
IST1461I 255  NETA.SSCP2A      VRTG      RTP
IST314I END

IST1457I VTAM APING VERSION 2R33 (PARTNER TP VERSION 2R33)
IST1490I DLU=NETA.SSCP2A SID=EAABEEC379DA83D2
IST1462I ECHO IS ON
IST1463I ALLOCATION DURATION 414 MILLISECONDS
IST1464I PROGRAM STARTUP AND VERSION EXCHANGE: 210 MILLISECONDS
IST1465I          DURATION      DATA SENT  DATA RATE  DATA RATE
IST1466I          (MILLISECONDS) (BYTES)    (KBYTE/S)  (MBIT/S)
IST1467I              622           200         0         0
IST1467I              4246          200         0         0
IST1468I TOTALS:       4868          400         0         0
IST1469I DURATION STATISTICS:
IST1470I MINIMUM = 622 AVERAGE = 2434 MAXIMUM = 4246
IST314I END
```

Displaying APING information when the destination is in a connecting subarea network:

```
d net,aping,id=sscp2a
IST097I DISPLAY ACCEPTED
IST1489I APING SESSION INFORMATION
IST1490I DLU=NETA.SSCP2A SID=EAABEEC3710FD9E7
IST933I LOGMODE=#INTER , COS=**BLANK*
IST1458I ORIGIN  ADJSUB  VR      TP      ER      REVERSE ER
IST1459I      1      2      2      0      3      4
IST314I END

IST1457I VTAM APING VERSION 2R33 (PARTNER TP VERSION 2R33)
IST1490I DLU=NETA.SSCP2A SID=EAABEEC3710FD9E7
IST1462I ECHO IS ON
IST1463I ALLOCATION DURATION 17717 MILLISECONDS
IST1464I PROGRAM STARTUP AND VERSION EXCHANGE: 81 MILLISECONDS
IST1465I          DURATION      DATA SENT  DATA RATE  DATA RATE
IST1466I          (MILLISECONDS) (BYTES)    (KBYTE/S)  (MBIT/S)
IST1467I              74           200         2         0
IST1467I             19543          200         0         0
IST1468I TOTALS:       19617          400         0         0
IST1469I DURATION STATISTICS:
IST1470I MINIMUM = 74 AVERAGE = 9808 MAXIMUM = 19543
IST314I END
```

Displaying APING information when the destination is in a non-native network:

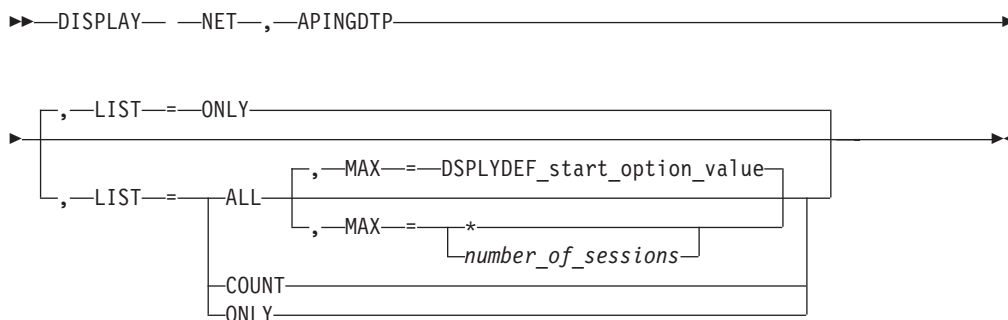


```

d net,aping,id=netb.sscp7b
IST097I DISPLAY ACCEPTED
IST1489I APING SESSION INFORMATION
IST1490I DLU=NETB.SSCP7B SID=F6ABEEC374364CA8
IST933I LOGMODE=#INTER , COS=*BLANK*
IST875I APPNCOS TOWARDS SLU = #INTER
IST1460I TGN CPNAME TG TYPE HPR
IST1461I 21 NETA.SSCP1A APPN ANR
IST1461I 21 NETB.SSCP7B ISL ANR
IST314I END

IST1457I VTAM APING VERSION 2R33 (PARTNER TP VERSION 2R33)
IST1490I DLU=NETB.SSCP7B SID=F6ABEEC374364CA8
IST1462I ECHO IS ON
IST1463I ALLOCATION DURATION 360 MILLISECONDS
IST1464I PROGRAM STARTUP AND VERSION EXCHANGE: 262 MILLISECONDS
IST1465I DURATION DATA SENT DATA RATE DATA RATE
(MILLISECONDS) (BYTES) (KBYTE/S) (MBIT/S)
IST1467I 334 200 0 0
IST1467I 108 200 1 0
IST1468I TOTALS: 442 400 0 0
IST1469I DURATION STATISTICS:
IST1470I MINIMUM = 108 AVERAGE = 221 MAXIMUM = 334
IST314I END
    
```

## DISPLAY APINGDTP command



### Purpose

The DISPLAY APINGDTP command displays the number of APINGD transaction programs permitted to run concurrently for responding to APING requests from other nodes, and optionally shows session information for active APINGD instances.

### Operands

#### LIST

Specifies the level of detail to display.

#### LIST=ALL

Specifies that the partner LU name and Session Identifier for active sessions associated with all APINGD instances should be displayed.

#### LIST=COUNT

Specifies that only the instance limit and the number of active sessions should be displayed.

#### LIST=ONLY

Specifies that only the instance limit should be displayed.

## DISPLAY APINGDTP

### MAX

Specifies the maximum number of sessions that VTAM displays for this command.

### MAX=\*

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

### MAX=number\_of\_sessions

Specifies the number of sessions to display for this command. The valid range is 1 through the value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer sessions are found than you have specified on MAX, VTAM displays only the sessions that are found.

## Resulting display

The resulting VTAM display shows the number of APINGD transaction programs permitted to run concurrently for responding to APING requests from other nodes, and optionally shows session information for active APINGD instances.

## Examples

Displaying the number of transaction programs permitted to run concurrently:

```
d net,apingdtp  
IST097I DISPLAY ACCEPTED  
IST1474I APINGD TP CONCURRENT INSTANCE LIMIT = 10
```

Displaying the number of transaction programs permitted to run concurrently and the number of sessions for all active instances:

```
d net,apingdtp,list=count  
IST097I DISPLAY ACCEPTED  
IST1474I APINGD TP CONCURRENT INSTANCE LIMIT = 10  
IST1870I APINGD HAS 3 ACTIVE SESSIONS  
IST314I END
```

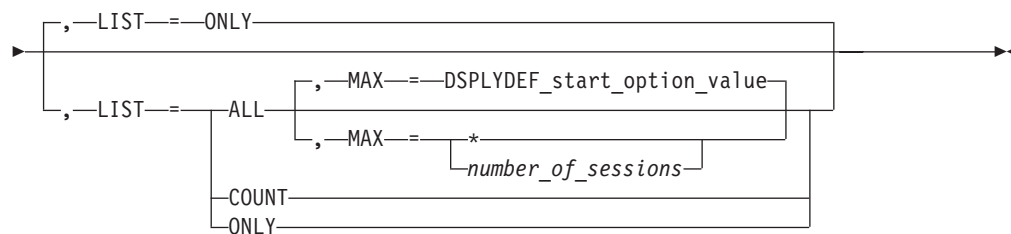
Displaying the number of transaction programs permitted to run concurrently and the session information for all active instances:

```
d net,apingdtp,list=all  
IST097I DISPLAY ACCEPTED  
IST1474I APINGD TP CONCURRENT INSTANCE LIMIT = 10  
IST1870I APINGD HAS 3 ACTIVE SESSIONS  
IST1888I OLU = NETA.SSCP1A SID = EAABEEC3710FD9E7  
IST1888I OLU = NETA.SSCP2A SID = EAABEEC3710FD9E8  
IST1888I OLU = NETA.SSCPAA SID = EAABEEC3710FD9E9  
IST314I END
```

---

## DISPLAY APINGTP command

►►—DISPLAY— —NET—,—APINGTP—►



## Purpose

The DISPLAY APINGTP command displays the number of APING command transaction programs permitted to run concurrently for sending APING requests to other nodes, and optionally shows session information for active APING instances.

## Operands

### LIST

Specifies the level of detail to display.

#### LIST=ALL

Specifies that the partner LU name and Session Identifier for active sessions associated with all APING instances should be displayed.

#### LIST=COUNT

Specifies that only the instance limit and the number of active sessions should be displayed.

#### LIST=ONLY

Specifies that only the instance limit should be displayed.

### MAX

Specifies the maximum number of sessions that VTAM displays for this command.

#### MAX=\*

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

#### MAX=number\_of\_sessions

Specifies the number of sessions to display for this command. The valid range is 1 through the value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer sessions are found than you have specified on MAX, VTAM displays only the sessions that are found.

## Resulting display

The resulting VTAM display shows the number of APING command transaction programs permitted to run concurrently for sending APING requests to other nodes, and optionally shows session information for active APING instances.

# DISPLAY APINGTP

## Examples

Displaying the number of transaction programs permitted to run concurrently:

```
d net,apingtp
IST097I DISPLAY ACCEPTED
IST1474I APING TP CONCURRENT INSTANCE LIMIT = 10
```

Displaying the number of transaction programs permitted to run concurrently and the number of active sessions:

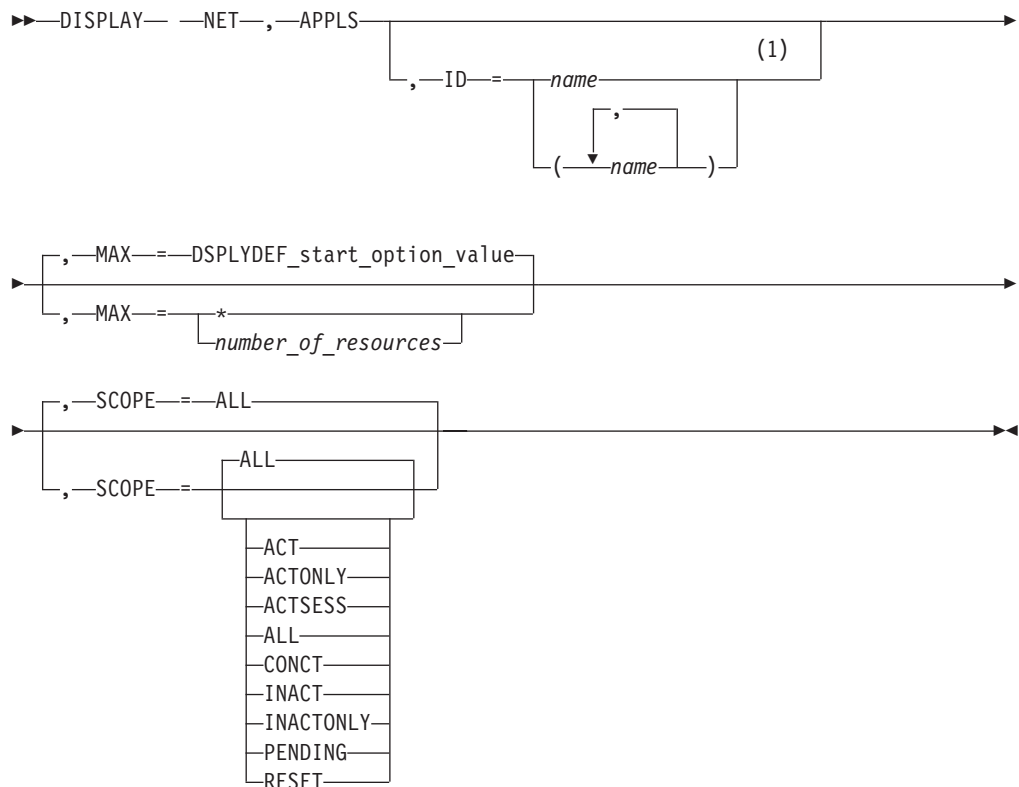
```
d net,apingtp,list=count
IST097I DISPLAY ACCEPTED
IST1474I APING TP CONCURRENT INSTANCE LIMIT = 10
IST1870I APING HAS 3 ACTIVE SESSIONS
IST314I END
```

Displaying the number of transaction programs permitted to run concurrently and the session information for all active instances:

```
d net,apingtp,list=all
IST097I DISPLAY ACCEPTED
IST1474I APING TP CONCURRENT INSTANCE LIMIT = 10
IST1870I APING HAS 3 ACTIVE SESSIONS
IST1888I DLU = NETA.SSCP1A SID = EAABEEC3710FD9E7
IST1888I DLU = NETA.SSCP2A SID = EAABEEC3710FD9E8
IST1888I DLU = NETA.SSCPAA SID = EAABEEC3710FD9E9
IST314I END
```

---

## DISPLAY APPLS command



**Notes:**

- 1 Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.

**Abbreviations**

Operand	Abbreviation
DISPLAY	D
SCOPE=ACT	ACT or A
SCOPE=ACTONLY	ACTONLY
SCOPE=ACTSESS	ACTSESS
SCOPE=ALL	EVERY or E
SCOPE=CONCT	CONCT
SCOPE=INACT	INACT or I
SCOPE=INACTONLY	INACTONL
SCOPE=PENDING	PEND
SCOPE=RESET	RESET

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for SCOPE=ALL, code only EVERY or E. Do not code SCOPE=E.

**Purpose**

The DISPLAY APPLS (applications) command displays the status of active application program major nodes in the domain along with their subordinate application program minor nodes.

**Note:** To display application program minor nodes independently of the major nodes that contain them, use the DISPLAY RSCLIST command with IDTYPE=APPLS.

**Operands**

**ID=name**

Specifies the name of one or more active application program major nodes whose subordinate resources are to be displayed.

Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand. For more information about using wildcards, see "Using wildcard names" on page 11.

**Attention:** Specifying a wildcard name might degrade performance because VTAM checks every application major node in the network.

**MAX**

Specifies the maximum number of application program minor nodes that VTAM displays for this command.

**MAX=\***

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

### **MAX=number\_of\_resources**

Specifies the number of application program minor nodes to display for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer application program minor nodes are found than you have specified on MAX, VTAM displays only the application program minor nodes that are found.

### **SCOPE**

Specifies the required scope of the display.

**Note:** If you specify the SCOPE operand without specifying a value SCOPE=ALL is assumed.

#### **SCOPE=ACT**

Specifies that information is to be displayed about all active, pending, and connectable application program minor nodes within the specified major nodes (or within all major nodes if the ID operand is omitted). If this display is undesirably large, you can use SCOPE=ACTONLY or SCOPE=CONCT to further limit the display.

#### **SCOPE=ACTONLY**

Specifies that information is to be displayed about all application program minor nodes in an active state within the specified major nodes (or within all major nodes if the ID operand is omitted). The display does **not** include application programs in pending or connectable states. If no applications are found in an active state, you can use SCOPE=ACT to broaden the scope of the display to active, connectable, and pending applications.

#### **SCOPE=ACTSESS**

Specifies that information is to be displayed about all application program minor nodes that are active with sessions within the specified major nodes (or within all major nodes if the ID operand is omitted).

#### **SCOPE=ALL**

Specifies that information is to be displayed about all application program minor nodes (regardless of their status) within the specified major nodes (or within all major nodes if the ID operand is omitted).

#### **SCOPE=CONCT**

Specifies that information is to be displayed about all application program minor nodes in a CONCT (connectable) state within the specified major nodes (or within all major nodes if the ID operand is omitted). If no applications are found in a connectable state, you can use SCOPE=ACT to broaden the scope of the display to active, connectable, and pending applications.

#### **SCOPE=INACT**

Specifies that information is to be displayed about all inactive application program minor nodes within the specified major nodes (or within all major nodes if the ID operand is omitted). If this display is undesirably large, you can use SCOPE=INACTONLY or SCOPE=RESET to further limit the display.

**SCOPE=INACTONLY**

Specifies that information is to be displayed about all inactive application program minor nodes within the specified major nodes (or within all major nodes if the ID operand is omitted). Resources in a RESET state are not included in the SCOPE=INACTONLY display.

**SCOPE=PENDING**

Specifies that information is to be displayed about all pending application program minor nodes within the specified major nodes (or within all major nodes if the ID operand is omitted). A pending state is:

- A transient state to or from the fully active state
- A state of “recovery pending” or “recovery in progress” for application programs that have been retained because of the failure or takeover of an application program enabled for persistence

**SCOPE=RESET**

Specifies that information is to be displayed about all application program minor nodes in a RESET state within the specified major nodes (or within all major nodes if the ID operand is omitted).

**Resulting display**

The resulting VTAM display shows:

- The name and status of the specified active application program major nodes (or all active application program major nodes if the ID operand is omitted). Inactive application program major nodes are not known to VTAM and are therefore not displayed.
- For each active application program major node, the name and status of each subordinate application program minor node (limited to active, connectable, inactive, or pending minor nodes if specified on the SCOPE operand).

If a model application program has been defined in the major node being displayed, the model application program will be included in the display. In addition, any dynamic application programs that have been built from the model application program definition will also be included in the display.

**Note:** Dynamic application programs that have been deactivated are not displayed. This is because dynamic application programs cannot exist in an inactive state. When a dynamic application program is deactivated and CLOSE macro processing is complete for the dynamic application program, the definition of the dynamic application program is deleted. The dynamic application program is no longer known by VTAM and will not appear in the output of any DISPLAY commands.

If a channel-attached host is used as an intermediate routing node for either a primary or backup extended recovery facility (XRF) session, the session through the channel-attached host might fail without notifying the XRF host. In that case, a DISPLAY APPLS command issued from either the primary or alternate host shows the failed session across the channel attachment as active.

**Examples**

Displaying all application program major nodes and their minor nodes:

```
d net,appls
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = APPL MAJ NODES/NAMES
IST089I VTAMSEG TYPE = APPL SEGMENT , ACTIV
```

## DISPLAY APPLS

```

IST360I APPLICATIONS:
IST080I ISTATA00 CONCT      ISTNOP  ACTIV      ISTDCLU  ACT/S
IST080I A01N      ACT/S
IST089I VTAMSG2  TYPE = SEGMENT      ,  ACTIV
IST360I APPLICATIONS:
IST080I *?-?*    CONCT
IST089I A01APPLS TYPE = APPL SEGMENT  ,  ACTIV
IST360I APPLICATIONS:
IST080I A01NV     ACTIV      A01NVPPT  ACTIV      A01NV000  CONCT
IST080I A01NV001  ACTIV      A01NV002  ACTIV      A01NV003  ACTIV
IST080I A01NV004  ACTIV      A01NV005  ACTIV      A01NV006  ACTIV
IST080I A01NV007  CONCT      A01NV008  CONCT      A01NV009  CONCT
IST080I A01TF0PT  CONCT      A01TF00   CONCT      A01TF01   CONCT
IST080I A01TF02   CONCT      A01TF03   CONCT      A01TF04   CONCT
IST080I A01TF00   CONCT      A01TF01   CONCT      A01TF02   CONCT
IST080I A01TF03   CONCT      A01TF04   CONCT      A01TF05   CONCT
IST080I A01TF06   CONCT      A01TF07   CONCT      A01TF08   CONCT
IST080I A01TF09   CONCT      AAUTSKLP  CONCT      AAUTCNMI  ACTIV
IST080I DSICRTR  ACTIV      DSIAMLUT  ACT/S      A01NVLUC  ACT/S
IST080I A01NVSPT  ACTIV      BNJHWMON  ACTIV      ALIASAPL  CONCT
IST080I DSIGDS   ACTIV      APPLR02   CONCT      APPLA01   CONCT
IST080I APPL01   CONCT      APPL0102  CONCT      A01MVSNO  CONCT
IST080I A01MVSOP  CONCT      A01MVSRE  CONCT      WORM      CONCT
IST080I DIAL01   CONCT      CAPPL010  CONCT      CAPPL01C  CONCT
IST080I CAPPL01N  CONCT      ECH001    CONCT      ECH0X01   CONCT
IST080I ECHOA01   CONCT      APPCA01   CONCT      A01AP08   CONCT
IST080I A01SPAP8  CONCT      A01SPAP9  CONCT      NPMA01M   CONCT
IST080I NPMA01MA  CONCT      TPNS02    CONCT      TPNSA01   CONCT
IST080I IMS02    CONCT      MHCICS02  CONCT      CICS02A   CONCT
IST080I TCAM02   CONCT      TS002     ACTIV      TS00201   ACT/S
IST080I TS00202  CONCT      TS00203   CONCT      TS00204   CONCT
IST080I TS00205  CONCT      TS00206   CONCT      TS00207   CONCT
IST080I TS00208  CONCT      TS00209   CONCT      TS00210   CONCT
IST080I VMA01    CONCT      VMA011    CONCT      VMA012    CONCT
IST080I VMA013   CONCT      VMA014    CONCT      VMA015    CONCT
IST080I VMA016   CONCT      VMA017    CONCT      VMA018    CONCT
IST080I VMA019   CONCT
IST089I A01ECHOC  TYPE = APPL SEGMENT  ,  ACTIV
IST360I APPLICATIONS:
IST080I ECH001A  ACT/S      ECH001B   ACTIV      ECH001C   ACT/S
IST080I ECH001D  CONCT      ECH001E   CONCT
IST1454I 93 RESOURCE(S) DISPLAYED
IST314I END

```

Displaying a specific application program major node and its minor nodes, including model application programs and dynamic application programs built from those models:

```

d net,appl1s,id=a01appl1s
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = APPL MAJ NODES/NAMES
IST089I A01APPLS TYPE = APPL SEGMENT      ,  ACTIV
IST360I APPLICATIONS:
IST080I APPL1    CONCT      APPLA*    CONCT      APPL2     CONCT
IST080I APPLQ?  CONCT      APPLQ1    ACTIV      APPL3     CONCT
IST080I APPL01  CONCT      APPL0102  CONCT      A01MVSNO  CONCT
IST1454I 9 RESOURCE(S) DISPLAYED FOR ID=A01APPLS
IST314I END

```

Displaying application program major nodes and their minor nodes, limiting output to 5 resources:

```

d net,appl1s,max=5
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = APPL MAJ NODES/NAMES
IST089I VTAMSEG  TYPE = APPL SEGMENT      ,  ACTIV
IST360I APPLICATIONS:

```



```

IST080I ISTATA00 CONCT      ISTNOP  ACTIV      ISTPDCLU  ACTIV
IST080I SSCP1A  ACTIV
IST089I VTAMSG2  TYPE = APPL SEGMENT      ,ACTIV
IST360I APPLICATIONS:
IST080I *?-?*    CONCT
IST1315I DISPLAY TRUNCATED AT MAX = 5
IST1454I 5 RESOURCE(S) DISPLAYED
IST314I END
    
```

## DISPLAY APPNTOSA command

►►—DISPLAY— —NET—,—APPNTOSA—►►

### Purpose

The DISPLAY APPNTOSA command displays the APPN-to-subarea Class of Service mapping table.

### Resulting display

The resulting VTAM display shows the APPN-to-subarea Class of Service mapping table.

### Examples

Displaying the APPN-to-subarea Class of Service mapping table:

```

d net,appntosa
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = APPNTOSA
IST1321I TABLE FOR APPNTOSA
IST1431I APPNCOS      SUBAREA COS
IST1323I #CONNECT    COSAPPL1
IST1323I #BATCH      COSAPPL2
IST1323I #BATCHSC    COSAPPL3
IST1323I #INTER      COSAPPL4
IST1323I #CONNECT    COSAPPL5      DEFAULT
IST1323I #INTERSC    ISTCOSDF
IST314I END
    
```

## DISPLAY AUTOLOG command

►►—D— —NET—,—AUTOLOG—  
                                   └─,—ID—==controlling\_appl—┘

┌─,—SCOPE—==ONLY—┐      ┌─,—MAX—==DSPLYDEF\_start\_option\_value—┐  
 └─,—SCOPE—==ALL—┘      └─,—MAX—==\*—┘  
                                   └─,—number\_of\_resources—┘

### Purpose

The DISPLAY AUTOLOG command displays information about controlling applications that have pending autologon requests. By default, this command displays each controlling application for which there is at least one pending autologon request and the condition (or conditions) that will cause the pending

## DISPLAY AUTOLOG

autologon request or requests to be initiated again. Optionally, this command also displays a list of secondary logical units that have pending autologon requests for each controlling application displayed.

See z/OS Communications Server: SNA Network Implementation Guide for more information about AUTOLOGON.

The following operands can be used to control the output that is generated by this command.

### Operands

#### **ID=controlling\_appl**

Specifies the real or alias name of a controlling application for which pending autologon requests may exist. *Controlling\_appl* can be network qualified. If *controlling\_appl* is not network qualified, then the network ID of the host from which the command was issued is used.

#### **SCOPE**

Specifies whether the display output includes the names of secondary logical units that have pending autologon requests for each controlling application.

##### **SCOPE=ALL**

A list of secondary logical units that have pending autologon requests is displayed for each controlling application that is displayed.

##### **SCOPE=ONLY**

A list of secondary logical units that have pending autologon requests is not displayed.

#### **MAX**

Specifies the maximum number of resources to be displayed by this command.

##### **MAX=\***

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

##### **MAX=number\_of\_resources**

Specifies the maximum number of resources to be displayed by this command. The valid range is from 1 up to an including the value of the DSPLYMAX start option. The default is the value specified for the DSPLYDEF start option.

Specifying the MAX operand limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer resources are found than you have specified on the MAX operand, VTAM displays only the resources that are found.

### Resulting display

The resulting display shows:

- For ID= and SCOPE=ONLY, if pending autologon requests exist for the controlling application specified on the ID= operand, the controlling application name is displayed, along with the condition or conditions that will cause these pending autologon requests to be initiated.

- For ID= and SCOPE=ALL, if pending autologon requests exist for the controlling application specified on the ID= operand, the controlling application name is displayed, along with the condition or conditions that will cause these pending autologon requests to be initiated. A list of secondary logical units that have autologon requests pending for this controlling application is also displayed.
- For SCOPE=ONLY, every controlling application that has at least one pending autologon request is displayed, along with the condition or conditions that will cause these pending autologon requests to be initiated.
- For SCOPE=ALL, every controlling application that has at least one pending autologon request is displayed, along with the condition or conditions that will cause these pending autologon requests to be initiated. A list of secondary logical units that have autologon requests pending for each controlling application is also displayed.

### Examples

The following sample output is displayed if an autologon request is pending for APPL1. The host on which the command was issued has the AUTOTI start option set to a nonzero value, the AUTORTRY=CDRM start option is set, and the host network ID is NETA:

```
d net,autolog,id=appl1
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = AUTOLOG
IST1990I PENDING AUTOLOGON REQUESTS FOR:
IST1991I NETA.APPL1 - WAITING FOR CDRM ACTIVATION
IST1996I      OR AUTOTI TIMER
IST314I END
```

The following sample output is displayed if an autologon request is pending for APPL1. The host on which the command was issued has the AUTOTI start option set to a nonzero value, the AUTORTRY=CDRM start option is set, and the host network ID is NETA. In this case, the pending autologon request for APPL1 was created when an autologon request found APPL1 to be in a connectable state (not enabled for sessions). The host that contains APPL1 sends a notification when APPL1 becomes session capable:

```
d net,autolog,id=appl1
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = AUTOLOG
IST1990I PENDING AUTOLOGON REQUESTS FOR:
IST1993I NETA.APPL1 - WAITING FOR PLU NOTIFICATION
IST314I END
```

The following sample output is displayed if SCOPE=ALL is included on the previous command:

```
d net,autolog,id=appl1,scope=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = AUTOLOG
IST1990I PENDING AUTOLOGON REQUESTS FOR:
IST1993I NETA.APPL1 - WAITING FOR PLU NOTIFICATION
IST1997I NETA.L3A3278A      NETA.L3A3279C
IST314I END
```

The following sample output is displayed if autologon requests are pending for APPL1, APPL2, and APPLBA1. In this case, the real network ID is known for APPL1 and APPLBA1, but not for APPL2. The host on which the command was issued has AUTOTI defined with a nonzero value and AUTORTRY=ALL. The pending autologon request for APPL1 was created when an autologon request found APPL1 to be in a connectable state (not enabled for sessions). The pending

## DISPLAY AUTOLOG

autologon requests for APPL2 and APPLBA1 were created when these autologon requests failed to find the controlling applications.

### d net,autolog

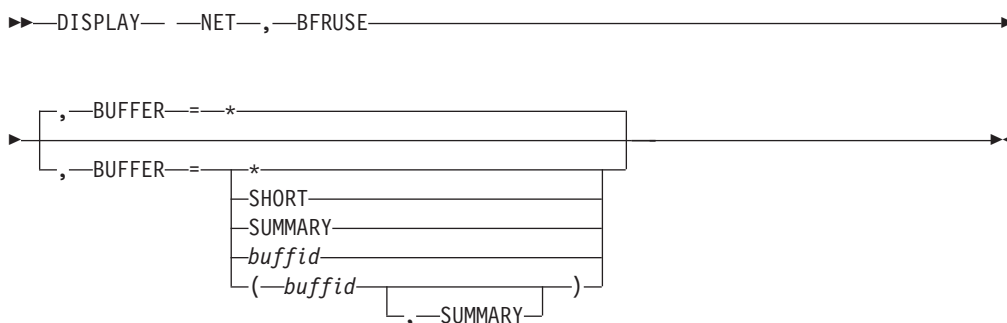
```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = AUTOLOGON
IST1990I PENDING AUTOLOGON REQUESTS FOR:
IST1991I NETA.APPL1 - WAITING FOR PLU NOTIFICATION
IST1994I APPL2 - WAITING FOR CDRM OR CPCP ACTIVATION
IST1996I      OR AUTOTI TIMER
IST1994I NETB.APPLBA1 - WAITING FOR CDRM OR CPCP ACTIVATION
IST1996I      OR AUTOTI TIMER
IST314I END
```

The following sample output is displayed when two LUs in this host have logged off their controlling application (APPL1), which is in a different host and is session-capable:

### d net,autolog,id=appl1,scope=all

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = AUTOLOG
IST1990I PENDING AUTOLOGON REQUESTS FOR:
IST2100I NETA.APPL1 - NORMALLY LOGGED OFF LUS
IST1997I NETB.L3B3278A      NETB.L3B3279C
IST314I END
```

## DISPLAY BFRUSE command



## Abbreviations

Operand	Abbreviation
DISPLAY	D
BUFFER=*	BUF=*
BUFFER=buffid	BUF=buffid
BUFFER=SHORT	BUF=SH
BUFFER=SUMMARY	BUF=SUMM

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for BUFFER=SHORT, code only BUF=SH. Do not code BUFFER=SH.

## Purpose

The DISPLAY BFRUSE (buffer use) command displays information about VTAM buffer use. It also displays storage usage summary information for VTAM modules.

## Operands

### **BUFFER**

Specifies the buffers to display.

Table 1 on page 47 shows, for each buffer pool, the buffer pool ID, its name, and its abbreviation.

### **BUFFER=\***

Displays all buffer pools and information along with:

- Common service area (CSA) usage for buffers
- Intermediate routing node buffer usage limit (IRNLIMIT)
- VTAM private storage usage for buffers
- Common service area (CSA) usage for modules
- VTAM private storage usage for modules

### **BUFFER=SHORT**

Displays a shortened format of buffer-related information. Five digits are shown instead of 10. If the number is too large for display in 5 digits, then 5 asterisks (\*\*\*\*\*) are displayed. To view the data for that buffer, you can use the BUFFER=buffid operand.

The SHORT operand displays buffer pool information, along with:

- CSA usage for buffers
- IRNLIMIT buffer usage
- VTAM private storage usage for buffers
- CSA usage for modules
- VTAM private storage usage for modules

### **BUFFER=SUMMARY**

Displays information about:

- CSA usage for buffers
- IRNLIMIT buffer usage
- VTAM private storage usage for buffers
- CSA usage for modules
- VTAM private storage usage for modules

The information supplied by SUMMARY is independent of the information supplied by *buffid*. SUMMARY can be specified with or without *buffid*.

### **BUFFER=buffid**

Displays buffer pool count information for one or more standard VTAM buffer pools. Buffer pool count information will be displayed for the specified pools. A buffer name can be the full name, the buffer ID, or an abbreviation.

## Resulting display

For each buffer pool requested, the resulting VTAM display shows:

- The buffer pool identification (name of the buffer pool).

## DISPLAY BFRUSE

- Queued buffer requests (indicated by a **Q** after the buffer pool identification). The message display shows the expansion limit for the **Q** buffer and the number of buffers needed to satisfy the queued requests.
- Whether an expansion attempt has failed (indicated by an **F** after the buffer pool identification). The message display shows the expansion limit for the **F** buffer and the number of buffers needed to satisfy the queued requests.
- The size of each buffer, in bytes. (For certain buffer pools, such as IOBUF, the size displayed might not match the size specified in the buffer pool start options because VTAM increases the size of some buffers for buffer headers that must be added.
- The number of buffers currently assigned to the pool.
- The number of buffers currently available for use.
- The maximum number of buffers ever assigned to the pool (since the last SMS trace record was written, if an SMS trace is active).
- The maximum number of buffers ever used within the pool (since the last SMS trace record was written, if an SMS trace is active).
- The number of times that the buffer pool has been expanded (since the last SMS trace record was written, if an SMS trace is active).
- The number of available buffers at or below which expansion will occur.
- The number of available buffers at or above which contraction will be attempted.
- The number of buffers to be added during each expansion. This field contains "NA" (not applicable) if the dynamic buffer expansion function is not being used.

VTAM displays additional storage usage information when the BUFFER operand is not coded, when BUFFER=\*, when BUFFER=SHORT, or when BUFFER=SUMMARY is specified:

- For VTAM's common service area (CSA), including 24-bit and 31-bit addressable storage:
  - The usage limit for buffers
  - The current usage for buffers and modules

**Note:** Current usage for buffers is shown in message IST449I. Current usage for modules is shown in message IST1565I.

- The maximum CSA usage for buffers since the last DISPLAY BFRUSE command
- The maximum CSA usage for buffers since VTAM was started
- The system CSA limit (90% of the total 24-bit and 31-bit CSA defined to the system)
- For 24-bit addressable CSA storage:
  - The usage limit for buffers
  - The current usage for buffers and modules

**Note:** Current usage for buffers is shown in message IST449I. Current usage for modules is shown in message IST1565I.

- The maximum CSA usage for buffers since the last DISPLAY BFRUSE command
- The maximum CSA usage for buffers since VTAM was started

**Note:** If VTAM requests 31-bit addressable storage and the operating system cannot honor the CSA storage request, the operating system provides VTAM with 24-bit addressable storage. The resulting display, however, shows the explicit storage request.

- VTAM's intermediate routing node buffer usage limit (IRNLIMIT), current buffer usage, and maximum buffer usage
- Current VTAM private storage usage for buffers and modules and the maximum amount of VTAM private storage for buffers ever in use since VTAM was started.

**Note:** The private storage amount includes storage allocated by VTAM's Storage Management services, plus the storage for VTAM tables and installation-wide exit routines.

Current usage for buffers is shown in message IST981I. Current usage for modules is shown in message IST1565I.

For more information about using VTAM buffer use data, see the *z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures*.

Table 1 shows the IDs, names, and abbreviated names of the buffer pools. For descriptions of VTAM buffer pools, see the *z/OS Communications Server: SNA Network Implementation Guide*.

*Table 1. Buffer pools*

ID	Name	Abbrev
IO00	IOBUF	IO
BS00	BSBUF	BS
LP00	LPBUF	LP
XD00	XDBUF	XD
LF00	LFBUF	LF
CRPL	CRPLBUF	CR
SF00	SFBUF	SF
SP00	SPBUF	SP
AP00	APBUF	AP
TI00	TIBUF	TI
T100	T1BUF	T1
T200	T2BUF	T2
CRA4	CRA4BUF	CRA4
CRA8	CRA8BUF	CRA8

## Examples

Displaying VTAM buffer usage for a specific buffer:

```
d net,bfruse,buffer=io00
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = BUFFER POOL DATA
IST920I IO00      BUFF SIZE  334      EXP INCREMENT  55
IST921I          TIMES EXP  0        EXP/CONT THRESH 36 / *NA*
```

## DISPLAY BFRUSE

```

IST922I          CURR TOTAL 110          CURR AVAILABLE 110
IST923I          MAX TOTAL  110          MAX USED       1
IST989I          EXP LIMIT 2147483647    BUFFS REQUESTED 0
IST314I END

```

Displaying a storage usage summary:

**d net,bfruse,buffer=summary**

```

IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = BUFFER POOL DATA
IST449I CSALIMIT = 464565K, CURRENT = 40692K, MAXIMUM = 40692K
IST790I MAXIMUM CSA USED = 40692K
IST1667I SYSTEM CSA LIMIT = 516184K
IST1831I 84% OF SYSTEM CSA STORAGE REMAINING = 433967K
IST449I CSA24 LIMIT = NOLIMIT, CURRENT = 59K, MAXIMUM = 59K
IST790I MAXIMUM CSA24 USED = 60K
IST595I IRNLIMIT = NOLIMIT, CURRENT = 0K, MAXIMUM = 0K
IST981I VTAM PRIVATE: CURRENT = 1300K, MAXIMUM USED = 1343K
IST924I -----
| IST2403I 64-BIT STORAGE TYPE          CURRENT  MAXIMUM  LIMIT
| IST2404I HVCOMMON                     7M        7M     NOLIMIT
| IST2405I TRACE HVCOMMON                4M        4M     2048M
| IST2413I PRIVATE                       22M       22M     NOLIMIT
| IST2412I FIXED HVCOMMON                11M       11M     NOLIMIT
| IST2414I FIXED PRIVATE                  22M       22M     NOLIMIT
| IST2415I TOTAL FIXED                    33M       33M     **NA**
| -----
IST924I -----
IST1565I CSA MODULES = 1796K
IST1565I CSA24 MODULES = 40K
IST1565I PRIVATE MODULES = 7700K
IST314I END

```

Displaying VTAM buffer usage for a buffer pool and a storage usage summary:

**d net,bfruse,buffer=(io00,summary)**

```

IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = BUFFER POOL DATA
IST920I IO00    BUFF SIZE 619          EXP INCREMENT 504
IST921I          TIMES EXP 0           EXP/CONT THRESH 500 / *NA*
IST922I          CURR TOTAL 4002       CURR AVAILABLE 4002
IST923I          MAX TOTAL 4002       MAX USED       1
IST989I          EXP LIMIT 696846     BUFFS REQUESTED 0
IST924I -----
IST449I CSALIMIT = 464565K, CURRENT = 40692K, MAXIMUM = 40692K
IST790I MAXIMUM CSA USED = 40692K
IST1667I SYSTEM CSA LIMIT = 516184K
IST1831I 84% OF SYSTEM CSA STORAGE REMAINING = 433917K
IST449I CSA24 LIMIT = NOLIMIT, CURRENT = 59K, MAXIMUM = 59K
IST790I MAXIMUM CSA24 USED = 60K
IST595I IRNLIMIT = NOLIMIT, CURRENT = 0K, MAXIMUM = 0K
IST981I VTAM PRIVATE: CURRENT = 1300K, MAXIMUM USED = 1343K
IST924I -----
| IST2403I 64-BIT STORAGE TYPE          CURRENT  MAXIMUM  LIMIT
| IST2404I HVCOMMON                     7M        7M     NOLIMIT
| IST2405I TRACE HVCOMMON                4M        4M     2048M
| IST2413I PRIVATE                       22M       22M     NOLIMIT
| IST2412I FIXED HVCOMMON                11M       11M     NOLIMIT
| IST2414I FIXED PRIVATE                  22M       22M     NOLIMIT
| IST2415I TOTAL FIXED                    33M       33M     **NA**
| -----
IST924I -----
IST1565I CSA MODULES = 1796K
IST1565I CSA24 MODULES = 40K
IST1565I PRIVATE MODULES = 7700K
IST314I END

```

Displaying a VTAM buffer usage summary in table format and a storage usage summary:



**d net,bfruse,buffer=short**

```

IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = BUFFER POOL DATA 850
IST632I BUFF  BUFF  CURR  CURR  MAX  MAX  TIMES  EXP/CONT  EXP
IST633I ID    SIZE  TOTAL AVAIL TOTAL USED  EXP  THRESHOLD  INCR
IST356I I000  619  4002  4002  4002  1    0    500/-----  504
IST356I BS00  260  70    70    70    0    0    29/-----  70
IST356I LP00  2032 12    10    12    4    0    2/-----  6
IST356I XD00  697  5     5     5     0    0    4/-----  5
IST356I LF00  120  30   27   30   3    0    1/-----  30
IST356I CRPL 144  75   75   75   1    0    29/-----  75
IST356I SF00  112  32   30   32   2    0    1/-----  32
IST356I SP00  176  21   21   21   0    0    1/-----  21
IST356I AP00   56  56   56   56   0    0    3/-----  56
IST356I TI00  632 26004 26004 26004 5    0    60/----- 1002
IST356I T100 1004  500  500  500   0    0    60/-----  300
IST356I T200 2028 9000 9000 9000  0    0    60/-----  300
IST356I CRA4 4080  100  98   100  4    0    20/-----  10
IST356I CRA8 8176  12   11   12   4    0    2/-----  6
IST449I CSALIMIT = 464565K, CURRENT = 40692K, MAXIMUM = 40692K
IST790I MAXIMUM CSA USED = 40692K
IST1667I SYSTEM CSA LIMIT = 516184K
IST1831I 84% OF SYSTEM CSA STORAGE REMAINING = 433917K
IST449I CSA24 LIMIT = NOLIMIT, CURRENT = 59K, MAXIMUM = 59K
IST790I MAXIMUM CSA24 USED = 60K
IST595I IRNLIMIT = NOLIMIT, CURRENT = 0K, MAXIMUM = 0K
IST981I VTAM PRIVATE: CURRENT = 1300K, MAXIMUM USED = 1343K
IST924I -----
IST2403I 64-BIT STORAGE TYPE          CURRENT  MAXIMUM  LIMIT
IST2404I          HVCOMMON              7M      7M    NOLIMIT
IST2405I          TRACE HVCOMMON         4M      4M    2048M
IST2413I          PRIVATE                22M     22M    NOLIMIT
IST2412I          FIXED HVCOMMON         11M     11M    NOLIMIT
IST2414I          FIXED PRIVATE          22M     22M    NOLIMIT
IST2415I          TOTAL FIXED            33M     33M    **NA**
IST924I -----
IST1565I CSA MODULES = 1796K
IST1565I CSA24 MODULES = 40K
IST1565I PRIVATE MODULES = 7700K
IST314I END

```

Displaying VTAM buffer usage for all buffers and a storage usage summary:

**d net,bfruse**

```

IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = BUFFER POOL DATA 860
IST920I I000  BUFF SIZE 619          EXP INCREMENT 504
IST921I          TIMES EXP 0          EXP/CONT THRESH 500 / *NA*
IST922I          CURR TOTAL 4002      CURR AVAILABLE 4001
IST923I          MAX TOTAL 4002      MAX USED 5
IST989I          EXP LIMIT 696846    BUFFS REQUESTED 0
IST924I -----
IST920I BS00  BUFF SIZE 260          EXP INCREMENT 70
IST921I          TIMES EXP 0          EXP/CONT THRESH 29 / *NA*
IST922I          CURR TOTAL 70        CURR AVAILABLE 70
IST923I          MAX TOTAL 70        MAX USED 0
IST924I -----
IST920I LP00  BUFF SIZE 2032         EXP INCREMENT 6
IST921I          TIMES EXP 0          EXP/CONT THRESH 2 / *NA*
IST922I          CURR TOTAL 12        CURR AVAILABLE 10
IST923I          MAX TOTAL 12        MAX USED 4
IST924I -----
IST920I XD00  BUFF SIZE 697          EXP INCREMENT 5
IST921I          TIMES EXP 0          EXP/CONT THRESH 4 / *NA*
IST922I          CURR TOTAL 5         CURR AVAILABLE 5
IST923I          MAX TOTAL 5         MAX USED 0
IST924I -----

```

# DISPLAY BFRUSE

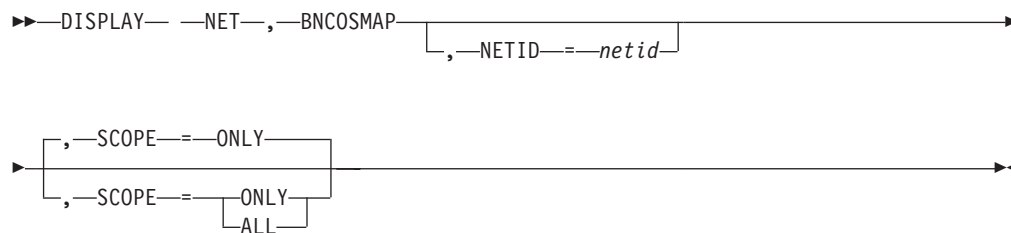
```

IST920I LF00    BUFF SIZE 120      EXP INCREMENT 30
IST921I        TIMES EXP 0        EXP/CONT THRESH 1 / *NA*
IST922I        CURR TOTAL 30      CURR AVAILABLE 26
IST923I        MAX TOTAL 30      MAX USED 4
IST924I -----
IST920I CRPL   BUFF SIZE 144      EXP INCREMENT 75
IST921I        TIMES EXP 0        EXP/CONT THRESH 29 / *NA*
IST922I        CURR TOTAL 75      CURR AVAILABLE 73
IST923I        MAX TOTAL 75      MAX USED 2
IST924I -----
IST920I SF00   BUFF SIZE 112      EXP INCREMENT 32
IST921I        TIMES EXP 0        EXP/CONT THRESH 1 / *NA*
IST922I        CURR TOTAL 32      CURR AVAILABLE 30
IST923I        MAX TOTAL 32      MAX USED 2
IST924I -----
IST920I SP00   BUFF SIZE 176      EXP INCREMENT 21
IST921I        TIMES EXP 0        EXP/CONT THRESH 1 / *NA*
IST922I        CURR TOTAL 21      CURR AVAILABLE 21
IST923I        MAX TOTAL 21      MAX USED 0
IST924I -----
IST920I AP00   BUFF SIZE 56        EXP INCREMENT 56
IST921I        TIMES EXP 0        EXP/CONT THRESH 3 / *NA*
IST922I        CURR TOTAL 56      CURR AVAILABLE 56
IST923I        MAX TOTAL 56      MAX USED 0
IST924I -----
IST920I TI00   BUFF SIZE 632      EXP INCREMENT 1002
IST921I        TIMES EXP 0        EXP/CONT THRESH 60 / *NA*
IST922I        CURR TOTAL 26004   CURR AVAILABLE 26004
IST923I        MAX TOTAL 26004   MAX USED 5
IST924I -----
IST920I T100   BUFF SIZE 1004     EXP INCREMENT 300
IST921I        TIMES EXP 0        EXP/CONT THRESH 60 / *NA*
IST922I        CURR TOTAL 500     CURR AVAILABLE 500
IST923I        MAX TOTAL 500     MAX USED 0
IST924I -----
IST920I T200   BUFF SIZE 2028     EXP INCREMENT 300
IST921I        TIMES EXP 0        EXP/CONT THRESH 60 / *NA*
IST922I        CURR TOTAL 9000    CURR AVAILABLE 9000
IST923I        MAX TOTAL 9000    MAX USED 0
IST924I -----
IST920I CRA4   BUFF SIZE 4080     EXP INCREMENT 10
IST921I        TIMES EXP 0        EXP/CONT THRESH 20 / *NA*
IST922I        CURR TOTAL 100     CURR AVAILABLE 98
IST923I        MAX TOTAL 100     MAX USED 4
IST924I -----
IST920I CRA8   BUFF SIZE 8176     EXP INCREMENT 6
IST921I        TIMES EXP 0        EXP/CONT THRESH 2 / *NA*
IST922I        CURR TOTAL 12      CURR AVAILABLE 11
IST923I        MAX TOTAL 12      MAX USED 4
IST924I -----
IST449I CSALIMIT = 464565K, CURRENT = 40695K, MAXIMUM = 40695K
IST790I MAXIMUM CSA USED = 40695K
IST1667I SYSTEM CSA LIMIT = 516184K
IST1831I 84% OF SYSTEM CSA STORAGE REMAINING = 433943K
IST449I CSA24 LIMIT = NOLIMIT, CURRENT = 59K, MAXIMUM = 59K
IST790I MAXIMUM CSA24 USED = 60K
IST595I IRNLIMIT = NOLIMIT, CURRENT = 0K, MAXIMUM = 0K
IST981I VTAM PRIVATE: CURRENT = 1352K, MAXIMUM USED = 1352K
IST924I -----
| IST2403I 64-BIT STORAGE TYPE      CURRENT  MAXIMUM  LIMIT
| IST2404I HVCOMMON                  7M      7M     NOLIMIT
| IST2405I TRACE HVCOMMON            4M      4M     2048M
| IST2413I PRIVATE                   22M     22M     NOLIMIT
| IST2412I FIXED HVCOMMON            11M     11M     NOLIMIT
| IST2414I FIXED PRIVATE              22M     22M     NOLIMIT
| IST2415I TOTAL FIXED                33M     33M     **NA**
| IST924I -----

```

IST1565I CSA MODULES = 1796K  
 IST1565I CSA24 MODULES = 40K  
 IST1565I PRIVATE MODULES = 7700K  
 IST314I END

## DISPLAY BNCOSMAP command



### Abbreviations

Operand	Abbreviation
DISPLAY	D
SCOPE=ALL	EVERY or E
SCOPE=ONLY	NONE or N

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for SCOPE=ALL, code only EVERY or E. Do not code SCOPE=E.

### Purpose

The DISPLAY BNCOSMAP (border node Class of Service mapping) command displays native and nonnative COS mappings defined for a border node.

### Operands

#### NETID=netid

Specifies the destination network for which native and nonnative border node COS mappings are to be displayed.

#### SCOPE

Indicates the range of border node COS mappings to be displayed. It is meaningful only if NETID is not specified.

#### SCOPE=ALL

Displays the COS mappings for all networks served by this border node.

#### SCOPE=ONLY

Displays border node COS mappings for the default NETID.

### Resulting display

The resulting display shows:

- If NETID is specified, all border node COS mappings for the specified network
- If NETID is not specified:
  - For SCOPE=ALL, all COS mappings defined for this border node
  - For SCOPE=ONLY, all border node COS mappings for the default network

## DISPLAY BNCOSMAP

### Examples

Displaying border node COS mappings for the default network:

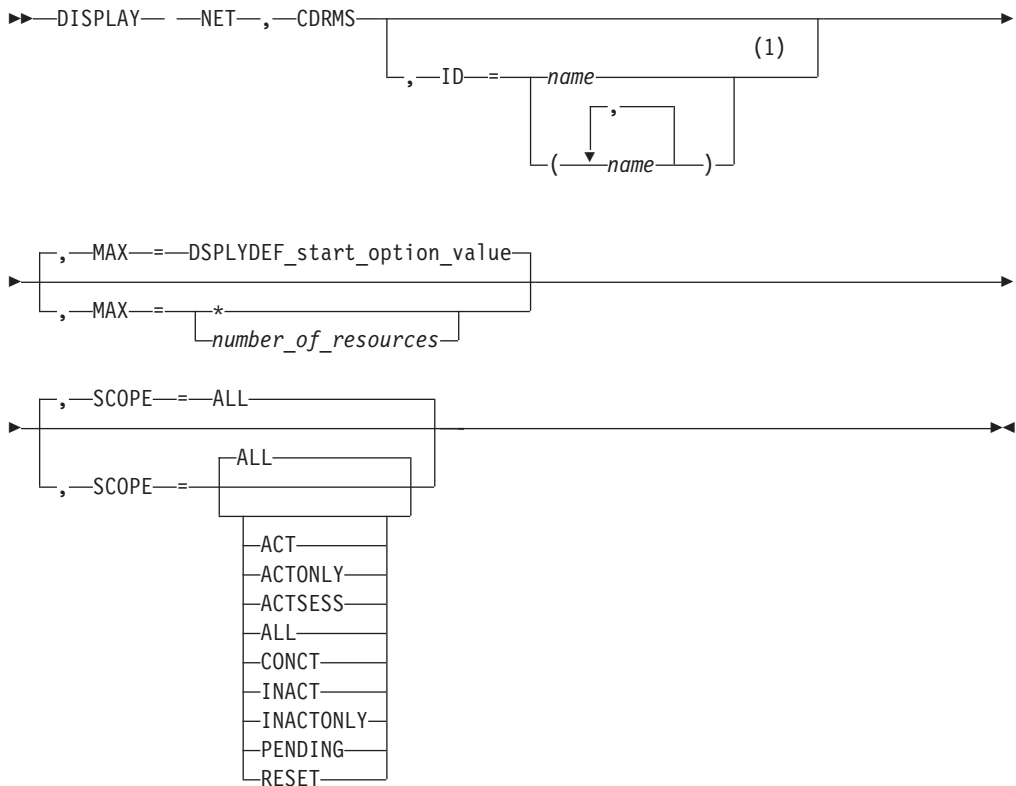
```
d net,bncosmap
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = BNCOSMAP
IST1321I TABLE FOR BNCOSMAP DEFAULT_NETID
IST1322I NON-NATIVE      NATIVE
IST1323I COS1           COS2
IST1323I COS3           COS2
IST1323I COS4           COS5
IST314I END
```

Displaying all border node COS mappings:

```
d net,bncosmap,scope=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = BNCOSMAP
IST1321I TABLE FOR BNCOSMAP NETB
IST1322I NON-NATIVE      NATIVE
IST1323I COSB3           COSC
IST1323I COSB2           COSB
IST1323I COSB1           COSA
IST924I -----
IST1321I TABLE FOR BNCOSMAP NETC
IST1322I NON-NATIVE      NATIVE
IST1323I COSC3           COSD
IST1323I COSC2           COSC
IST1323I COSC1           COSB
IST314I END
```

---

## DISPLAY CDRMS command



**Notes:**

- 1 Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.

**Abbreviations**

Operand	Abbreviation
DISPLAY	D
SCOPE=ACT	ACT or A
SCOPE=ACTONLY	ACTONLY
SCOPE=ACTSESS	ACTSESS
SCOPE=ALL	EVERY or E
SCOPE=CONCT	CONCT
SCOPE=INACT	INACT or I
SCOPE=INACTONLY	INACTONL
SCOPE=PENDING	PEND
SCOPE=RESET	RESET

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for SCOPE=ALL, code only EVERY or E. Do not code SCOPE=E.

**Purpose**

The DISPLAY CDRMS (cross-domain resource managers) command displays the status of active cross-domain resource manager (CDRM) major nodes and their subordinate minor nodes.

**Note:** To display cross-domain resource managers independently of the major nodes that contain them, use the DISPLAY RSCLIST command with IDTYPE=CDRMS.

**Operands**

**ID=name**

Specifies the name of one or more active CDRM major nodes whose subordinate resources are to be displayed.

Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand. For more information about using wildcards, see "Using wildcard names" on page 11.

**Attention:** Specifying a wildcard name might degrade performance because VTAM checks every CDRM major node in the network.

**MAX**

Specifies the maximum number of CDRM minor nodes that VTAM displays for this command.

**MAX=\***

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

## DISPLAY CDRMS

### **MAX=number\_of\_resources**

Specifies the number of CDRM minor nodes to display for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer CDRM program minor nodes are found than you have specified on MAX, VTAM displays only the CDRM minor nodes that are found.

### **SCOPE**

Specifies the required scope of the display.

**Note:** If you specify the SCOPE operand without specifying a value SCOPE=ALL is assumed.

### **SCOPE=ACT**

Specifies that information is to be displayed about all active, pending, and connectable CDRM minor nodes within the specified major nodes (or within all major nodes if the ID operand is omitted). If this display is undesirably large, you can use SCOPE=ACTONLY or SCOPE=CONCT to further limit the display.

### **SCOPE=ACTONLY**

Specifies that information is to be displayed about all CDRM minor nodes in an active state within the specified major nodes (or within all major nodes if the ID operand is omitted). The display does **not** include CDRMs in pending or connectable states. If no CDRMs are found in an active state, you can use SCOPE=ACT to broaden the scope of the display to include those in active, connectable, and pending states.

### **SCOPE=ACTSESS**

Specifies that information is to be displayed about all CDRM minor nodes that are active with sessions within the specified major nodes (or within all major nodes if the ID operand is omitted).

### **SCOPE=ALL**

Specifies that information is to be displayed about all CDRM minor nodes (regardless of their status) within the specified major nodes (or within all major nodes if the ID operand is omitted).

### **SCOPE=CONCT**

Specifies that information is to be displayed about all CDRM minor nodes in a CONCT (connectable) state within the specified major nodes (or within all major nodes if the ID operand is omitted). If no CDRMs are found in a connectable state, you can use SCOPE=ACT to broaden the scope of the display to include those in active, connectable, and pending states.

### **SCOPE=INACT**

Specifies that information is to be displayed about all inactive CDRM minor nodes within the specified major nodes (or within all major nodes if the ID operand is omitted). If this display is undesirably large, you can use SCOPE=INACTONLY or SCOPE=RESET to further limit the display.

### **SCOPE=INACTONLY**

Specifies that information is to be displayed about all inactive CDRM

minor nodes within the specified major nodes (or within all major nodes if the ID operand is omitted). Resources in a RESET state are not included in the SCOPE=INACTONLY display.

**SCOPE=PENDING**

Specifies that information is to be displayed about all pending CDRM minor nodes within the specified major nodes (or within all major nodes if the ID operand is omitted). A pending state is a transient state to or from the fully active state.

**SCOPE=RESET**

Specifies that information is to be displayed about all CDRM minor nodes in a RESET state within the specified major nodes (or within all major nodes if the ID operand is omitted).

**Resulting display**

The resulting display shows:

- The name and status of the specified active CDRM major nodes (or all active CDRM major nodes if the ID operand is omitted).
- For each active CDRM major node:
  - The name, status, subarea number, element address, and network identification is displayed for each minor node. This is limited to active, inactive, or pending minor nodes if specified on the SCOPE operand.
  - The network address within the gateway NCP used for the cross-network SSCP-SSCP session is displayed if you are displaying a CDRM in another network.

**Examples**

Displaying all CDRM major nodes and their minor nodes:

```
d net, cdrms
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CDRMS
IST089I CDRM1A TYPE = CDRM SEGMENT , ACTIV
IST1546I CDRM STATUS SUBAREA ELEMENT NETID SSCPID
IST1547I SSCP1A ACTIV 1 1 NETA 1
IST1547I SSCPAA NEVAC 10 1 NETA N/A
IST1547I SSCP2A NEVAC 2 1 NETA N/A
IST1547I SSCPBA NEVAC 11 1 NETA N/A
IST1547I SSCPCA NEVAC 12 1 NETA N/A
IST1547I SSCP7B ACTIV 5 1 NETB 7
IST1547I SSCP9C ACTIV 8 3 NETC 9
IST1454I 7 RESOURCE(S) DISPLAYED
IST314I END
```

Displaying a specific CDRM major node and its minor nodes:

```
d net, cdrms, id=cdm1a
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CDRMS
IST089I CDRM1A TYPE = CDRM SEGMENT , ACTIV
IST1546I CDRM STATUS SUBAREA ELEMENT NETID SSCPID
IST1547I SSCP1A ACTIV 1 1 NETA 1
IST1547I SSCPAA NEVAC 10 1 NETA N/A
IST1547I SSCP2A NEVAC 2 1 NETA N/A
IST1547I SSCPBA NEVAC 11 1 NETA N/A
IST1547I SSCPCA NEVAC 12 1 NETA N/A
```

## DISPLAY CDRMS

```

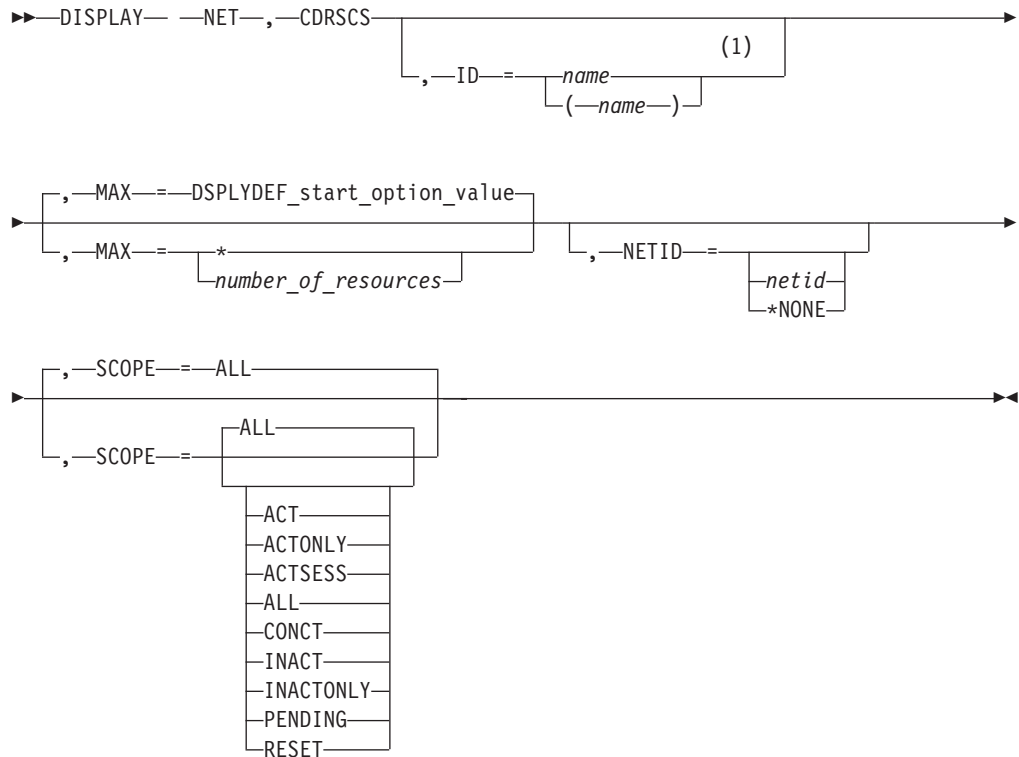
IST1547I SSCP7B   ACTIV      5      1 NETB      7
IST1547I SSCP9C   ACTIV      8      3 NETC      9
IST1454I 7 RESOURCE(S) DISPLAYED
IST314I  END
  
```

Displaying CDRM major nodes and their minor nodes, limiting output to five resources:

```

d net, cdrms, max=5
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CDRMS
IST089I CDRM1A   TYPE = CDRM SEGMENT      , ACTIV
IST1546I CDRM   STATUS   SUBAREA ELEMENT NETID   SSCPID
IST1547I SSCP1A   ACTIV      1      1 NETA      1
IST1547I SSCPAA   NEVAC     10      1 NETA     N/A
IST1547I SSCP2A   NEVAC      2      1 NETA     N/A
IST1547I SSCPBA   NEVAC     11      1 NETA     N/A
IST1547I SSCPCA   NEVAC     12      1 NETA     N/A
IST1454I 5 RESOURCE(S) DISPLAYED
IST314I  END
  
```

## DISPLAY CDRSCS command



### Notes:

- 1 Depending on the value of the `DSPLYWLD` start option, wildcard values can be used for this operand.

### Abbreviations

Operand	Abbreviation
DISPLAY	D
SCOPE=ACT	ACT or A



Operand	Abbreviation
SCOPE=ACTONLY	ACTONLY
SCOPE=ACTSESS	ACTSESS
SCOPE=ALL	EVERY or E
SCOPE=CONCT	CONCT
SCOPE=INACT	INACT or I
SCOPE=INACTONLY	INACTONL
SCOPE=PENDING	PEND
SCOPE=RESET	RESET

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for SCOPE=ALL, code only EVERY or E. Do not code SCOPE=E.

### Purpose

The DISPLAY CDRSCS (cross-domain resources) command displays information about cross-domain resources, including independent LUs.

**Note:** To display cross-domain resources independently of the major nodes that contain them, use the DISPLAY RSCLIST command with IDTYPE=CDRSCS.

### Operands

#### ID=name

Specifies the name of one or more active CDRSC major nodes whose subordinate resources are to be displayed.

Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand. For more information about using wildcards, see “Using wildcard names” on page 11.

**Attention:** Specifying a wildcard name might degrade performance because VTAM checks every CDRSC major node in the network.

#### MAX

Specifies the maximum number of CDRSC minor nodes that VTAM displays for this command.

#### MAX=\*

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

#### MAX=number\_of\_resources

Specifies the number of CDRSC minor nodes to display for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer CDRSC minor nodes are found than you have specified on MAX, VTAM displays only the CDRSC minor nodes that are found.

## DISPLAY CDRSCS

### NETID

Specifies the network identifier for which VTAM is to display CDRSCs.

If you do not specify the NETID operand, CDRSCs are displayed regardless of their network.

If you specify the NETID operand, but do not identify a specific network (that is, a value for *netid* is not entered), CDRSCs within the host network are displayed.

### NETID=*netid*

Specifies that VTAM display CDRSCs within the indicated network.

### NETID=*\*NONE*

Specifies that VTAM display only CDRSCs with unknown network identifiers.

**Note:** While sessions exist between VTAM and a cross-domain resource that was predefined without a network identifier, the resource is displayed with its real network identifier. When all sessions with the cross-domain resource have ended, the resource returns to having an unknown network identifier.

### SCOPE

Specifies the required scope of the display.

**Note:** If you specify the SCOPE operand without specifying a value SCOPE=ALL is assumed.

### SCOPE=ACT

Specifies that information is to be displayed about all active, pending, and connectable CDRSC minor nodes within the specified major nodes (or within all major nodes if the ID operand is omitted). If this display is undesirably large, you can use SCOPE=ACTONLY or SCOPE=CONCT to further limit the display.

### SCOPE=ACTONLY

Specifies that information is to be displayed about all CDRSC minor nodes in an active state within the specified major nodes (or within all major nodes if the ID operand is omitted). The display does **not** include CDRSCs in pending or connectable states. If no CDRSCs are found in an active state, you can use SCOPE=ACT to broaden the scope of the display to include those in active, connectable, and pending states.

### SCOPE=ACTSESS

Specifies that information is to be displayed about all CDRSC minor nodes that are active with sessions within the specified major nodes (or within all major nodes if the ID operand is omitted).

### SCOPE=ALL

Specifies that information is to be displayed about all CDRSC minor nodes (regardless of their status) within the specified major nodes (or within all major nodes if the ID operand is omitted).

### SCOPE=CONCT

Specifies that information is to be displayed about all CDRSC minor nodes in a CONCT (connectable) state within the specified major nodes (or within all major nodes if the ID operand is omitted). If no CDRSCs are found in a connectable state, you can use SCOPE=ACT to broaden the scope of the display to include those in active, connectable, and pending states.

**SCOPE=INACT**

Specifies that information is to be displayed about all inactive CDRSC minor nodes within the specified major nodes (or within all major nodes if the ID operand is omitted). If this display is undesirably large, you can use SCOPE=INACTONLY or SCOPE=RESET to further limit the display.

**SCOPE=INACTONLY**

Specifies that information is to be displayed about all inactive CDRSC minor nodes within the specified major nodes (or within all major nodes if the ID operand is omitted). Resources in a RESET state are not included in the SCOPE=INACTONLY display.

**SCOPE=PENDING**

Specifies that information is to be displayed about all pending CDRSC minor nodes within the specified major nodes (or within all major nodes if the ID operand is omitted). A pending state is a transient state to or from the fully active state.

**SCOPE=RESET**

Specifies that information is to be displayed about all CDRSC minor nodes in a RESET state within the specified major nodes (or within all major nodes if the ID operand is omitted).

**Resulting display**

The resulting display shows the following information:

- If ID is specified, the name and status of the specified CDRSC major node or nodes are displayed. Inactive CDRSC major nodes are not known to VTAM and are therefore not displayed.
- If ID is not specified, the name and status of each active CDRSC major node in the domain are displayed. Inactive CDRSC major nodes are not known to VTAM and are therefore not displayed.
- For each CDRSC major node, the name, status, owning CDRM, and NETID (where applicable) of each subordinate CDRSC minor node including model CDRSCs and clone CDRSCs are displayed. The display output is limited to active, inactive, or pending minor nodes if specified on the SCOPE operand.

**Examples**

Displaying cross-domain resources for a specific network:

```
d net, cdrscs, netid=neta
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CDRSCS
IST089I CDRSC1A TYPE = CDRSC SEGMENT , ACTIV
IST483I A04I042* ACTIV , CDRM = ***NA***, NETID = NETA
IST483I A04I0423 ACTIV , CDRM = ***NA***, NETID = NETA
IST483I A04I0422 ACTIV , CDRM = ***NA***, NETID = NETA
IST483I A04I0421 ACTIV , CDRM = ***NA***, NETID = NETA
IST089I ISTPDILU TYPE = CDRSC SEGMENT , ACTIV
IST483I L3A4956V ACTIV , CDRM = ***NA***, NETID = NETA
IST483I L3A4956W ACTIV , CDRM = ***NA***, NETID = NETA
IST089I ISTCDRDY TYPE = CDRSC SEGMENT , ACTIV
IST483I C25NVLUC ACTIV----Y, CDRM = ***NA***, NETID = NETA
IST1454I 7 RESOURCE(S) DISPLAYED
IST314I END
```

Displaying a specific cross-domain resource major node and its subordinate resources:

## DISPLAY CDRSCS

```
d net,cdrrscs,id=istpdilu
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CDRSCS
IST089I ISTPDILU TYPE = CDRSC SEGMENT , ACTIV
IST483I A31I3621 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A31I3622 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A31I3623 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A31I3624 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A31I3625 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A31I3631 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A31I3632 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A31I3633 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A31I3634 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A31I3635 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A31I4821 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A03I88B3 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A03I88B4 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A03I88B5 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A03I88C1 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A03I88C2 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A03I88C3 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A03I88C4 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A03I88C5 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST1454I 19 RESOURCE(S) DISPLAYED FOR ID=ISTPDILU
IST314I END
```

Displaying all cross-domain resources:

```
d net,cdrrscs
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CDRSCS
IST089I ISTPDILU TYPE = CDRSC SEGMENT , ACTIV
IST483I A04I0421 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A04I0422 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A04I0423 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A04I0424 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I A04I0425 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I C23I92C2 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I C23I92C3 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I C23I92C4 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST483I C23I92C5 ACTIV , CDRM = ***NA***, NETID = ***NA***
IST089I ISTCDRDY TYPE = CDRSC SEGMENT , ACTIV
IST483I C25NVLUC ACTIV----Y, CDRM = ***NA***, NETID = NETA
IST483I B01NVLUC ACTIV----Y, CDRM = ***NA***, NETID = NETA
IST483I A81NVLUC ACTIV----Y, CDRM = ***NA***, NETID = NETA
IST483I A03D207F ACT/S----Y, CDRM = A01N , NETID = NETA
IST483I C23D92CE ACT/S----Y, CDRM = A01N , NETID = NETC
IST483I C23D48CC ACT/S----Y, CDRM = A01N , NETID = NETC
IST483I C23D921D ACT/S----Y, CDRM = A01N , NETID = NETX
IST483I C23D527B ACT/S----Y, CDRM = A01N , NETID = NETC
IST483I C23D48CD ACT/S----Y, CDRM = A01N , NETID = NETC
IST483I C23D486B ACT/S----Y, CDRM = A01N , NETID = NETC
IST483I C23D486D ACT/S----Y, CDRM = A01N , NETID = NETC
IST483I C23D92AD ACT/S----Y, CDRM = A01N , NETID = NETC
IST483I A03D203B ACT/S----Y, CDRM = A01N , NETID = NETZ
IST483I A03D167C ACT/S----Y, CDRM = A01N , NETID = NETA
IST483I A03D883D ACT/S----Y, CDRM = A01N , NETID = NETZ
IST483I C23D486E ACT/S----Y, CDRM = A01N , NETID = NETC
IST483I C23D48AC ACT/S----Y, CDRM = A01N , NETID = NETC
IST483I C23D52CD ACT/S----Y, CDRM = A01N , NETID = NETC
IST483I A31D926C ACT/S----Y, CDRM = A01N , NETID = NETA
IST483I A31D48CC ACT/S----Y, CDRM = A01N , NETID = NETA
IST483I A04D209B ACT/S----Y, CDRM = A01N , NETID = NETA
IST483I C23D527F ACT/S----Y, CDRM = A01N , NETID = NETC
IST483I C23D483F ACT/S----Y, CDRM = A01N , NETID = NETZ
IST483I C23D524F ACT/S----Y, CDRM = A01N , NETID = NETC
IST483I C01NVLUC ACT/S----Y, CDRM = A01N , NETID = NETC
```

```

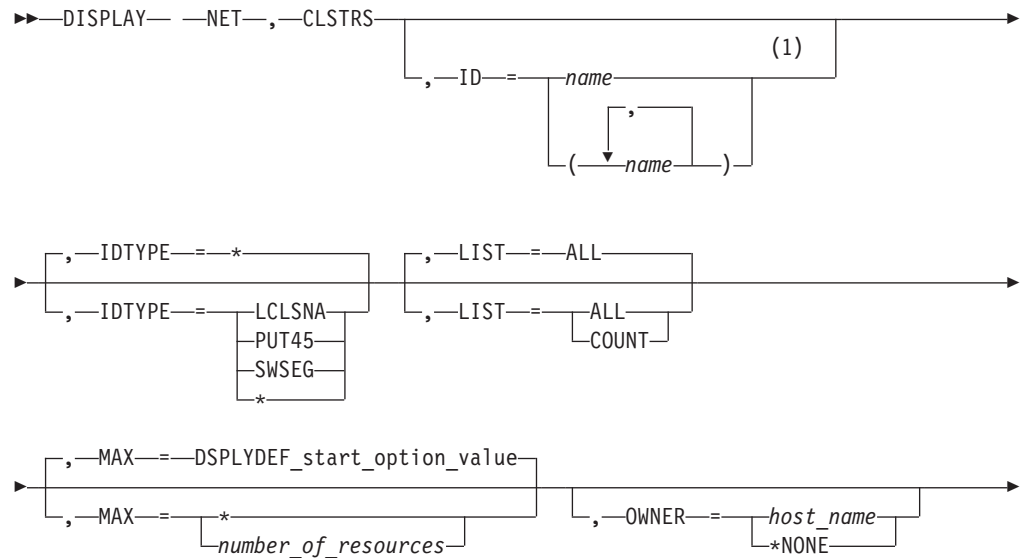
IST483I A02NVLUC ACT/S----Y, CDRM = A01N      , NETID = NETA
IST483I ECH002A  ACT/S----Y, CDRM = A01N      , NETID = NETA
IST483I A50NVLUC ACT/S----Y, CDRM = A01N      , NETID = NETA
IST483I A500N    ACT/S----Y, CDRM = A01N      , NETID = NETA
IST483I A02N     ACT/S----Y, CDRM = A01N      , NETID = NETA
IST1454I 39 RESOURCE(S) DISPLAYED
IST314I END
    
```

Displaying cross-domain resources limiting output to five resources:

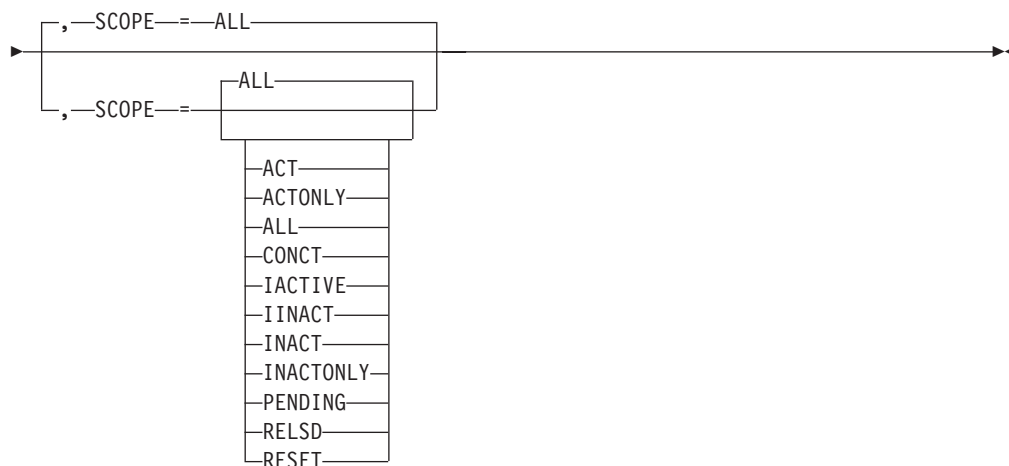
```

d net,cdrsacs,max=5
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CDRSCS
IST089I ISTDILU TYPE = CDRSC SEGMENT      , ACTIV
IST1358I NO QUALIFYING MATCHES
IST089I ISTDY TYPE = CDRSC SEGMENT      , ACTIV
IST1358I NO QUALIFYING MATCHES
IST089I CDRSC1A TYPE = CDRSC SEGMENT      , ACTIV
IST483I APPL8  ACTIV--S--, CDRM = SSCP1A   , NETID = ***NA***
IST483I APPL9  NEVAC--S--, CDRM = SSCP1A   , NETID = ***NA***
IST483I L4A3278A ACTIV      , CDRM = SSCP2A   , NETID = NETA
IST483I L4A3279A ACTIV      , CDRM = SSCP2A   , NETID = NETA
IST483I L4A3767D ACTIV      , CDRM = SSCP2A   , NETID = NETA
IST1315I DISPLAY TRUNCATED AT MAX = 5
IST1454I 5 RESOURCE(S) DISPLAYED
IST314I END
    
```

## DISPLAY CLSTRS command



## DISPLAY CLSTRS



### Notes:

- 1 Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.

### Abbreviations

Operand	Abbreviation
DISPLAY	D
SCOPE=ACT	ACT or A
SCOPE=ACTONLY	ACTONLY
SCOPE=ALL	EVERY or E
SCOPE=CONCT	CONCT
SCOPE=INACT	INACT or I
SCOPE=INACTONLY	INACTONL
SCOPE=PENDING	PEND
SCOPE=RELSD	RELSD
SCOPE=RESET	RESET

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for SCOPE=ALL, code only EVERY or E. Do not code SCOPE=E.

### Purpose

The DISPLAY CLSTRS (clusters) command displays the status of physical units (PUs) subordinate to an NCP node, a local SNA node, or a switched subarea node.

**Note:** To display physical units independently of the major nodes that contain them, use the DISPLAY RSCLIST command with IDTYPE=CLSTRS.

### Operands

#### ID=name

Specifies the name of one or more active NCP, local SNA, or switched major nodes whose subordinate PUs are to be displayed.

If OWNER is also specified on this command, the value of ID must match the name of an NCP major node.

Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand. For more information about using wildcards, see “Using wildcard names” on page 11.

**Attention:** Specifying a wildcard name might degrade performance because VTAM checks every NCP, local SNA, and switched major node in the network.

### IDTYPE

Specifies the type of major node that the ID operand names. If several types of resources share the same name, IDTYPE can be used to identify which resource the command should act on. The default is IDTYPE=\*

#### IDTYPE=LCLSNA

Displays only the subordinate PUs defined in local SNA major nodes.

#### IDTYPE=PUT45

Displays only the subordinate PUs defined in PU type 4 and PU type 5 major nodes.

#### IDTYPE=SWSEG

Displays only the subordinate PUs defined in switched major nodes.

#### IDTYPE=\*

Displays the subordinate PUs defined in NCP major nodes, local SNA major nodes, and switched major nodes.

### LIST

Specifies the level of detail to display.

#### LIST=COUNT

Displays only the number of resources in each state, based on the filters specified in the SCOPE, OWNER, and IDTYPE keywords.

#### LIST=ALL

Displays information about all resources, based on the filters specified in the SCOPE, OWNER, and IDTYPE keywords.

### MAX

Specifies the maximum number of resources that VTAM displays for this command. This operand is valid only with LIST=ALL.

#### MAX=\*

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

#### MAX=number\_of\_resources

Specifies the number of PUs to display for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer PUs are found than you have specified on MAX, VTAM displays only the PUs that are found.

### OWNER

Specifies whether PUs defined with the OWNER operand are to be displayed.

## DISPLAY CLSTRS

This operand is valid only when the name or the wildcard value specified on the ID operand matches the name of an NCP major node.

### **OWNER=host\_name**

Specifies that only PUs whose owning SSCP (as determined by the OWNER operand on the GROUP, LINE, or PU definition statements) matches the *host\_name* specified are to be displayed.

### **OWNER=\*NONE**

Specifies that only PUs **without** an OWNER operand on the GROUP, LINE, or PU definition statements are to be displayed.

## **SCOPE**

Specifies the required scope of the display.

**Note:** If you specify the SCOPE operand without specifying a value SCOPE=ALL is assumed.

### **SCOPE=ACT**

Specifies that information is to be displayed about all active, pending, and connectable PUs within the specified major nodes (or within all NCP, local SNA, and switched major nodes if the ID operand is omitted). The information is displayed for the major node as well. If this display is undesirably large, you can use SCOPE=ACTONLY or SCOPE=CONCT to further limit the display.

### **SCOPE=ACTONLY**

Specifies that information is to be displayed about all PUs in an active state within the specified major nodes (or within all NCP, local SNA, and switched major nodes if the ID operand is omitted). The display does **not** include PUs in pending or connectable states. If no PUs are found in an active state, you can use SCOPE=ACT to broaden the scope of the display to include those in active, connectable, and pending states.

### **SCOPE=ALL**

Specifies that information is to be displayed about all PUs (regardless of status) within the specified major nodes (or within all NCP, local SNA, and switched major nodes if the ID operand is omitted). The information is displayed for the major node as well.

### **SCOPE=CONCT**

Specifies that information is to be displayed about all PUs in a CONCT (connectable) state within the specified major nodes (or within all NCP, local SNA, and switched major nodes if the ID operand is omitted). If no PUs are found in a connectable state, you can use SCOPE=ACT to broaden the scope of the display to include those in active, connectable, and pending states

### **SCOPE=IACTIVE**

Specifies that information is to be displayed about all PUs within the specified major nodes (or within all NCP, local SNA, and switched major nodes if the ID operand is omitted) for which the minor node is ISTATUS=INACTIVE.

### **SCOPE=IINACT**

Specifies that information is to be displayed about all PUs within the specified major nodes (or within all NCP, local SNA, and switched major nodes if the ID operand is omitted) for which the minor node is ISTATUS=ACTIVE.



**SCOPE=INACT**

Specifies that information is to be displayed about all inactive PUs within the specified major nodes (or within all NCP, local SNA, and switched major nodes if the ID operand is omitted). The information is displayed for the major node as well. If this display is undesirably large, you can use SCOPE=INACTONLY or SCOPE=RESET to further limit the display.

**SCOPE=INACTONLY**

Specifies that information is to be displayed about all inactive PUs within the specified major nodes (or within all major nodes if the ID operand is omitted). Resources in a RESET state are not included in the SCOPE=INACTONLY display.

**SCOPE=PENDING**

Specifies that information is to be displayed about all pending PUs within the specified major nodes (or within all NCP, local SNA, and switched major nodes if the ID operand is omitted). A pending state is a transient state to or from the fully active state.

**SCOPE=RELSD**

Specifies that the information is to be displayed about all PUs in a RELSD state within the specified major nodes (or within all NCP, local SNA, and switched major nodes if the ID operand is omitted).

**SCOPE=RESET**

Specifies that information is to be displayed about all PUs in a RESET state within the specified major nodes (or within all NCP, local SNA, and switched major nodes if the ID operand is omitted).

**Resulting display**

The resulting display shows:

- For each active major node defining physical units, the major node name, status, and type, the names of the active, inactive, pending, or all physical units (as determined by the SCOPE operand) associated with the major node, and the status and node type for each subordinate resource listed.
- For local SNA major nodes, the channel device name for every physical unit in the local SNA major node.

**Examples**

Displaying all physical units (clusters) subordinate to a specific major node:

```
d net,clstrs,id=c23smnc
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CLUSTERS/PHYS UNITS
IST089I C23SMNC TYPE = SW SNA MAJ NODE , ACTIV
IST089I C23P922 TYPE = PU_T2 , CONCT
IST089I C23P923 TYPE = PU_T2 , CONCT
IST089I C23P925 TYPE = PU_T2 , CONCT
IST089I C23P926 TYPE = PU_T2 , CONCT
IST089I C23P928 TYPE = PU_T2 , CONCT
IST089I C23P929 TYPE = PU_T2 , CONCT
IST089I C23P92B TYPE = PU_T2 , CONCT
IST089I C23P92C TYPE = PU_T2 , CONCT
IST1454I 9 RESOURCE(S) DISPLAYED FOR ID=C23SMNC
IST314I END
```

Displaying all physical units (clusters) owned by a specific SSCP:

## DISPLAY CLSTRS

```
d net.clstrs,owner=sscp1a
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CLUSTERS/PHYS UNITS
IST089I NCP3AA1 TYPE = PU T4/5 , PCTD1
IST089I P3A3767A TYPE = PU_T1 , NEVAC
IST089I P3A3274A TYPE = PU_T2 , NEVAC
IST089I P3A4956A TYPE = PU_T2 , NEVAC
IST089I P3A3767D TYPE = PU_T1 , NEVAC
IST089I P3A4956G TYPE = PU_T2 , NEVAC
IST089I P3A3767C TYPE = PU_T1 , NEVAC
IST089I P3A4956E TYPE = PU_T2 , NEVAC
IST089I P3A4956F TYPE = PU_T2 , NEVAC
IST089I P3A4956C TYPE = PU_T2 , NEVAC
IST089I P3A3274B TYPE = PU_T2 , NEVAC
IST089I P3A3767B TYPE = PU_T1 , NEVAC
IST089I P3A4956D TYPE = PU_T2 , NEVAC
IST089I P3A3274C TYPE = PU_T2 , NEVAC
IST1454I 14 RESOURCE(S) DISPLAYED
IST314I END
```

Displaying all physical units (clusters):

```
d net.clstrs
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CLUSTERS/PHYS UNITS
IST089I ISTDSWMN TYPE = SW SNA MAJ NODE , ACTIV
IST089I A04P88A TYPE = PU_T2 , ACTIV---X-
IST089I A04P887 TYPE = PU_T2 , ACTIV---X-
IST089I A04P884 TYPE = PU_T2 , ACTIV---X-
IST089I A04P881 TYPE = PU_T2 , ACTIV---X-
IST089I C23SMNC TYPE = SW SNA MAJ NODE , ACTIV
IST089I C23P922 TYPE = PU_T2 , CONCT
IST089I C23P923 TYPE = PU_T2 , CONCT
IST089I C23P925 TYPE = PU_T2 , CONCT
IST089I C23P926 TYPE = PU_T2 , CONCT
IST089I C23P928 TYPE = PU_T2 , CONCT
IST089I C23P929 TYPE = PU_T2 , CONCT
IST089I C23P92B TYPE = PU_T2 , CONCT
IST089I C23P92C TYPE = PU_T2 , CONCT
IST089I A04SMNC TYPE = SW SNA MAJ NODE , ACTIV
IST089I A04P882 TYPE = PU_T2 , ACTIV--L--
IST089I A04P883 TYPE = PU_T2 , ACTIV--L--
IST089I A04P885 TYPE = PU_T2 , ACTIV--L--
IST089I A04P886 TYPE = PU_T2 , ACTIV--L--
IST089I A04P888 TYPE = PU_T2 , ACTIV--L--
IST089I A04P889 TYPE = PU_T2 , ACTIV--L--
IST089I A04P88B TYPE = PU_T2 , ACTIV--L--
IST089I A04P88C TYPE = PU_T2 , ACTIV--L--
IST089I SMNA01C TYPE = SW SNA MAJ NODE , ACTIV
IST089I A50NETNA TYPE = PU_T2 , ACTIV--L--
IST089I A02NETNA TYPE = PU_T2 , ACTIV--L--
IST089I A02NETNB TYPE = PU_T2 , ACTIV--L--
IST089I A0462ZC TYPE = PU T4/5 , ACTIV
IST089I A04C001 TYPE = PU_T2 , NEVAC
IST089I A04C002 TYPE = PU_T2 , NEVAC
IST089I A04C011 TYPE = PU_T2 , NEVAC
IST089I A04C012 TYPE = PU_T2 , NEVAC
IST089I A04C031 TYPE = PU_T2 , NEVAC
IST089I A04C032 TYPE = PU_T2 , NEVAC
IST089I A04NXXX TYPE = PU_T2 , NEVAC----T
IST089I A04P041 TYPE = PU_T2 , NEVAC
IST089I A04P042 TYPE = PU_T2 , NEVAC
IST089I A04P043 TYPE = PU_T2 , NEVAC
IST1454I 38 RESOURCE(S) DISPLAYED
IST314I END
```

Displaying physical units (clusters), limiting output to three resources:

```
d net,clstrs,max=3
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CLUSTERS/PHYS UNITS
IST089I NCP3AA1 TYPE = PU T4/5 , PCTD1
IST089I P3A3767A TYPE = PU_T1 , NEVAC
IST089I P3A3274A TYPE = PU_T2 , NEVAC
IST1315I DISPLAY TRUNCATED AT MAX = 3
IST1454I 3 RESOURCE(S) DISPLAYED
IST314I END
```

Displaying LIST=COUNT:

```
d net,clstrs,id=ncp3ab8,list=count
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CLUSTERS/PHYS UNITS
IST089I NCP3AB8 TYPE = PU T4/5 , ACTIV
IST1747I SUMMARY OF STATE INFORMATION:
IST1748I RESET = 4 RELSD = 2 NEVAC = 36
IST1748I ACTIV = 3
IST1454I 45 RESOURCE(S) DISPLAYED FOR ID=NCP3AB8
IST314I END
```

## DISPLAY CNOS command

```
►► DISPLAY — NET—, —CNOS—, —ID—=appl_name—, —LUNAME—=lu_name—►►
└─, —LOGMODE—=logon_mode_name—┘
```

### Abbreviations

Operand	Abbreviation
DISPLAY	D
LOGMODE	LOG
LUNAME	LU

### Purpose

The DISPLAY CNOS (change number of sessions) command displays LU 6.2 information associated with an application program and a partner LU and logon mode.

### Operands

#### ID=*appl\_name*

Specifies the name of the LU 6.2 application program about which the information is requested. The value specified for *appl\_name* cannot be a network-qualified name.

#### LOGMODE=*logon\_mode\_name*

Specifies the logon mode name for which the requested LU 6.2 information applies. If you do not specify a logon mode name, SESSCAP, CONVSECL, CONVSECP, and SYNCLVL are the only fields shown for the partner LU.

#### LUNAME=*lu\_name*

Specifies the name of the partner LU about which the LU 6.2 information is requested. The name can be a network-qualified name in the form of *netid.luname*.

## DISPLAY CNOS

If PARM=(NQNAMES=NO) is coded on the ACB macro of the resource named on the ID operand, and a network-qualified name is specified, the network identifier is ignored.

If PARM=(NQNAMES=YES) is coded on the ACB macro, *luname* can be either a non-network-qualified name or a network-qualified name. If *luname* is a non-network-qualified name, the command is processed against all LUs with that non-network-qualified name across all networks. If *luname* is a network-qualified name, the command is processed against the LU in the specified network.

### Resulting display

The resulting VTAM display shows:

- The LU 6.2 application program name, LU name, and logon mode name of the requested session
- The negotiation values and security level values

### Examples

Displaying CNOS for all logon modes:

```
d net,cnos,id=appcap05,luname=appcap06
IST097I DISPLAY ACCEPTED
IST1001I ID= APPCAP05 LUNAME= NETA.APPCAP06
IST1002I RCPRI=0000 RCSEC=0000
IST1005I SESSCAP =PARALLEL CONVSECL=AVPV      CONVSECP=AVPV
IST1005I SYNCLVL =SYNCPT  CONVCAP =FDX
IST314I END
```

Displaying CNOS for a specific logon mode:

```
d net,cnos,id=appcap05,luname=appcap06,logmode=batch
IST097I DISPLAY ACCEPTED
IST1001I ID= APPCAP05 LUNAME= NETA.APPCAP06 LOGMODE= BATCH
IST1002I RCPRI=0000 RCSEC=0000
IST1005I SESSCAP =PARALLEL CONVSECL=AVPV      CONVSECP=AVPV
IST1005I DRAINL  =NO      DRAINR  =NO      DDRAINL  =NALLOW
IST1005I SESSCNT =      0 FREECNT =      0 QALLOC  =      0
IST1005I WINLCNT =      0 WINRCNT =      0 AUTOSES =      0
IST1005I DRESPL  =NALLOW RESP    =****NA*** DELETE =NALLOW
IST1005I SYNCLVL =SYNCPT  CONVCAP =FDX
IST1003I SESSLIM CNOS=      2 DEFINE=      2
IST1003I MINWINL CNOS=      1 DEFINE=      1
IST1003I MINWINR CNOS=      1 DEFINE=      1
IST314I END
```

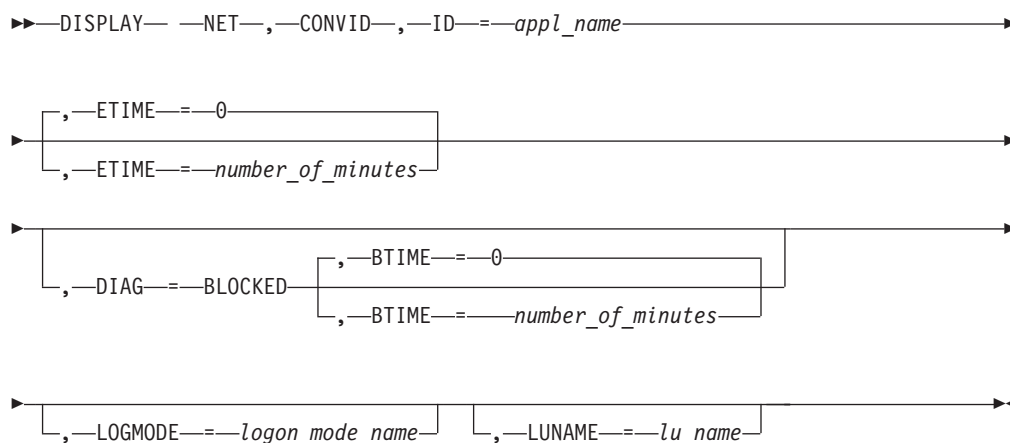
Displaying CNOS for all logon modes and partner LU name is found in more than one network:

```
d net,cnos,id=appcap05,luname=appcap06
IST097I DISPLAY ACCEPTED
IST1001I ID= APPCAP05 LUNAME= NETB.APPCAP06
IST1002I RCPRI=0000 RCSEC=0000
IST1005I SESSCAP =PARALLEL CONVSECL=AVPV      CONVSECP=AVPV
IST1005I SYNCLVL =SYNCPT  CONVCAP =HDX
IST1001I ID= APPCAP05 LUNAME= NETA.APPCAP06
IST1002I RCPRI=0000 RCSEC=0000
IST1005I SESSCAP =PARALLEL CONVSECL=AVPV      CONVSECP=AVPV
IST1005I SYNCLVL =SYNCPT  CONVCAP =HDX
IST314I END
```

Displaying CNOS for a specific logon mode and the partner LU is found in more than one network:

```
d net,cnos,id=appcap05,luname=appcap06,logmode=batch
IST097I DISPLAY ACCEPTED
IST1001I ID= APPCAP05 LUNAME= NETB.APPCAP06 LOGMODE= BATCH
IST1002I RCPRI=0000 RCSEC=0000
IST1005I SESSCAP =PARALLEL CONVSECL=AVPV      CONVSECP=AVPV
IST1005I DRAINL  =NO      DRAINR  =NO      DDRAINL  =NALLOW
IST1005I SESSCNT =      1 FREECNT =      0 QALLOC  =      0
IST1005I WINLCNT =      1 WINRCNT =      0 AUTOSES  =      0
IST1005I DRESPL  =NALLOW RESP    =***NA*** DELETE =NALLOW
IST1005I SYNCLVL =SYNCPT  CONVCAP =HDX
IST1003I SESSLIM CNOS=      2 DEFINE=      2
IST1003I MINWINL CNOS=      1 DEFINE=      1
IST1003I MINWINR CNOS=      1 DEFINE=      1
IST1001I ID= APPCAP05 LUNAME= NETA.APPCAP06 LOGMODE= BATCH
IST1002I RCPRI=0000 RCSEC=0000
IST1005I SESSCAP =PARALLEL CONVSECL=AVPV      CONVSECP=AVPV
IST1005I DRAINL  =NO      DRAINR  =NO      DDRAINL  =NALLOW
IST1005I SESSCNT =      1 FREECNT =      0 QALLOC  =      0
IST1005I WINLCNT =      1 WINRCNT =      0 AUTOSES  =      0
IST1005I DRESPL  =NALLOW RESP    =***NA*** DELETE =NALLOW
IST1005I SYNCLVL =SYNCPT  CONVCAP =HDX
IST1003I SESSLIM CNOS=      2 DEFINE=      2
IST1003I MINWINL CNOS=      1 DEFINE=      1
IST1003I MINWINR CNOS=      1 DEFINE=      1
IST314I END
```

## DISPLAY CONVID command



## Abbreviations

Operand	Abbreviation
DISPLAY	D
LOGMODE	LOG
LUNAME	LU

### Purpose

The DISPLAY CONVID (conversation ID) command provides information about active conversations with the specified application program. You can limit display of information to conversations that have had no activity for a specified period of time.

**Note:** This command causes VTAM to check every conversation and could have an adverse effect on VTAM performance.

You can use this command during problem determination to view a record of conversation information between logical unit (LU) partners.

Conversations that are in the process of allocating and deallocating are temporarily suspended while this command is being processed. Conversations that are sending or receiving continue to operate while this command is running.

### Operands

#### **BTIME=number\_of\_minutes**

Specifies the minimum amount of time in minutes that a conversation can be in a blocked pacing state before VTAM displays its record of conversations between the LU partners.

For example, if you specify BTIME=5, VTAM displays only information about conversations that have been in a blocked pacing state for at least 5 minutes.

The BTIME operand must be specified with the DIAG=BLOCKED operand. The command is not accepted otherwise.

You can specify a value in the range 0 - 999 minutes as a value for the BTIME operand. If you specify 0 (the default), VTAM displays a record of all conversations that are in blocked pacing state.

If you specify both the BTIME and ETIME operands, then only those conversations that meet both criteria will be displayed.

**Tip:** VTAM rounds up the elapsed time for a blocked conversation. If a given conversation has been blocked for only 2 seconds, the time will be rounded up to 1 minute for a display.

#### **DIAG=BLOCKED**

Specifies that only those conversations that are unable to send because of pacing constraints be displayed. The reason for the constraint can include session-level pacing, a blocked virtual route, or HPR backpressure.

#### **ETIME=number\_of\_minutes**

Specifies the minimum amount of time that can elapse with no API activity before VTAM displays its record of conversations between the LU partners.

For example, if you specify ETIME=5, VTAM displays only information about conversations that have had no activity for at least 5 minutes.

You can specify 0-999 minutes as a value for ETIME. If you use 0 (the default), VTAM displays a record of all conversations.

#### **ID=appl\_name**

Identifies the name of the LU 6.2 application to which the requested conversation information applies. This value cannot be a network-qualified name.

**LOGMODE=1 logon\_mode\_name**

Specifies the logon mode name to which the requested conversation information applies. Active conversations that use the specified logon mode name are displayed.

**LUNAME=1 u\_name**

Specifies the name of the partner LU to which the requested conversation information applies. Active conversations with the specified partner LU are displayed. The name can be a network-qualified name in the form of *netid.luname*.

If PARMS=(NQNAMES=NO) is coded on the ACB macro of the resource named on the ID operand, and a network-qualified name is specified, the network identifier is ignored.

If PARMS=(NQNAMES=YES) is coded on the ACB macro, *luname* can be either a non-network-qualified name or a network-qualified name. If *luname* is a non-network-qualified name, the command is processed against all LUs with that non-network-qualified name across all networks. If *luname* is a network-qualified name, the command is processed against the LU in the specified network.

**Resulting display**

The resulting VTAM display shows:

- The names of the partner LUs in the conversations
- Each partner LU's logon mode name
- Each conversation's identifier
- Each conversation's session identifier
- The availability of HPDT services at the time the session was established
- Each conversation's status including whether the conversation is blocked for sending because of pacing constraints
- Each conversation's elapsed time in a blocked for pacing state
- Each conversation's elapsed time with no new API activity

**Examples**

Displaying active conversations with a specific partner LU:

```
d net,convid,id=appcap05,luname=appcap06
IST097I DISPLAY ACCEPTED
IST1040I CONVERSATION(S) FOUND FOR APPCAP05
IST1007I PARTNER = NETA.APPCAP06, LOGMODE = BATCH
IST1008I CONVID = 01000003, STATUS = F_SR, ETIME = 2
IST2161I COCDC BLOCKED TIME = 0
IST1009I SID = D5376DF41F2EDFF2, HPDT = NO
IST924I -----
IST314I END
```

Displaying all active conversations for a specific LU:

```
d net,convid,id=appcap05
IST097I DISPLAY ACCEPTED
IST1040I CONVERSATION(S) FOUND FOR APPCAP05
IST1007I PARTNER = NETB.APPCAP07, LOGMODE = BATCH
IST1008I CONVID = 01000009, STATUS = SEND, ETIME = 2
IST2161I COCDC BLOCKED TIME = 0
IST1009I SID = E7F33883005B53C7, HPDT = YES
IST924I -----
IST1007I PARTNER = NETB.APPCAP06, LOGMODE = BATCH
```

## DISPLAY CONVID

```
IST1008I CONVID = 01000008, STATUS = SEND, ETIME = 2
IST2161I COCDC BLOCKED TIME = 0
IST1009I SID = E7F33883005B53C6, HPDT = YES
IST924I -----
IST1007I PARTNER = NETA.APPCAP06, LOGMODE = BATCH
IST1008I CONVID = 01000006, STATUS = SEND, ETIME = 4
IST2161I COCDC BLOCKED TIME = 0
IST1009I SID = E7F33883005B53C5, HPDT = YES
IST924I -----
IST314I END
```

Displaying active conversations for a specific logmode:

```
d net,convid,id=appcap05,logmode=interact
IST097I DISPLAY ACCEPTED
IST1040I CONVERSATION(S) FOUND FOR APPCAP05
IST1007I PARTNER = NETB.APPCAP06, LOGMODE = INTERACT
IST1008I CONVID = 01000011, STATUS = SEND, ETIME = 10
IST2161I COCDC BLOCKED TIME = 0
IST1009I SID = EAABEEC32CD34A3E, HPDT = NO
IST924I -----
IST1007I PARTNER = NETA.APPCAP06, LOGMODE = INTERACT
IST1008I CONVID = 0100000C, STATUS = SEND, ETIME = 14
IST2161I COCDC BLOCKED TIME = 0
IST1009I SID = EAABEEC32CD34A3B, HPDT = NO
IST924I -----
IST314I END
```

Displaying active conversations for a specific logmode and partner LU:

```
d net,convid,id=appcap05,luname=appcap06,logmode=batch
IST097I DISPLAY ACCEPTED
IST1040I CONVERSATION(S) FOUND FOR APPCAP05
IST1007I PARTNER = NETB.APPCAP06, LOGMODE = BATCH
IST1008I CONVID = 01000008, STATUS = SEND, ETIME = 18
IST2161I COCDC BLOCKED TIME = 0
IST1009I SID = EAABEEC32CD34A39, HPDT = YES
IST924I -----
IST1007I PARTNER = NETA.APPCAP06, LOGMODE = BATCH
IST1008I CONVID = 01000006, STATUS = SEND, ETIME = 20
IST2161I COCDC BLOCKED TIME = 0
IST1009I SID = EAABEEC32CD34A38, HPDT = YES
IST924I -----
IST314I END
```

Displaying active conversations with no API activity for more than 2 minutes and the partner LU is found in more than one network:

```
d net,convid,id=appcap05,luname=appcap06,etime=2
IST097I DISPLAY ACCEPTED
IST1040I CONVERSATION(S) FOUND FOR APPCAP05
IST1007I PARTNER = NETB.APPCAP06, LOGMODE = INTERACT
IST1008I CONVID = 01000011, STATUS = SEND, ETIME = 11
IST2161I COCDC BLOCKED TIME = 0
IST1009I SID = EAABEEC32CD34A3E, HPDT = YES
IST924I -----
IST1007I PARTNER = NETB.APPCAP06, LOGMODE = HOLLY
IST1008I CONVID = 0100000F, STATUS = SEND, ETIME = 13
IST2161I COCDC BLOCKED TIME = 0
IST1009I SID = EAABEEC32CD34A3D, HPDT = YES
IST924I -----
IST1007I PARTNER = NETA.APPCAP06, LOGMODE = INTERACT
IST1008I CONVID = 0100000C, STATUS = SEND, ETIME = 15
IST2161I COCDC BLOCKED TIME = 0
IST1009I SID = EAABEEC32CD34A3B, HPDT = YES
IST924I -----
IST1007I PARTNER = NETB.APPCAP06, LOGMODE = BATCH
IST1008I CONVID = 01000008, STATUS = SEND, ETIME = 18
```



```

IST2161I COCDC BLOCKED TIME = 0
IST1009I SID = EAABEEC32CD34A39, HPDT = YES
IST924I -----
IST1007I PARTNER = NETA.APPCAP06, LOGMODE = BATCH
IST1008I CONVID = 01000006, STATUS = SEND, ETIME = 20
IST2161I COCDC BLOCKED TIME = 0
IST1009I SID = EAABEEC32CD34A38, HPDT = YES
IST924I -----
IST314I END
    
```

Displaying active conversations for a specific LU that are blocked for sending because of pacing constraints:

```

d net,convid,id=appcap05,diag=blocked
IST097I DISPLAY ACCEPTED
IST1040I CONVERSATION(S) FOUND FOR APPCAP05
IST1007I PARTNER = NETB.APPCAP07, LOGMODE = BATCH
IST1008I CONVID = 01000008, STATUS = SEND /B, ETIME = 2
IST2161I BLOCKED TIME = 2
IST1009I SID = E7F33883005B53C7, HPDT = YES
IST924I -----
IST314I END
    
```

Displaying active conversations for a specific LU that have been blocked for sending because of pacing constraints for at least 2 minutes:

```

d net,convid,id=appcap05,diag=blocked,btime=2
IST097I DISPLAY ACCEPTED
IST1040I CONVERSATION(S) FOUND FOR APPCAP05
IST1007I PARTNER = NETB.APPCAP07, LOGMODE = BATCH
IST1008I CONVID = 01000008, STATUS = SEND /B, ETIME = 2
IST2161I BLOCKED TIME = 2
IST1009I SID = E7F33883005B53C7, HPDT = YES
IST924I -----
IST314I END
    
```

---

## DISPLAY COS command

**Display the Class of Service (CoS) table name for a particular network or all networks associated with a specified PU type 4 or 5:**

```

▶▶ DISPLAY — NET —, — COS —
    [ , — ID — = — pu_name ] [ , — NETID — = — * — ]
    [ netid ]
    [ , — TYPE — = — SUBAREA ]
▶▶
    
```

**Display the APPN Class of service table entries and the APPNCOS table used to create each entry:**

```

▶▶ DISPLAY — NET —, — COS —, — TYPE — = — APPN —
▶▶
    
```

### Abbreviations

Operand	Abbreviation
DISPLAY	D

### Purpose

When TYPE=SUBAREA is coded (or defaulted):

- The DISPLAY COS (Class of Service) command displays the Class of Service (CoS) table name for a particular network or all networks associated with a specified PU type 4 or 5.
- If a COS table is not defined for a network, VTAM displays the default table name (ISTSDCOS). If the default table is not loaded, VTAM indicates that the default algorithm will be used to determine the Class of Service.

When TYPE=APPN is coded:

- The DISPLAY COS command displays the APPN Class of service table entries, the last APPNCOS table that was used to create or update each entry, and the time the entry was created or last updated.
- DISPLAY COS can be issued from either a network node or an end node.

### Operands

#### ID=*pu\_name*

Identifies the physical unit type 4 or type 5 for which the COS table is displayed. If *pu\_name* is not specified, ID defaults to the host physical unit name specified on the HOSTPU start option. If HOSTPU was not specified in the start option list, then ISTPUS is used as the default.

The resource identified by *pu\_name* must be active for the display to occur.

If an ID is specified, the results displayed are with respect to the issuing VTAM host.

#### NETID

Specifies whether the COS table for a particular network or all networks is displayed. If omitted, NETID defaults to the network from which the command was entered.

**Note:** If a model network is defined by using COPIES= as part of the network definition, then \*NETWORK is used as the network ID of the model network for the DISPLAY COS command.

#### NETID=*netid*

Displays the COS table for the named network.

#### NETID=\*

Displays the COS table for all networks.

#### TYPE

Specifies whether the subarea or APPN COS table information is displayed.

#### TYPE=SUBAREA

Uses the ID and NETID operands to display the appropriate subarea COS table.

#### TYPE=APPN

Displays the APPN COS entries and the associated APPNCOS tables for this host.

### Resulting display

The resulting display shows the requested networks paired with the applicable COS tables.

**Examples**

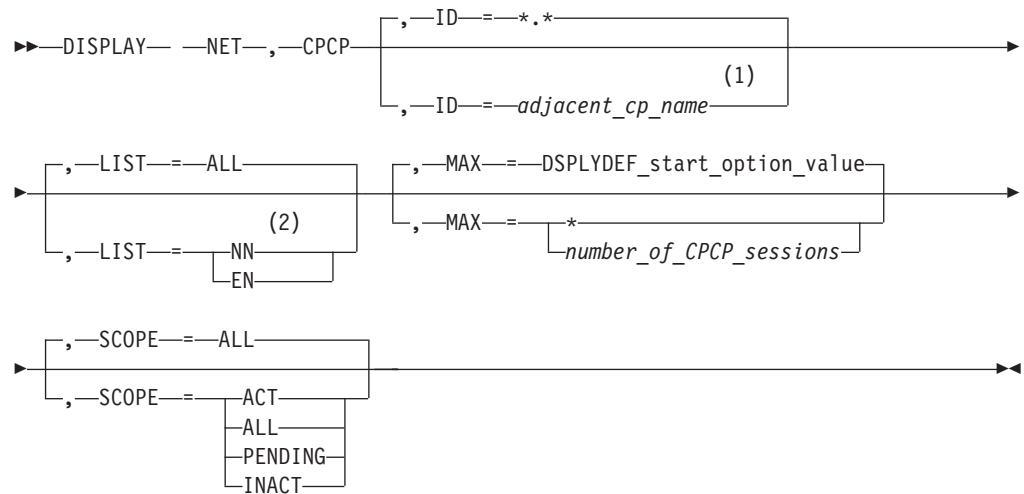
Displaying a Class of Service table for a specific PU:

```
d net,cos,id=istpus
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SUBAREA COS
IST354I PU T4/5 MAJOR NODE = ISTPUS
IST862I NETID = NETA COSTABLE = ISTSDCOS
IST314I END
```

Displaying the APPN Class of Service entries for this host:

```
d net,cos,type=appn
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = APPN COS
IST1782I ENTRY NAME      TABLE NAME  ACTIVATION  TIME
IST1783I CPSVCMG        COSAPPN    12/21/00   08:30:49
IST1783I SNASVCMG       COSAPPN    12/21/00   08:30:49
IST1783I #CONNECT       COSAPPN    12/21/00   08:30:49
IST1783I #INTER         COSAPPN    12/21/00   08:30:49
IST1783I #INTERSC       COSAPPN    12/21/00   08:30:49
IST1783I #BATCH         COSAPPN    12/21/00   08:30:49
IST1783I #BATCHSC       COSAPPN    12/21/00   08:30:49
IST314I END
```

**DISPLAY CPCP command**



**Notes:**

- 1 Depending on the value of the `DSPLYWLD` start option, wildcard values can be used for this operand.
- 2 Because an end node will never have CP-CP sessions with another end node, `LIST=EN` is not valid if this command is issued from an end node. In this case, the `LIST` operand is not necessary because the output for `LIST=ALL` and `LIST=NN` will be identical.

**Abbreviations**

Operand	Abbreviation
DISPLAY	D

### Purpose

Use the DISPLAY CPCP command from a network node or end node to display the status of CP-CP sessions with adjacent APPN nodes. If the ID operand is not specified, then the CP-CP session status for all adjacent APPN nodes capable of having CP-CP sessions with the local node is displayed.

The ID operand can be used to filter this display so that fewer adjacent nodes are shown. If a network qualified adjacent CP name is specified, then the CP-CP session status for only that node is displayed. If the CP name specified is not network qualified, then the CP-CP session status for all adjacent nodes with that CP name (and any network ID) is displayed. If the adjacent CP name specified is a wildcard name, then the CP-CP session status for all adjacent nodes with matching CP names is displayed.

### Operands

**ID** Specifies the name of the adjacent node to display.

Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand. For more information about using wildcards, see "Using wildcard names" on page 11.

**ID=cp\_name**

Specifies the name of an adjacent control point to display.

**ID=\*. \***

Specifies that all adjacent nodes are to be displayed.

### LIST

Specifies the type of adjacent nodes to be displayed.

**LIST=ALL**

Displays information about all adjacent nodes specified on the ID operand. If you omit the ID operand, information about all adjacent nodes is displayed.

**LIST=NN**

Displays information about the network nodes specified on the ID operand. If you omit the ID operand, information about all network nodes is displayed.

**LIST=EN**

Displays information about the end nodes specified on the ID operand, including migration data hosts (MDH). If you omit the ID operand, information about all end nodes is displayed.

### SCOPE

Specifies the status of the CP-CP sessions to display.

**SCOPE=ACT**

Displays only active CP-CP sessions.

**SCOPE=ALL**

Displays all CP-CP sessions, whether active, pending, or inactive.

**SCOPE=INACT**

Displays only inactive CP-CP sessions. The output shows adjacent nodes that have at least one active CP-CP session-capable connection but no CP-CP sessions with the local node.

**SCOPE=PENDING**

Displays only pending CP-CP sessions.

**MAX**

Specifies the maximum number of CP-CP sessions that VTAM displays for this command.

**MAX=\***

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

**MAX=number\_of\_cpcp\_sessions**

Specifies the number of CP-CP sessions that VTAM displays for this command. The valid range is 1 - value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer sessions are found than you have specified on MAX, VTAM displays only the sessions that are found.

**Resulting display**

The resulting display shows the status of CP-CP sessions between the local node and adjacent nodes.

**Examples**

Displaying CP-CP session status for all adjacent nodes when no CP-CP sessions exist:

```
d net,cpcp
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CP-CP SESSION STATUS
IST1763I NO ACTIVE CP-CP SESSION-CAPABLE TGS EXIST
IST1454I 0 ADJCP(S) DISPLAYED
IST314I END
```

Displaying CP-CP session status for all adjacent nodes:

```
d net,cpcp
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CP-CP SESSION STATUS
IST1765I ADJACENT CP    WINNER  LOSER  STATE  NODE  ANDCB
IST1766I NETA.SSCPCA  ACT     ACT    UP     NN    004AA240
IST1766I NETA.SSCPAA  ACT     ACT    UP     EN    004AA128
IST1766I NETA.SSCP2A  ACT     ACT    UP     NN    004AA010
IST1454I 3 ADJCP(S) DISPLAYED
IST314I END
```

Displaying CP-CP status for all adjacent network nodes:

```
d net,cpcp,list=nn
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CP-CP SESSION STATUS
IST1765I ADJACENT CP    WINNER  LOSER  STATE  NODE  ANDCB
IST1766I NETA.SSCPCA  ACT     ACT    UP     NN    004AA240
IST1766I NETA.SSCP2A  PACT    INACT  UP     NN    004AA010
IST1454I 2 ADJCP(S) DISPLAYED
IST314I END
```

Displaying pending CP-CP session status for all adjacent network nodes:

## DISPLAY CPCP

```
d net,cpcp,list=nn,scope=pending
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CP-CP SESSION STATUS
IST1765I ADJACENT CP    WINNER  LOSER  STATE  NODE  ANDCB
IST1766I NETA.SSCP2A  PACT    INACT  UP     NN    004AA010
IST1454I 1 ADJCP(S) DISPLAYED
IST314I END
```

Displaying active CP-CP session status for all adjacent end nodes:

```
d net,cpcp,list=nn,scope=act
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CP-CP SESSION STATUS
IST1765I ADJACENT CP    WINNER  LOSER  STATE  NODE  ANDCB
IST1766I NETA.SSCPAA  ACT     ACT    UP     EN    004AA128
IST1766I NETA.SSCPBA  ACT     ACT    UP     EN    004AA028
IST1454I 2 ADJCP(S) DISPLAYED
IST314I END
```

---

## DISPLAY CSDUMP command

►►—DISPLAY— —NET—,—CSDUMP—◄◄

### Abbreviations

Operand	Abbreviation
DISPLAY	D

### Purpose

The DISPLAY CSDUMP command displays the current dump triggers that were set by the MODIFY CSDUMP command or by the CSDUMP start option.

See “MODIFY CSDUMP command” on page 365 and CSDUMP start option in z/OS Communications Server: SNA Resource Definition Reference for more information.

### Resulting display

The resulting display shows the current CSDUMP message and sense code triggers. If either the message or sense code trigger does not exist, then NONE is indicated.

### Examples

The following sample output is displayed when both a message and a sense code trigger have been set using the MODIFY CSDUMP command or the CSDUMP start option:

```
d net,csdump
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CSDUMP TRIGGERS
IST1871I MESSAGE TRIGGER: MESSAGE = IST080I MATCHLIM = 1
IST1872I VALUE 1 = CSMAPPL1
IST1873I SENSE TRIGGER: SENSE = 08010000 RU = 810601 MATCHLIM = 1
IST314I END
```

The following sample output is displayed when both a message and a sense code trigger have been set and specified to dump the TCP/IP address space using the MODIFY CSDUMP command or the CSDUMP start option:

```
d net,csdump
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CSDUMP TRIGGERS
IST1871I MESSAGE TRIGGER: MESSAGE = IST080I MATCHLIM = 1
IST2234I MESSAGE TRIGGER: TCPNAME = TCPCS
IST1873I SENSE TRIGGER: SENSE = 08010000 RU = 810601 MATCHLIM = 1
IST2240I SENSE TRIGGER: TCPNAME = TCPCS
IST314I END
```

The following sample output is displayed when a message trigger has been set using the MODIFY CSDUMP command or the CSDUMP start option and the REMOTE operand was specified. The REMOTE operand provides a dump of the remote VTAM and this VTAM for any XCF link INOP.

```
d net,csdump
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CSDUMP TRIGGERS
IST1871I MESSAGE TRIGGER: MESSAGE = IST1504I MATCHLIM = 1
IST2235I REMOTE DUMP FOR XCF LINK INOP: YES
IST1875I SENSE TRIGGER: NONE
IST314I END
```

The following sample output is displayed when a message trigger has been set using the MODIFY CSDUMP command or the CSDUMP start option and the RNICTRLE operand was specified. The RNICTRLE operand provides a diagnostic dump of the IBM 10Gbe RoCE Express feature associated with RNIC\_TRLEName.

```
d net,csdump
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CSDUMP TRIGGERS
IST1871I MESSAGE TRIGGER: MESSAGE = IST1578I MATCHLIM = 1
IST2239I MESSAGE TRIGGER: RNICTRLE = IUT10003
IST1875I SENSE TRIGGER: NONE
IST314I END
```

The following sample output is displayed when neither a message nor a sense code trigger has been set using the MODIFY CSDUMP command or the CSDUMP start option:

```
d net,csdump
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CSDUMP TRIGGERS
IST1874I MESSAGE TRIGGER: NONE
IST1875I SENSE TRIGGER: NONE
IST314I END
```

The following sample output is displayed when only a sense code trigger has been set using the MODIFY CSDUMP command or the CSDUMP start option:

```
d net,csdump
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CSDUMP TRIGGERS
IST1874I MESSAGE TRIGGER: NONE
IST1873I SENSE TRIGGER: SENSE = 08010000 RU = 810601 MATCHLIM = 1
IST314I END
```

The following sample output is displayed when both the following conditions are true:

- A sense code trigger has been set by using the MODIFY CSDUMP command or the CSDUMP start option.

## DISPLAY CSDUMP

- At the same time, the sense code trigger has been specified to dump the TCP/IP address space.

```
d net,csdump
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = CSDUMP TRIGGERS
IST1874I MESSAGE TRIGGER: NONE
IST1873I SENSE TRIGGER: SENSE = 08010000 RU = 810601 MATCHLIM = 1
IST2240I SENSE TRIGGER: TCPNAME = TCPCS
IST314I END
```

---

## DISPLAY CSM command

**Display CSM command to monitor CSM storage usage:**

```
▶▶—DISPLAY— —NET—,—CSM—┐
└┬,—OWNERID—=—┐
└┬—ALL—┐
└┬—ownerid—┘
```

**Display CSM command to display the status of CSM Monitor:**

```
▶▶—DISPLAY— —NET—,—CSM—,—MONITOR—▶▶
```

## Abbreviations

Operand	Abbreviation
DISPLAY	D

## Purpose

**To Monitor CSM Storage usage:**

Using the DISPLAY CSM command, you can monitor the use of storage managed by the communications storage manager (CSM). You can use this command to determine how much CSM storage is in use for ECSA and data space storage pools. This command also provides information about specific applications that are using CSM-managed storage pools. This command is routed to CSM so that VTAM does not have to be operational when you issue this command.

**To display the status of CSM Monitor:**

Using the DISPLAY CSM command with MONITOR option, you can display the status of CSM buffer monitor.

## Operands

**To Monitor CSM Storage usage:**

### OWNERID

Specifies whether to display information about the amount of storage owned by all owners or a specific owner. The owner ID is the halfword address space identifier (ASID) of a CSM buffer owner. ASID values are in hexadecimal format and range from 1 – 7FFF. If OWNERID is not specified, this command displays the total storage allocated to the pool by storage pool source.



**OWNERID=ALL**

Produces a display by each owner ID showing the amount of storage owned in each storage pool and the cumulative total for each owner ID across all pools.

**Note:** The sum of the total of the storage allocated to all users of a particular pool may be greater than the total amount of storage allocated to that pool. This is because of the existence of multiple instances of a buffer created when an application program issues the IVTCSM ASSIGN\_BUFFER macro. The storage displayed for each OWNERID indicates the amount of storage that must be freed by the user to enable the storage to be returned to the buffer pool.

**OWNERID=ownerid**

Specifies that the storage owned by the specified owner ID be displayed. The cumulative total across all pools is also displayed.

**To display the status of CSM Monitor option:**

**MONITOR**

Displays the status of CSM Monitoring of CSM storage usage.

**Resulting display**

The resulting display for monitoring CSM storage usage shows the following information:

- If the OWNERID operand is specified, the amount of storage allocated to the owner
- If the value OWNERID=ALL is specified, the cumulative storage allocated to each user across all pools
- If the OWNERID is not specified:
  - The highest level of fixed storage obtained since the last DISPLAY CSM command was issued without the OWNERID operand specified
  - The highest level of fixed storage obtained since the last IPL
  - The highest level of ECSA obtained since the last DISPLAY CSM command was issued without the OWNERID operand specified
  - The highest level of ECSA obtained since the last IPL
  - The names of the CSM data spaces
  - Information about storage usage for each buffer pool
  - The overall storage use for each of the different sizes in the ECSA pools
  - The overall storage use for each of the different sizes in the data space pools
  - The maximum amount of fixed and ECSA storage that can be allocated by CSM, and current values for fixed and ECSA storage

Storage amounts are displayed in units of K (kilobytes) or M (megabytes).

**Examples**

Displaying information about storage managed and used by CSM for all owners:

```
d net, csm
IVT5508I DISPLAY ACCEPTED
IVT5529I PROCESSING DISPLAY CSM COMMAND - OWNERID NOT SPECIFIED
IVT5530I BUFFER BUFFER
IVT5531I SIZE SOURCE INUSE FREE TOTAL
IVT5532I -----
```

# DISPLAY CSM

```

IVT5533I  4K ECSA                0M    256K    256K
IVT5533I  16K ECSA               0M     0M     0M
IVT5533I  32K ECSA               0M     0M     0M
IVT5533I  60K ECSA               0M     0M     0M
IVT5534I  180K ECSA              POOL DOES NOT EXIST
IVT5535I  TOTAL ECSA             0M    256K    256K
IVT5532I  -----
IVT5533I  4K DATA SPACE 31      0M    256K    256K
IVT5533I  16K DATA SPACE 31     0M     0M     0M
IVT5533I  32K DATA SPACE 31     0M     0M     0M
IVT5533I  60K DATA SPACE 31     0M     0M     0M
IVT5533I  180K DATA SPACE 31    0M     0M     0M
IVT5535I  TOTAL DATA SPACE 31  0M    256K    256K
IVT5532I  -----
IVT5533I  4K DATA SPACE 64      0M    256K    256K
IVT5533I  16K DATA SPACE 64     0M     0M     0M
IVT5533I  32K DATA SPACE 64     0M     0M     0M
IVT5533I  60K DATA SPACE 64     0M     0M     0M
IVT5534I  180K DATA SPACE 64    POOL DOES NOT EXIST
IVT5535I  TOTAL DATA SPACE 64  0M    256K    256K
IVT5532I  -----
IVT5535I  TOTAL DATA SPACE      0M    512K    512K
IVT5532I  -----
IVT5536I  TOTAL ALL SOURCES      0M    768K    768K
IVT5538I  FIXED MAXIMUM =      100M    FIXED CURRENT =    400K
IVT5541I  FIXED MAXIMUM USED =    400K SINCE LAST DISPLAY CSM
IVT5594I  FIXED MAXIMUM USED =    500K SINCE IPL

IVT5539I  ECSA MAXIMUM =      100M    ECSA CURRENT =    414K
IVT5541I  ECSA MAXIMUM USED =    414K SINCE LAST DISPLAY CSM
IVT5594I  ECSA MAXIMUM USED =    464K SINCE IPL
IVT5559I  CSM DATA SPACE 1 NAME: CSM64001
IVT5559I  CSM DATA SPACE 2 NAME: CSM31002
IVT5599I  END

```

Displaying information about CSM storage allocated to a specific owner:

```

d net,csm,ownerid=01F6
IVT5508I  DISPLAY ACCEPTED
IVT5549I  PROCESSING DISPLAY CSM COMMAND - OWNERID SPECIFIED
IVT5530I  BUFFER BUFFER
IVT5551I  SIZE SOURCE                STORAGE ALLOCATED TO OWNER
IVT5532I  -----
IVT5553I  4K ECSA                      256K
IVT5554I  TOTAL ECSA                    256K
IVT5532I  -----
IVT5553I  4K DATA SPACE 64              128K
IVT5554I  TOTAL DATA SPACE 64          128K
IVT5532I  -----
IVT5554I  TOTAL DATA SPACE              128K
IVT5532I  -----
IVT5556I  TOTAL FOR OWNERID              384K
IVT5571I  OWNERID: ASID = 01F6  JOBNAME = VTAMAPPL
IVT5599I  END

```

Displaying information about CSM storage allocated to all owners:

```

d net,csm,ownerid=all
IVT5508I  DISPLAY ACCEPTED
IVT5549I  PROCESSING DISPLAY CSM COMMAND - OWNERID SPECIFIED
IVT5530I  BUFFER BUFFER
IVT5551I  SIZE SOURCE                STORAGE ALLOCATED TO OWNER
IVT5532I  -----
IVT5553I  4K ECSA                      256K
IVT5554I  TOTAL ECSA                    256K
IVT5532I  -----
IVT5553I  4K DATA SPACE 64              128K
IVT5554I  TOTAL DATA SPACE 64          128K

```

```

IVT5532I -----
IVT5554I TOTAL DATA SPACE 128K
IVT5532I -----
IVT5556I TOTAL FOR OWNERID 384K
IVT5557I OWNERID: ASID = 001A JOBNAME = VTAMAPPL
IVT5532I -----
IVT5530I BUFFER BUFFER
IVT5551I SIZE SOURCE STORAGE ALLOCATED TO OWNER
IVT5532I -----
IVT5553I 4K DATA SPACE 64 128K
IVT5553I 16K DATA SPACE 64 1M
IVT5554I TOTAL DATA SPACE 64 1152K
IVT5532I -----
IVT5554I TOTAL DATA SPACE 1152K
IVT5532I -----
IVT5556I TOTAL FOR OWNERID 1152K
IVT5557I OWNERID: ASID = 001B JOBNAME = VTAMAPPL
IVT5599I END
    
```

Display CSM Monitoring when CSM Monitor option is active:

```

d net,csm,monitor
IVT5508I DISPLAY ACCEPTED
IVT5566I CSM MONITOR IS ACTIVE
    
```

Display CSM Monitoring when CSM Monitor option is not active:

```

d net,csm,monitor
IVT5508I DISPLAY ACCEPTED
IVT5567I CSM MONITOR IS NOT ACTIVE
    
```

Display CSM Monitoring when CSM MONITOR option is dynamic and currently not active:

```

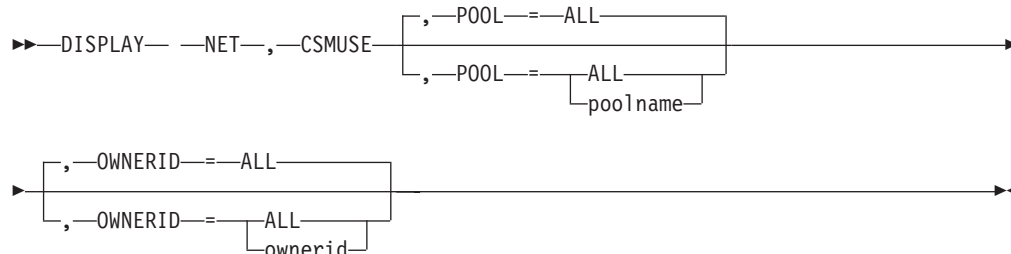
d net,csm,monitor
IVT5508I DISPLAY ACCEPTED
IVT5570I CSM MONITOR IS DYNAMIC AND CURRENTLY NOT ACTIVE
    
```

Display CSM Monitoring when CSM MONITOR option is dynamic and currently active:

```

d net,csm,monitor
IVT5508I DISPLAY ACCEPTED
IVT5569I CSM MONITOR IS DYNAMIC AND CURRENTLY ACTIVE
    
```

## DISPLAY CSMUSE command



## Abbreviations

Operand	Abbreviation
DISPLAY	D

### Purpose

Using the output of the DISPLAY CSMUSE command, IBM service can evaluate the use of storage managed by the communications storage manager (CSM). Although this command is similar to the DISPLAY CSM command, it provides a lower level of detail regarding storage usage, and therefore the output of this command is different from that of DISPLAY CSM.

This command is primarily intended for IBM service. However, it can also be beneficial to the user. The display output provides detailed information about each CSM storage pool. The detailed information describes storage as it corresponds to an identifier, which is referred to as a monitor ID. Monitor IDs describe specific z/OS Communications Server components. When CSM storage is associated with (or isolated to) a specific monitor ID, then IBM service can correlate the monitor ID to a component (usage or function) of z/OS Communications Server. This information can be useful when evaluating how z/OS Communications Server is using system storage or to help diagnose storage growth. See z/OS Communications Server: IP and SNA Codes for the complete description of monitor IDs.

The CSM monitor IDs are associated with the CSM monitor function. The display output from this command will always provide monitor IDs even when the monitor is inactive. However, the display output will be much more useful when the CSM monitor is active (an active monitor will provide closer tracking). To determine if the CSM monitor is active, see the "DISPLAY CSM command" on page 80.

You can use this command to see up to four monitor ID/OWNERID pairs using the most CSM storage for each pool.

This command is routed to CSM so that VTAM does not have to be operational when you issue this command.

### Operands

#### POOL

Specifies whether to display information about the amount of storage in use by all pools or a specific pool. The POOL is the pool name of the CSM storage pool. OWNERID can be specified with the pool. When POOL is specified on the command, CSM displays up to four monitor IDs with the amount of storage and the buffer's user data field and monitor history field. The user data field allows IBM service to correlate the current usage and history to a specific resource, such as a device, connection, route, and so on. The monitor IDs are displayed in the order of highest to lowest storage usage in the messages.

The default value of POOL is ALL.

#### POOL=ALL

A summary is provided for all CSM pools.

#### POOL=poolname

Specifies the poolname of the CSM storage pool.

The following list shows valid CSM pool names and their explanations:

#### 4KECSA

4-KB buffer size ECSA storage pool.

**16KECSA**

16-KB buffer size ECSA storage pool.

**32KECSA**

32-KB buffer size ECSA storage pool.

**60KECSA**

60-KB buffer size ECSA storage pool.

**180KECSA**

180-KB buffer size ECSA storage pool.

**4KDS**

4-KB buffer size data space storage pool.

**16KDS**

16-KB buffer size data space storage pool.

**32KDS**

32-KB buffer size data space storage pool.

**60KDS**

60-KB buffer size data space storage pool.

**180KDS**

180-KB buffer size data space storage pool.

**4KDS64**

4-KB buffer size data space backed by 64-bit real storage pool.

**16KDS64**

16-KB buffer size data space backed by 64-bit real storage pool.

**32KDS64**

32-KB buffer size data space backed by 64-bit real storage pool.

**60KDS64**

60-KB buffer size data space backed by 64-bit real storage pool.

**180KDS64**

180-KB buffer size data space backed by 64-bit real storage pool.

**OWNERID**

Specifies whether to display information about the amount of storage owned by all owners or a specific owner. The owner ID is the halfword address space identifier (ASID) of a CSM buffer owner. ASID values are in hexadecimal format and range from 1-7FFF. If OWNERID is not specified, this command displays the total storage allocated to the pool by the storage pool source.

**OWNERID=ALL**

Produces the same display as if OWNERID was not specified.

**OWNERID=ownerid**

Specifies that the storage owned by the specified owner ID be displayed.

**Resulting display**

Storage amounts are displayed in units of K (kilobytes) or M (megabytes).

**Examples**

Displaying information about storage managed and used by CSM for all owners:

## DISPLAY CSMUSE

```
d net,csmuse
IVT5508I DISPLAY ACCEPTED
IVT5572I PROCESSING DISPLAY CSMUSE COMMAND - OWNERID NOT SPECIFIED
IVT5532I -----
IVT5575I USAGE SUMMARY - 4KECSA   POOL TOTAL (ALL USERS) =      60K
IVT5576I   AMOUNT   MONITOR ID   OWNERID   JOBNAME
IVT5577I     24K     B1           0029     TCPCS
IVT5577I     24K     21           0028     VTAMCS
IVT5578I DISPLAY TOTAL FOR 4KECSA   POOL (2 USERS)      =      48K
IVT5532I -----
IVT5575I USAGE SUMMARY - 32KECSA   POOL TOTAL (ALL USERS) =      32K
IVT5576I   AMOUNT   MONITOR ID   OWNERID   JOBNAME
IVT5577I     32K     B1           0029     TCPCS
IVT5578I DISPLAY TOTAL FOR 32KECSA   POOL (1 USERS)      =      32K
IVT5532I -----
IVT5575I USAGE SUMMARY - 4KDS64   POOL TOTAL (ALL USERS) =      24K
IVT5576I   AMOUNT   MONITOR ID   OWNERID   JOBNAME
IVT5577I     20K     21           0028     VTAMCS
IVT5578I DISPLAY TOTAL FOR 4KDS64   POOL (1 USERS)      =      20K
IVT5599I END
```

### Tips:

- This is the summary information (when ALL pools specified or defaulted).
- An operator can also use OWNERID of the user with this command and monitor one user.
- A pool will not be displayed if there is no storage in use or it does not match the provided OWNERID.
- An operator can get more details about a specific pool if *poolname* is specified.
- Although CSM storage will always have an associated monitor ID even when the CSM Monitor is not active, the monitor IDs are tracked (monitored and updated) more closely when the CSM monitor is active.
- See z/OS Communications Server: IP and SNA Codes for the description of monitor IDs.

**Guideline:** Under each pool summary, monitor IDs are no longer listed when 75% of the pool total usage or a maximum of four monitor ID and OWNERID pairs is reached. They are listed in the order by highest to lowest storage usage. It will display at least one pair of monitor ID and OWNERID usage.

The new display CSMUSE command with the ownerid operand and its output:

```
d net,csmuse,ownerid=0029
IVT5508I DISPLAY ACCEPTED
IVT5573I PROCESSING DISPLAY CSMUSE COMMAND - OWNERID SPECIFIED
IVT5557I OWNERID: ASID = 0029   JOBNAME = TCPCS
IVT5532I -----
IVT5575I USAGE SUMMARY - 4KECSA   POOL TOTAL (ALL USERS) =      56K
IVT5576I   AMOUNT   MONITOR ID   OWNERID   JOBNAME
IVT5577I     36K     B1           0029     TCPCS
IVT5589I DISPLAY TOTAL FOR 4KECSA   POOL FOR THIS OWNERID =      36K
IVT5532I -----
IVT5575I USAGE SUMMARY - 32KECSA   POOL TOTAL (ALL USERS) =      32K
IVT5576I   AMOUNT   MONITOR ID   OWNERID   JOBNAME
IVT5577I     32K     B1           0029     TCPCS
IVT5589I DISPLAY TOTAL FOR 32KECSA   POOL FOR THIS OWNERID =      32K
IVT5532I -----
IVT5575I USAGE SUMMARY - 4KDS64   POOL TOTAL (ALL USERS) =      24K
IVT5576I   AMOUNT   MONITOR ID   OWNERID   JOBNAME
IVT5577I      4K     B1           0029     TCPCS
IVT5589I DISPLAY TOTAL FOR 4KDS64   POOL FOR THIS OWNERID =      4K
IVT5599I END
```

The new display CSMUSE command with the pool operand and its output:

```
d net, csmuse, pool=4kecsa
IVT5508I DISPLAY ACCEPTED
IVT5574I PROCESSING DISPLAY CSMUSE COMMAND - POOL SPECIFIED
IVT5584I USAGE DETAILS - 4KECSA   POOL - POOL TOTAL =       56K
IVT5532I -----
IVT5576I   AMOUNT   MONITOR ID   OWNERID   JOBNAME
IVT5532I -----
IVT5577I       24K     B1         0029     TCPCS
IVT5579I BUFFER USE FOR B1 :   USECNT  USERDATA   MONITOR HISTORY
IVT5580I                               3  15352C90     000000B1
IVT5580I                               2  15352C88     000000B1
IVT5580I                               1  15352C98     000000B1
IVT5580I                               1  15352CA8     000000B1
IVT5532I -----
IVT5577I       20K     21         0028     VTAMCS
IVT5579I BUFFER USE FOR 21 :   USECNT  USERDATA   MONITOR HISTORY
IVT5580I                               5  F0C4F0F0     00000021
IVT5585I DETAIL TOTAL FOR 4KECSA   POOL =       44K
IVT5599I END
```

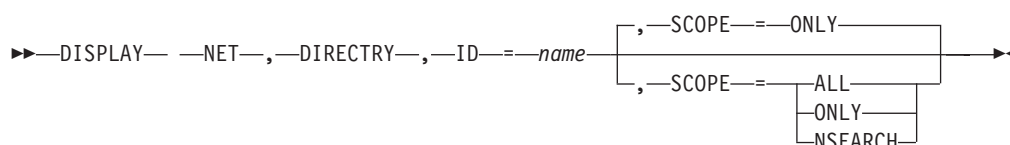
**Tips:**

- This is an example of the detailed CSM usage information (when a specific pool is specified).
- For each CSM monitor ID, the user data field and monitor history field from the CSM buffer headers is provided. Using the user data field, IBM service can correlate the current usage and monitor history to a specific resource, such as a device, connection, and route.
- The display is similar to poolname=all (summary) with the addition of IVT5579I and IVT5580I. This display is most useful when CSM MONITOR is active.
- This detailed output provides details of the same monitor IDs that were provided in the summary display (for example, if the summary output provided only one monitor ID, then the detailed display will provide information about one monitor ID).
- Under each monitor ID, more detailed buffer usage information is provided. A list of up to four usage pairs (user data and monitor ID history) are provided. The usage pairs are listed in order of highest to lowest number of times a matching usage pair was found. The use count is counted only once per CSM buffer even when multiple matching usage pairs exist for the same buffer. A usage pair match is counted for either a CSM primary buffer or image buffer usage, but not both (or multiple images) for the same CSM buffer. A CSM buffer may have multiple concurrent usages that have both matching and unmatching usage pairs, and therefore some CSM buffers may be counted multiple times.
- An operator can also specify OWNERID of the user with the poolname and monitor one user (specific TCP stack or VTAM).

---

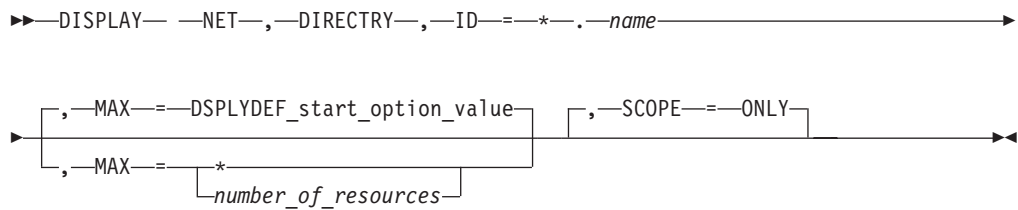
## DISPLAY DIRECTORY command

Display information about a resource:



## DISPLAY DIRECTORY

### Display a resource name in any network:



### Abbreviations

Operand	Abbreviation
DISPLAY	D
SCOPE=ALL	EVERY or E
SCOPE=ONLY	NONE or N

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for SCOPE=ALL, code only EVERY or E. Do not code SCOPE=E.

### Purpose

The DISPLAY DIRECTORY (directory) command displays information from the directory database about a resource and the resources that it serves and owns. For example, you can display a network node along with the end nodes that it serves and the LUs that it owns. This command is valid only when it is issued at a network node or an interchange node.

### Operands

#### ID=name

Specifies the name of a network node, end node, or LU in the directory database. The resource name can be network-qualified. If you do not specify the network identifier, VTAM uses the identifier of the host from which you are issuing the command.

You can specify an asterisk (\*) or (\*NETWORK) as the network ID portion of a network-qualified name. The \* is useful for displaying a resource for which you do not know the network ID. The \* is also useful for displaying several resources with the same name that are found in multiple networks, if you also specify the MAX operand on the command.

#### MAX

Specifies the maximum number of resources to display when the resource name on the ID operand is specified as being in any network. That is, the network ID portion of the network-qualified resource name is specified as asterisk (\*) or (\*NETWORK). For example, ID=\*.a01n can be specified. MAX is valid only when any network resource name is specified on the ID operand.

#### MAX=\*

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

#### MAX=number\_of\_resources

Specifies the maximum number of resources that VTAM displays for this



command. The valid range is 1 to the value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

The resource name might exist in more networks than the number you specify on the MAX operand. However, VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer resources are found than you have specified on MAX, VTAM displays only the resources that are found.

### SCOPE

Specifies the required scope of the display.

#### SCOPE=ALL

Displays information for the resource specified on the ID operand and the resources it serves or owns, if any. If the specified resource is a network node, VTAM displays information about the network node, the end nodes it serves, and the LUs it owns. If the specified resource is an end node, VTAM displays information about the end node and the LUs it serves. If the specified resource is an LU, the display output is the same for SCOPE=ALL and SCOPE=ONLY.

SCOPE=ALL is not valid if you specify ID=\*.name.

**Attention:** In a large network, displaying a network node or end node with SCOPE=ALL might generate an undesirably large display.

#### SCOPE=NSEARCH

Specifies that a network search is to be performed for the resource specified on the ID operand. The command returns all instances of the resource in the local domain and the first instance where the resource is found in other domains and subnetworks. The network search uses all possible search types (subarea, adjacent SSCP list, central directory server, broadcast, and cross-subnetwork) to find a resource that may go undetected by the search logic of individual session requests.

#### SCOPE=ONLY

Displays information only for the resource specified on the ID operand.

## Resulting display

The resulting VTAM display shows:

- For SCOPE=ONLY, the entry type (registered, dynamic, or defined), the resource type (network node, end node, or LU), the name of the owning CP, and the name of the network node server.

**Note:** When the entry type is registered or dynamic, and the resource type is an LU, the display also includes the LU's subarea number (if applicable), the desired locate size, and the last locate size.

- For SCOPE=ALL, the same information as SCOPE=ONLY, and additionally, the name, entry type, and resource type of the served end nodes and owned LUs.
- For SCOPE=NSEARCH, the network-qualified name of the resource specified by the ID operand, the owning control point name, the network node server as it is known in the native subnetwork, and the found type.

If the resource type that is displayed is EN, the node might actually be a network node, end node, or SSCP. This is because in a mixed APPN and subarea network,

## DISPLAY DIRECTORY

CPs, and SSCPs that are found in or through a subarea network are represented in this host (the host from which you are issuing this command) as end nodes that are served by the interchange node through which the resource was found.

The DISPLAY DIRECTORY command might show a resource name appearing in several networks even though the resource actually exists in only one network. This can happen if intermediate SSCPs are pre-V4R1 and they pass only the 8-character resource name. The real network ID is therefore lost and other network IDs might be subsequently assumed.

### Examples

Displaying an end node with SCOPE=ALL:

```
d net,directry,id=net.a.sscpl1,scope=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = DIRECTORY
IST1186I DIRECTORY ENTRY = REGISTERED EN
IST1184I CPNAME = NETA.SSCP1A NETSRVR = NETD.SSCP2A
IST1185I NAME = NETB.ECHOB91 - DIRECTORY ENTRY = REGISTERED LU
IST1185I NAME = NETB.ECHOB92 - DIRECTORY ENTRY = REGISTERED LU
IST1185I NAME = NETA.NMVTAPPL - DIRECTORY ENTRY = REGISTERED LU
IST1185I NAME = NETA.APPL2V - DIRECTORY ENTRY = REGISTERED LU
IST1185I NAME = NETA.APPL1V - DIRECTORY ENTRY = REGISTERED LU
IST1185I NAME = NETA.TS01 - DIRECTORY ENTRY = REGISTERED LU
IST314I END
```

Displaying an end node with SCOPE=ONLY:

```
d net,directry,id=net.a.sscpl1,scope=only
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = DIRECTORY
IST1186I DIRECTORY ENTRY = REGISTERED EN
IST1184I CPNAME = NETA.SSCP1A NETSRVR = NETD.SSCP2A
IST314I END
```

Displaying an LU:

```
d net,directry,id=appcaa01
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = DIRECTORY
IST1186I DIRECTORY ENTRY = REGISTERED LU
IST1184I CPNAME = NETA.SSCPA - NETSRVR = NETA.SSCP1A
IST484I SUBAREA = 1
IST1703I DESIRED LOCATE SIZE = 1K, LAST LOCATE SIZE = 1K
IST314I END
```

Displaying the results of a network search:

```
d net,directry,id=lu1,scope=ns
IST350I DISPLAY TYPE = NETWORK SEARCH
IST1427I NAME = NETA.LU1 FOUND TYPE = OWNER
IST1184I CPNAME = NETA.NN3 - NETSRVR = ***NA***
IST924I -----
IST1427I NAME = NETA.LU1 FOUND TYPE = SURROGATE
IST1184I CPNAME = NETA.NN1 - NETSRVR = ***NA***
IST924I -----
IST1427I NAME = NETA.LU1 FOUND TYPE = WILDCARD
IST1184I CPNAME = NETA.NN2 - NETSRVR = ***NA***
IST314I END
```

## DISPLAY DISK command

▶▶—DISPLAY— —NET—,—DISK—,—ID—=*ncp\_name*————▶▶

### Abbreviations

Operand	Abbreviation
DISPLAY	D

### Purpose

The DISPLAY DISK command provides information about an IBM 3720 or 3745 Communication Controller's disk contents.

The DISPLAY DISK command displays the following information about the contents of IBM 3720 and 3745 Communication Controller external disk storage:

- Information about each load module, including:
  - Load module name
  - Date and time the load module was stored on disk
  - Stability of the load module (stored, storing, or suspended)
  - Indication of whether a load module on disk is the same as the load module currently active in the communication controller
  - Module name, requested IPL time, and estimated IPL time (if IPL was specified)
- Information regarding dumps, including:
  - Dump name
  - Date and time the dump was stored on disk

**Note:** Dump information is not displayed until the complete dump has been stored on the hard disk. If you do not receive dump information, try the command again at a later time.

- An indication of whether the load module is coded to receive automatic IPL. This is determined by the value of Auto Dump/Load, which controls automatic dumping and reloading of an NCP to or from the hard disk in the event of an NCP abend. See the **DUMLOAD** operand on the “VARY ACT command” on page 531 for more information.

### Operands

#### ID=*ncp\_name*

Identifies the name of the NCP currently active in the IBM 3720 or 3745 Communication Controller. The contents of that communication controller's external disk storage are displayed.

**Note:** Although the IBM 3745-410 Communication Controller disk can contain up to four load modules and two dumps, the maximum per CCU is two load modules and one dump. DISPLAY DISK displays only the 3745 storage relative to the NCP specified in the ID operand.

## Resulting display

The resulting display provides load module and dump information. Load module and dump source are not provided. To view dump source, use the DISPLAY NCPSTOR command, shown in the "DISPLAY NCPSTOR command" on page 206.

## Examples

Displaying a disk containing a load module:

```
d net,disk,id=a0362zc
IST097I DISPLAY ACCEPTED
IST951I DISPLAY DISK INFORMATION FOR A0362ZC
IST954I LOAD MODULE  DATE      TIME  STORE STATUS
IST955I  A04AT      02/06/92  15:11:54  STORED
IST965I AUTO DUMP/LOAD: NO
IST314I END
```

Displaying a disk containing a dump and two load modules:

```
d net,disk,id=a0362zc
IST097I DISPLAY ACCEPTED
IST951I DISPLAY DISK INFORMATION FOR A0362ZC
IST952I DUMP NAME      DATE      TIME
IST953I  A0362ZC      09/25/92  10:30:52
IST924I -----
IST954I LOAD MODULE  DATE      TIME  STORE STATUS  ACTIVE
IST955I  A04AT      02/06/92  15:11:54  STORED        NO
IST955I  A0362ZC      09/25/92  10:23:43  STORED        YES
IST965I AUTO DUMP/LOAD: YES
IST314I END
```

---

## DISPLAY DLURS command

▶▶—DISPLAY— —NET—,—DLURS—▶▶

### Abbreviations

Operand	Abbreviation
DISPLAY	D
DLURS	DLUR

### Purpose

The DISPLAY DLURS (dependent LU requesters) command displays all DLURs for which this host acts as dependent LU server (DLUS). Only DLURs that have a CPSVRMGR session with the host are displayed. The host (the DLUS) always sends data on a contention-winner session and receives data on a contention-loser session. Likewise, the DLUR sends data on a contention-winner session and receives data on a contention-loser session.

This command is valid only when it is issued at a network node or an interchange node.

## Resulting display

The resulting display shows:

- The name of each DLUR.
- The status of each end of the CPSVRMGR session. Pending active and pending inactive states should be temporary. If the session remains in pending active or pending inactive state, it might be hung.

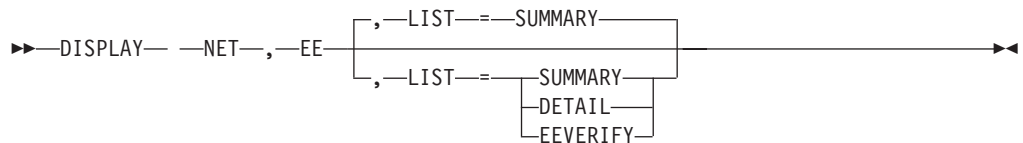
## Examples

Displaying dependent LU requesters:

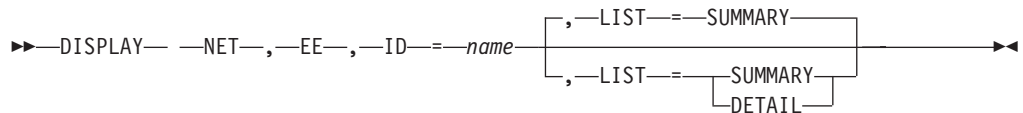
```
d net,dlurs
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = DLURS
IST1352I DLUR NAME          DLUS CONWINNER STATE  DLUS CONLOSER STATE
IST1353I NETA.NNCPA1        ACTIVE                ACTIVE
IST314I END
```

## DISPLAY EE command

### Display general Enterprise Extender information:

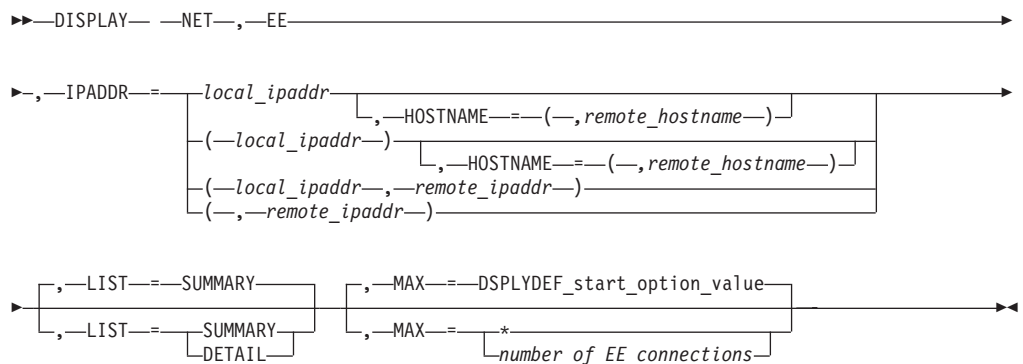


### Display Enterprise Extender connection information by LINE or PU name:

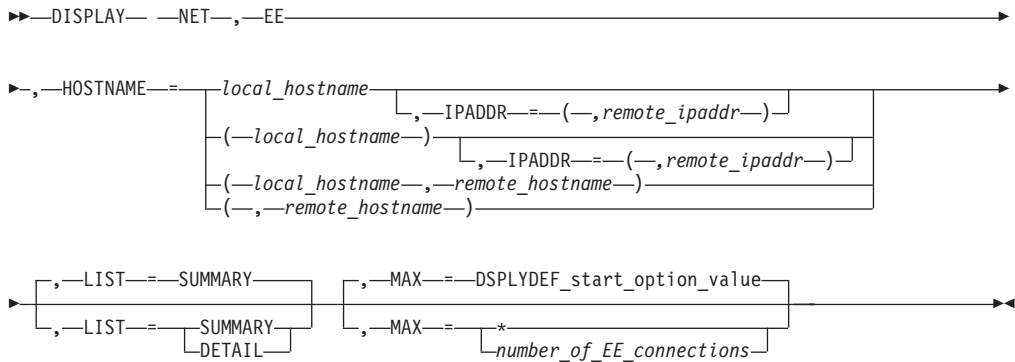


**Note:** *Name* represents either an Enterprise Extender LINE or switched PU which has an active EE connection.

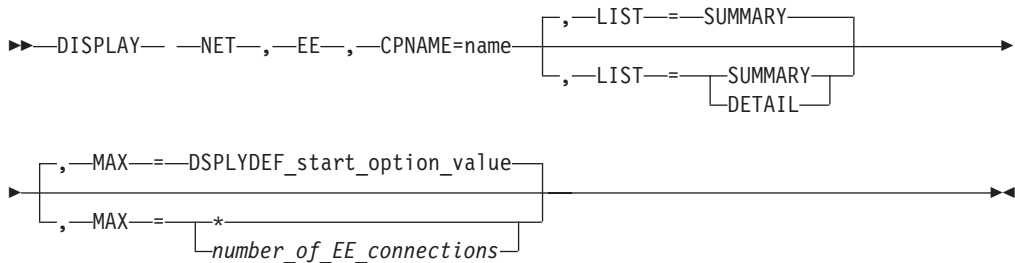
### Display Enterprise Extender connection information by IPADDR:



**Display Enterprise Extender connection information by HOSTNAME:**



**Display Enterprise Extender connection information by remote CPNAME:**



**Abbreviations**

Operand	Abbreviation
DISPLAY	D
HOSTNAME	HN
IPADDR	IP
LIST=DETAIL	DETAIL or DET
LIST=SUMMARY	SUMMARY or SUM

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for LIST=DETAIL, code only DETAIL or DET. Do not code LIST=DET.

**Purpose**

The DISPLAY EE command provides information about Enterprise Extender. This command has various formats providing general Enterprise Extender information and detailed connection throughput statistics.

**Operands**

**CPNAME**

Filter used to limit the scope of the diagnostic scan to Enterprise Extender connections specified by the name of a CP that is at the other end of an active Enterprise Extender connection. The name can be network qualified. If a network identifier is omitted, the host network identifier is assumed.

**HOSTNAME**

Filter used to limit the scope of the diagnostic scan to Enterprise Extender connections specified by the local host name, the remote host name, or both. The local and remote host name filters you specify on this command should be fully qualified TCP/IP domain names, up to 64 characters long.

The Enterprise Extender definitions for your network do not necessarily have to use a HOSTNAME scheme for the DISPLAY EE command to use host names. VTAM must be able to perform TCP/IP name-to-address resolution, either by connectivity to a DNS name server, or by using a local host file such as HOSTS.SITEINFO or /etc/ipnodes. For more information, see z/OS Communications Server: IP Configuration Guide. If the TCP/IP name-to-address resolution fails for either the local or remote host name, the DISPLAY EE command will also fail as a result.

The *local\_hostname* value will be used to acquire the static VIPA address that other Enterprise Extender nodes use in order to communicate with this host using Enterprise Extender. The *remote\_hostname* value will be used to acquire the IP address used by the TCP/IP stack on the remote end of the Enterprise Extender connection. Furthermore, if the *remote\_hostname* value represents a z/OS Communications Server APPN node, the address returned must be a static VIPA address.

**Rule:** Ensure that each host name resolves to a unique IP address. When VTAM performs the TCP/IP name-to-address resolution, and the host name resolves to multiple IP addresses, the first address returned by the resolver is the one used by VTAM.

**Restrictions:**

- The number of outstanding DISPLAY EE commands that require host name resolution is limited by the MAXHNRES start option. See z/OS Communications Server: SNA Resource Definition Reference for details. When the MAXHNRES start option value is exceeded, the DISPLAY EE or DISPLAY EEDIAG commands fail with message IST2122I.
- VTAM commands that exceed 130 characters in length are subject to being truncated. In particular, the D NET,EE command allows up to two host name filters as input, each which can be up to 64 characters in length. However, if the command exceeds 130 characters, the command is truncated and error messages might be issued. To avoid this limitation, perform one of the following actions:
  - Use command abbreviations wherever possible.
  - Define shorter host names to be used as input to the D NET,EE command.
  - Do not use host name filters on the D NET,EE command; use the CPNAME, ID, or IPADDR filters.

**Results:**

- When an IP address is passed as input on the HOSTNAME operand, the IP address is simply passed back as output from the resolver. Instead of failing the display command with a host name that is not valid, the IP address is used to process the display command.
- HPR packets that are routed by automatic network routing (ANR) through this host are included in the SENT metrics that are maintained for each EE

## DISPLAY EE

connection. HPR packets that are routed by ANR through this host are not included in the RECEIVED metrics that are maintained for each EE connection.

**Tip:** To query outstanding DISPLAY EE commands that are pending host name resolution, issue the D NET,EE DIAG,TEST=PENDING command.

**Rule:** The *remote\_hostname* value is not always available for use by this command. The *remote\_hostname* value is only available for use by a host when it initiates the connection (dial-out) to the remote EE partner. For a predefined EE connection (non-VRN), which is the dial-in side of the connection, the *remote\_hostname* value is not available for use by this command. For a VRN EE connection, which is the dial-in side of the connection, the *remote\_hostname* value is available for use after a dial-out is attempted to the remote EE partner. A new session request, initiated from that EE endpoint, must cause the dial to occur to the partner EE endpoint. At that time, the *remote\_hostname* value is resolved, the existing EE connection is found and is used for the session, and that remote host name becomes available for use by this display command.

**HOSTNAME=local\_hostname**

Limits the scope of the diagnostic scan to Enterprise Extender connections that have a local host name that matches the value of the *local\_hostname* parameter.

**Result:** When the DISPLAY EE command is issued with only a local host name value, the output will contain aggregate totals composed of all active EE connections associated with the specified local host name.

**Note:** Code either a remote host name or remote IP address to further refine the scope of the DISPLAY EE command.

**HOSTNAME=(,remote\_hostname)**

Limits the scope of the diagnostic scan to Enterprise Extender connections that have a remote host name that matches the value of the *remote\_hostname* parameter.

**Tip:** Code either a local host name or local IP address to further refine the scope of the DISPLAY EE command.

**HOSTNAME=(local\_hostname,remote\_hostname)**

Limits the scope of the diagnostic scan to Enterprise Extender connections that have an endpoint in this host; that have a local host name with the *local\_hostname* value and a remote host name with the *remote\_hostname* value.

**ID=name**

Specifies the name of either a LINE or switched PU name which has an active Enterprise Extender connection.

**IPADDR**

Filter used to limit the scope of the diagnostic scan to Enterprise Extender connections specified by either the local IP address, remote IP address, or both. The IP address accepts a fully qualified dotted decimal format for IPv4-type addresses, or colon-hexadecimal format for IPv6-type addresses.

**IPADDR=local\_ipaddr**

Limits the scope of the diagnostic scan to Enterprise Extender connections that have a local IP address of *local\_ipaddr*.



**Result:** When the DISPLAY EE command is issued with only a *local\_hostname*, the output will contain aggregate totals composed of all active EE connections associated with the *local\_hostname*.

**Tip:** Code either a remote IPADDR or remote HOSTNAME to further refine the scope of the DISPLAY EE command.

**IPADDR=(,remote\_ipaddr)**

Limits the scope of the diagnostic scan to Enterprise Extender connections which have a remote IP address of *remote\_ipaddr*.

**Tip:** Code either a local IPADDR or local HOSTNAME to further refine the scope of the DISPLAY EE command.

**IPADDR=(local\_ipaddr,remote\_ipaddr)**

Limits the scope of the diagnostic scan to Enterprise Extender connections, which have an endpoint in this host, that have a local IP address of *local\_ipaddr* and a remote IP address of *remote\_ipaddr*.

**LIST**

Specifies the amount of detail the output will contain.

**Guideline:** If you specify the LIST operand without specifying a value, the default of LIST=SUMMARY is assumed.

**LIST=DETAIL**

When specified on the stand-alone D NET, EE command, general Enterprise Extender information will be displayed at the local IP address level, along with the information provided in the summary format.

When specified on the D NET,EE,ID=*name* command, the output will contain Enterprise Extender transmission statistics displayed at the port priority level.

When specified on the D NET,EE command by using the CPNAME, IPADDR, or HOSTNAME operands, the output is varied depending on the command inputs.

- When the input to this command contains a CP name, *remote\_hostname* or *remote\_IPADDR*, the output will display Enterprise Extender transmission statistics at the port priority level.
- When the input to this command contains either a *local\_hostname* or a *local\_IPADDR* (*remote\_hostname* or *remote\_IPADDR* not supplied), the output will be the aggregate of all active EE connections associated with the *local\_hostname* or *local\_IPADDR*. The output will display Enterprise Extender transmission statistics at the port priority level.

**Guideline:** To reduce the amount of output, use the default setting of LIST=SUMMARY, unless detailed breakdown of Enterprise Extender information is required.

**LIST=EEVERIFY**

When specified on the stand-alone D NET,EE command, general Enterprise Extender information will be displayed in summary format along with EE health verification information.

The LIST=EEVERIFY option is not valid with the CPNAME, ID, IPADDR, or HOSTNAME options. If LIST=EEVERIFY is specified with the CPNAME, ID, IPADDR or HOSTNAME options, VTAM issues message IST425I and fails the request.

## DISPLAY EE

### LIST=SUMMARY

On the stand-alone D NET,EE command, general Enterprise Extender information will be displayed in summary format.

On the D NET,EE,ID=*name* command, the output will contain Enterprise Extender transmission statistics displayed as the aggregate of all port priorities for the specific EE connection displayed.

On the D NET,EE command using the IPADDR/HOSTNAME operands, the output varies depending on the command inputs.

- When the input to this command contains a *remote\_hostname* or a *remote\_IPADDR*, the output will contain Enterprise Extender transmission statistics displayed as the aggregate of all port priorities for all matching active EE connections.
- When the input to this command does not contain a *remote\_hostname* or a *remote\_IPADDR*, the output will be the aggregate of all active EE connections associated with the *local\_hostname* or *local\_IPADDR* specified on the command. The EE transmission statistics will be displayed as the aggregate for all port priorities.

### MAX

Specifies the maximum number of Enterprise Extender connections that VTAM displays for this command.

#### MAX=\*

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

#### MAX=number\_of\_EE\_connections

Specifies the number of Enterprise Extender connections that VTAM displays for this command. The valid range of this keyword is 1 to the value of the DSPLYMAX start option value. The default is the value specified for the DSPLYDEF start option.

**Result:** Specifying the MAX parameter limits the display output. VTAM searches only for the number of instances that you have specified. If fewer Enterprise Extender connections are found than you have specified on the MAX parameter, VTAM displays only the Enterprise Extender connections that are found.

### Rules:

- Do not specify both *remote\_hostname* and *remote\_ipaddr*.
- Do not specify both *local\_hostname* and a *local\_ipaddr*.
- You must specify at least one local or one remote input when issuing the D NET,EE command with the IPADDR/HOSTNAME operands. A local input is either *local\_ipaddr* or *local\_hostname*. A remote input is either *remote\_ipaddr* or *remote\_hostname*.

## Examples

Displaying general Enterprise Extender information in summary format:

```
D NET,EE
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EE
IST2000I ENTERPRISE EXTENDER GENERAL INFORMATION
IST1685I TCP/IP JOB NAME = TCPCS
IST2003I ENTERPRISE EXTENDER XCA MAJOR NODE NAME = XCAEE2
IST2004I LIVTIME = (10,0) SRQTIME = 15 SRQRETRY = 3
```

```

IST2005I IPRESOLV = 0
IST2231I CURRENT HPR CLOCK RATE = STANDARD
IST2232I HPR CLOCK RATE LAST SET TO HIGH ON 11/14/06 AT 22:58:41
IST2233I HPR CLOCK RATE LAST EXITED HIGH ON 11/14/06 AT 22:58:45
IST924I -----
IST2006I PORT PRIORITY = SIGNAL    NETWORK    HIGH    MEDIUM    LOW
IST2007I IPPORT NUMBER = 12000     12001     12002     12003     12004
IST2008I IPTOS VALUE   = C0        C0        80        40        20
IST924I -----
IST2017I TOTAL RTP PIPES =          4      LU-LU SESSIONS =          3
IST2018I TOTAL ACTIVE PREDEFINED EE CONNECTIONS =          2
IST2019I TOTAL ACTIVE LOCAL VRN EE CONNECTIONS =          0
IST2020I TOTAL ACTIVE GLOBAL VRN EE CONNECTIONS =          0
IST2021I TOTAL ACTIVE EE CONNECTIONS =          2
IST314I END

```

Displaying general Enterprise Extender information in detailed format:

**D NET,EE,LIST=DETAIL**

```

IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EE
IST2000I ENTERPRISE EXTENDER GENERAL INFORMATION
IST1685I TCP/IP JOB NAME = TCPCS
IST2003I ENTERPRISE EXTENDER XCA MAJOR NODE NAME = XCAIP1A
IST2004I LIVTIME = (10,0) SRQTIME = 15 SRQRETRY = 3
IST2005I IPRESOLV = 0
IST2231I CURRENT HPR CLOCK RATE = STANDARD
IST2232I HPR CLOCK RATE LAST SET TO HIGH ON 11/14/06 AT 22:58:41
IST2233I HPR CLOCK RATE LAST EXITED HIGH ON 11/14/06 AT 22:58:45
IST924I -----
IST2006I PORT PRIORITY = SIGNAL    NETWORK    HIGH    MEDIUM    LOW
IST2007I IPPORT NUMBER = 12000     12001     12002     12003     12004
IST2008I IPTOS VALUE   = C0        C0        80        40        20
IST924I -----
IST1680I LOCAL IP ADDRESS 9.67.1.5
IST2004I LIVTIME = (10,0) SRQTIME = 15 SRQRETRY = 3
IST2009I RTP PIPES =          2      LU-LU SESSIONS =          1
IST2010I INOPS DUE TO SRQRETRY EXPIRATION =          0
IST1324I VNNAME = IP.GVRN5          VNGROUP = GPIP5 (GLOBAL)
IST2011I AVAILABLE LINES FOR THIS EE VRN =          0
IST2012I ACTIVE CONNECTIONS USING THIS EE VRN =          1
IST2013I AVAILABLE LINES FOR PREDEFINED EE CONNECTIONS =          0
IST2014I ACTIVE PREDEFINED EE CONNECTIONS =          0
IST2015I ACTIVE LOCAL VRN EE CONNECTIONS =          0
IST2016I ACTIVE GLOBAL VRN EE CONNECTIONS =          1
IST924I -----
IST1680I LOCAL IP ADDRESS 9.67.1.3
IST2004I LIVTIME = (10,20) SRQTIME = 20 SRQRETRY = 4
IST2009I RTP PIPES =          2      LU-LU SESSIONS =          1
IST2010I INOPS DUE TO SRQRETRY EXPIRATION =          0
IST1324I VNNAME = IP.GVRN3          VNGROUP = GPIP3 (GLOBAL)
IST2011I AVAILABLE LINES FOR THIS EE VRN =          0
IST2012I ACTIVE CONNECTIONS USING THIS EE VRN =          1
IST2013I AVAILABLE LINES FOR PREDEFINED EE CONNECTIONS =          0
IST2014I ACTIVE PREDEFINED EE CONNECTIONS =          0
IST2015I ACTIVE LOCAL VRN EE CONNECTIONS =          0
IST2016I ACTIVE GLOBAL VRN EE CONNECTIONS =          1
IST924I -----
IST1680I LOCAL IP ADDRESS 9.67.1.1
IST2004I LIVTIME = (10,30) SRQTIME = 30 SRQRETRY = 5
IST2009I RTP PIPES =          2      LU-LU SESSIONS =          1
IST2010I INOPS DUE TO SRQRETRY EXPIRATION =          0
IST1324I VNNAME = IP.GVRN1          VNGROUP = GPIP1 (GLOBAL)
IST2011I AVAILABLE LINES FOR THIS EE VRN =          0
IST2012I ACTIVE CONNECTIONS USING THIS EE VRN =          1
IST2013I AVAILABLE LINES FOR PREDEFINED EE CONNECTIONS =          0
IST2014I ACTIVE PREDEFINED EE CONNECTIONS =          0

```

## DISPLAY EE

```
IST2015I ACTIVE LOCAL VRN EE CONNECTIONS = 0
IST2016I ACTIVE GLOBAL VRN EE CONNECTIONS = 1
IST924I -----
IST2017I TOTAL RTP PIPES = 6 LU-LU SESSIONS = 3
IST2018I TOTAL ACTIVE PREDEFINED EE CONNECTIONS = 0
IST2019I TOTAL ACTIVE LOCAL VRN EE CONNECTIONS = 0
IST2020I TOTAL ACTIVE GLOBAL VRN EE CONNECTIONS = 3
IST2021I TOTAL ACTIVE EE CONNECTIONS = 3
IST314I END
```

Displaying the status of Enterprise Extender connections with the health verification information:

```
D NET,EE,LIST=EEVERIFY
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EE
IST2000I ENTERPRISE EXTENDER GENERAL INFORMATION
IST1685I TCP/IP JOB NAME = TCPCS1
IST2003I ENTERPRISE EXTENDER XCA MAJOR NODE NAME = XCAEE
IST2004I LIVTIME = (10,0) SRQTIME = 15 SRQRETRY = 3
IST2005I IPRESOLV = 0
IST2231I CURRENT HPR CLOCK RATE = STANDARD
IST924I -----
IST2006I PORT PRIORITY = SIGNAL NETWORK HIGH MEDIUM LOW
IST2007I IPPORT NUMBER = 12000 12001 12002 12003 12004
IST2008I IPTOS VALUE = C0 C0 80 40 20
IST924I -----
IST2324I EE HEALTH VERIFICATION: FAILED CONNECTION INFORMATION
IST2325I LINE LNEE4000 PU SWEE42AI ON 08/11/09 AT 20:52:43
IST2326I EE HEALTH VERIFICATION TOTAL CONNECTION FAILURES = 1
IST2017I TOTAL RTP PIPES = 5 LU-LU SESSIONS = 5
IST2018I TOTAL ACTIVE PREDEFINED EE CONNECTIONS = 1
IST2019I TOTAL ACTIVE LOCAL VRN EE CONNECTIONS = 0
IST2020I TOTAL ACTIVE GLOBAL VRN EE CONNECTIONS = 0
IST2021I TOTAL ACTIVE EE CONNECTIONS = 1
IST314I END
```

Displaying Enterprise Extender connection information by PU name in summary format:

```
D NET,EE,ID=SWEE2A1
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EE
IST2001I ENTERPRISE EXTENDER CONNECTION INFORMATION
IST075I NAME = SWEE2A1, TYPE = PU_T2.1
IST1680I LOCAL IP ADDRESS 2000::67:1:1
IST1910I LOCAL HOSTNAME VIPA16.SSCP1A.TCP.RALEIGH.IBM.COM
IST1680I REMOTE IP ADDRESS 2000::67:1:2
IST1909I REMOTE HOSTNAME VIPA16.SSCP2A.TCP.RALEIGH.IBM.COM
IST2346I CP NAME = NETA.SSCP2A
IST2114I LIVTIME: INITIAL = 10 MAXIMUM = 30 CURRENT = 20
IST2022I EE CONNECTION ACTIVATED ON 08/11/09 AT 20:22:55
IST2023I CONNECTED TO LINE LNEE1000
IST2327I EE HEALTH VERIFICATION OPTION - EEVERIFY = 3 MINUTES
IST2328I EE HEALTH VERIFICATION FAILED ON 8/11/09 AT 20:55:57
IST2339I EE HEALTH VERIFICATION LAST SUCCESS ON 08/11/09 AT 20:52:57
IST2025I LDLC SIGNALS RETRANSMITTED AT LEAST ONE TIME = 0
IST2026I LDLC SIGNALS RETRANSMITTED SRQRETRY TIMES = 0
IST2009I RTP PIPES = 4 LU-LU SESSIONS = 3
IST2027I DWINOP = NO REDIAL = *NA* REDDELAY = *NA*
IST2028I KEEPACT = NO
IST924I -----
IST2035I TOTALS FOR ALL PORT PRIORITIES
IST2036I NLPS SENT = 49782 ( 049K )
IST2037I BYTES SENT = 4576487 ( 004M )
IST2038I NLPS RETRANSMITTED = 0 ( 000K )
```

```

IST2039I  BYTES RETRANSMITTED =                0 ( 000K )
IST2040I  NLPS RECEIVED      =                49780 ( 049K )
IST2041I  BYTES RECEIVED     =            4576724 ( 004M )
IST314I  END

```

Displaying Enterprise Extender connection information by line (LINE) name in detailed format:

**D NET, EE, ID=LNEE1000, LIST=DETAIL**

```

IST097I  DISPLAY ACCEPTED
IST350I  DISPLAY TYPE = EE
IST200I  ENTERPRISE EXTENDER CONNECTION INFORMATION
IST075I  NAME = LNEE1000, TYPE = LINE
IST1680I LOCAL IP ADDRESS 2000::67:1:1
IST1910I LOCAL HOSTNAME VIPA16.SSCP1A.TCP.RALEIGH.IBM.COM
IST1680I REMOTE IP ADDRESS 2000::67:1:2
IST1909I REMOTE HOSTNAME VIPA16.SSCP2A.TCP.RALEIGH.IBM.COM
IST2346I CP NAME = NETA.SSCP2A
IST2114I LIVTIME: INITIAL = 10 MAXIMUM = 30 CURRENT = 20
IST2022I EE CONNECTION ACTIVATED ON 08/11/09 AT 20:22:55
IST2024I CONNECTED TO SWITCHED PU SWEE2A1
IST2327I EE HEALTH VERIFICATION OPTION - EEVERIFY = 3 MINUTES
IST2328I EE HEALTH VERIFICATION FAILED ON 8/11/09 AT 20:55:57
IST2339I EE HEALTH VERIFICATION LAST SUCCESS ON 08/11/09 AT 20:52:56
IST2025I LDLC SIGNALS RETRANSMITTED AT LEAST ONE TIME = 0
IST2026I LDLC SIGNALS RETRANSMITTED SQRETRY TIMES = 0
IST2009I RTP PIPES = 4 LU-LU SESSIONS = 3
IST2027I DWINOP = NO REDIAL = *NA* REDDELAY = *NA*
IST2028I KEEPACT = NO
IST924I -----
IST2030I PORT PRIORITY = SIGNAL
IST2029I MTU SIZE = 1232
IST2036I NLPS SENT = 4 ( 000K )
IST2037I BYTES SENT = 526 ( 000K )
IST2038I NLPS RETRANSMITTED = 0 ( 000K )
IST2039I BYTES RETRANSMITTED = 0 ( 000K )
IST2040I NLPS RECEIVED = 4 ( 000K )
IST2041I BYTES RECEIVED = 577 ( 000K )
IST924I -----
IST2031I PORT PRIORITY = NETWORK
IST2029I MTU SIZE = 1232
IST2036I NLPS SENT = 91 ( 000K )
IST2037I BYTES SENT = 7036 ( 007K )
IST2038I NLPS RETRANSMITTED = 0 ( 000K )
IST2039I BYTES RETRANSMITTED = 0 ( 000K )
IST2040I NLPS RECEIVED = 90 ( 000K )
IST2041I BYTES RECEIVED = 6693 ( 006K )
IST924I -----
IST2032I PORT PRIORITY = HIGH
IST2029I MTU SIZE = 1232
IST2036I NLPS SENT = 56390 ( 056K )
IST2037I BYTES SENT = 5184997 ( 005M )
IST2038I NLPS RETRANSMITTED = 0 ( 000K )
IST2039I BYTES RETRANSMITTED = 0 ( 000K )
IST2040I NLPS RECEIVED = 56394 ( 056K )
IST2041I BYTES RECEIVED = 5185656 ( 005M )
IST924I -----
IST2033I PORT PRIORITY = MEDIUM
IST2029I MTU SIZE = 1232
IST2036I NLPS SENT = 0 ( 000K )
IST2037I BYTES SENT = 0 ( 000K )
IST2038I NLPS RETRANSMITTED = 0 ( 000K )
IST2039I BYTES RETRANSMITTED = 0 ( 000K )
IST2040I NLPS RECEIVED = 0 ( 000K )
IST2041I BYTES RECEIVED = 0 ( 000K )
IST924I -----
IST2034I PORT PRIORITY = LOW

```

## DISPLAY EE

```
IST2029I  MTU SIZE = 1232
IST2036I  NLPS SENT           =                0 ( 000K )
IST2037I  BYTES SENT          =                0 ( 000K )
IST2038I  NLPS RETRANSMITTED =                0 ( 000K )
IST2039I  BYTES RETRANSMITTED =                0 ( 000K )
IST2040I  NLPS RECEIVED      =                0 ( 000K )
IST2041I  BYTES RECEIVED     =                0 ( 000K )
IST924I  -----
IST2035I  TOTALS FOR ALL PORT PRIORITIES
IST2036I  NLPS SENT           =                56485 ( 056K )
IST2037I  BYTES SENT          =            5192559 ( 005M )
IST2038I  NLPS RETRANSMITTED =                0 ( 000K )
IST2039I  BYTES RETRANSMITTED =                0 ( 000K )
IST2040I  NLPS RECEIVED      =                56488 ( 056K )
IST2041I  BYTES RECEIVED     =            5192926 ( 005M )
IST314I  END
```

Displaying Enterprise Extender connection information by IP address (IPADDR) in summary format:

**D NET,EE,IPADDR=(2000::67:1:1,2000::67:1:2)**

```
IST097I  DISPLAY ACCEPTED
IST350I  DISPLAY TYPE = EE
IST200I  ENTERPRISE EXTENDER CONNECTION INFORMATION
IST924I  -----
IST1680I LOCAL IP ADDRESS 2000::67:1:1
IST1910I LOCAL HOSTNAME VIPA16.SSCP1A.TCP.RALEIGH.IBM.COM
IST1680I REMOTE IP ADDRESS 2000::67:1:2
IST1909I REMOTE HOSTNAME VIPA16.SSCP2A.TCP.RALEIGH.IBM.COM
IST2346I CP NAME = NETA.SSCP2A
IST2114I LIVTIME: INITIAL = 10 MAXIMUM = 30 CURRENT = 20
IST2022I EE CONNECTION ACTIVATED ON 09/12/03 AT 09:27:15
IST2023I CONNECTED TO LINE LNEE1000
IST2024I CONNECTED TO SWITCHED PU SWEE2A1
IST2025I LDLC SIGNALS RETRANSMITTED AT LEAST ONE TIME =                0
IST2026I LDLC SIGNALS RETRANSMITTED SRQRETRY TIMES   =                0
IST2009I RTP PIPES =                7          LU-LU SESSIONS =                6
IST2027I DWINOP = NO          REDIAL = *NA*          REDDELAY =                *NA*
IST2028I KEEPACT = NO
IST924I  -----
IST2035I TOTALS FOR ALL PORT PRIORITIES
IST2036I  NLPS SENT           =                95182 ( 095K )
IST2037I  BYTES SENT          =            10787917 ( 010M )
IST2038I  NLPS RETRANSMITTED =                0 ( 000K )
IST2039I  BYTES RETRANSMITTED =                0 ( 000K )
IST2040I  NLPS RECEIVED      =                95227 ( 095K )
IST2041I  BYTES RECEIVED     =            9756692 ( 009M )
IST2042I 1 OF 1 EE CONNECTIONS DISPLAYED
IST314I  END
```

Displaying Enterprise Extender connection information by remote IP address (IPADDR) only in summary format:

**D NET,EE,IPADDR=(,2000::67:1:2)**

```
IST097I  DISPLAY ACCEPTED
IST350I  DISPLAY TYPE = EE
IST200I  ENTERPRISE EXTENDER CONNECTION INFORMATION
IST924I  -----
IST1680I LOCAL IP ADDRESS 2000::67:1:1
IST1910I LOCAL HOSTNAME VIPA16.SSCP1A.TCP.RALEIGH.IBM.COM
IST1680I REMOTE IP ADDRESS 2000::67:1:2
IST1909I REMOTE HOSTNAME VIPA16.SSCP2A.TCP.RALEIGH.IBM.COM
IST2346I CP NAME = NETA.SSCP2A
IST2114I LIVTIME: INITIAL = 10 MAXIMUM = 30 CURRENT = 10
IST2022I EE CONNECTION ACTIVATED ON 09/12/03 AT 09:27:15
IST2023I CONNECTED TO LINE LNEE1000
IST2024I CONNECTED TO SWITCHED PU SWEE2A1
```

```

IST2025I LDLC SIGNALS RETRANSMITTED AT LEAST ONE TIME = 0
IST2026I LDLC SIGNALS RETRANSMITTED SRQRETRY TIMES = 0
IST2009I RTP PIPES = 7 LU-LU SESSIONS = 6
IST2027I DWINOP = NO REDIAL = *NA* REDDELAY = *NA*
IST2028I KEEPACT = NO
IST924I -----
IST2035I TOTALS FOR ALL PORT PRIORITIES
IST2036I NLPS SENT = 95182 ( 095K )
IST2037I BYTES SENT = 10787917 ( 010M )
IST2038I NLPS RETRANSMITTED = 0 ( 000K )
IST2039I BYTES RETRANSMITTED = 0 ( 000K )
IST2040I NLPS RECEIVED = 95227 ( 095K )
IST2041I BYTES RECEIVED = 9756692 ( 009M )
IST2042I 1 OF 1 EE CONNECTIONS DISPLAYED
IST314I END

```

Displaying Enterprise Extender connection information by IP address (IPADDR) and host name (HOSTNAME) in summary format:

```

D NET,EE,IPADDR=2000::67:1:1,HOSTNAME=(,VIP16.SSCP2A.TCP.RALEIGH.IBM.COM)
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EE
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE000001
IST2120I HOSTNAME RESOLUTION IN PROGRESS
IST314I END

```

```

IST350I DISPLAY TYPE = EE
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE000001
IST2121I HOSTNAME RESOLUTION COMPLETE
IST1680I REMOTE IP ADDRESS 2000::67:1:2
IST1909I REMOTE HOSTNAME VIPA16.SSCP2A.TCP.RALEIGH.IBM.COM
IST314I END

```

```

IST350I DISPLAY TYPE = EE
IST2001I ENTERPRISE EXTENDER CONNECTION INFORMATION
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE000001
IST924I -----
IST1680I LOCAL IP ADDRESS 2000::67:1:1
IST1910I LOCAL HOSTNAME VIPA16.SSCP1A.TCP.RALEIGH.IBM.COM
IST1680I REMOTE IP ADDRESS 2000::67:1:2
IST1909I REMOTE HOSTNAME VIPA16.SSCP2A.TCP.RALEIGH.IBM.COM
IST2346I CP NAME = NETA.SSCP2A
IST2114I LIVTIME: INITIAL = 10 MAXIMUM = 30 CURRENT 20
IST2022I EE CONNECTION ACTIVATED ON 08/12/05 AT 09:27:15
IST2023I CONNECTED TO LINE LNEE1000
IST2024I CONNECTED TO SWITCHED PU SWEE2A1
IST2025I LDLC SIGNALS RETRANSMITTED AT LEAST ONE TIME = 0
IST2026I LDLC SIGNALS RETRANSMITTED SRQRETRY TIMES = 0
IST2009I RTP PIPES = 7 LU-LU SESSIONS = 6
IST2027I DWINOP = NO REDIAL = *NA* REDDELAY = *NA*
IST2028I KEEPACT = NO
IST924I -----
IST2035I TOTALS FOR ALL PORT PRIORITIES
IST2036I NLPS SENT = 95182 ( 095K )
IST2037I BYTES SENT = 10787917 ( 010M )
IST2038I NLPS RETRANSMITTED = 0 ( 000K )
IST2039I BYTES RETRANSMITTED = 0 ( 000K )
IST2040I NLPS RECEIVED = 95227 ( 095K )
IST2041I BYTES RECEIVED = 9756692 ( 009M )
IST2042I 1 OF 1 EE CONNECTIONS DISPLAYED
IST314I END

```

Displaying Enterprise Extender connections associated with a local host name (HOSTNAME) in summary format:



## DISPLAY EE

**D NET,EE,HOSTNAME=VIPAI6.SSCP1A.TCP.RALEIGH.IBM.COM**

IST097I DISPLAY ACCEPTED  
IST350I DISPLAY TYPE = EE  
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE000002  
IST2120I HOSTNAME RESOLUTION IN PROGRESS  
IST314I END

IST350I DISPLAY TYPE = EE  
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE000002  
IST2121I HOSTNAME RESOLUTION COMPLETE  
IST1680I LOCAL IP ADDRESS 2000::67:1:1  
IST1910I LOCAL HOSTNAME VIPAI6.SSCP1A.TCP.RALEIGH.IBM.COM  
IST314I END

IST350I DISPLAY TYPE = EE  
IST2002I ENTERPRISE EXTENDER AGGREGATE CONNECTION INFORMATION  
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE000002  
IST924I -----  
IST1680I LOCAL IP ADDRESS 2000::67:1:1  
IST1910I LOCAL HOSTNAME VIPAI6.SSCP1A.TCP.RALEIGH.IBM.COM  
IST2004I LIVTIME = (10,30) SRQTIME = 30 SRQRETRY = 5  
IST2009I RTP PIPES = 7 LU-LU SESSIONS = 6  
IST2010I INOPS DUE TO SRQRETRY EXPIRATION = 0  
IST2013I AVAILABLE LINES FOR PREDEFINED EE CONNECTIONS = 0  
IST2014I ACTIVE PREDEFINED EE CONNECTIONS = 1  
IST2015I ACTIVE LOCAL VRN EE CONNECTIONS = 0  
IST2016I ACTIVE GLOBAL VRN EE CONNECTIONS = 0  
IST2044I TOTAL ACTIVE EE CONNECTIONS FOR LOCAL IPADDR = 1  
IST924I -----  
IST2035I TOTALS FOR ALL PORT PRIORITIES  
IST2036I NLPS SENT = 78877 ( 078K )  
IST2037I BYTES SENT = 8671229 ( 008M )  
IST2038I NLPS RETRANSMITTED = 0 ( 000K )  
IST2039I BYTES RETRANSMITTED = 0 ( 000K )  
IST2040I NLPS RECEIVED = 78923 ( 078K )  
IST2041I BYTES RECEIVED = 7951928 ( 007M )  
IST314I END

Displaying Enterprise Extender connections associated with a local IP address (IPADDR) in detailed format:

**D NET,EE,IPADDR=9.67.1.1,LIST=DETAIL**

IST097I DISPLAY ACCEPTED  
IST350I DISPLAY TYPE = EE  
IST2002I ENTERPRISE EXTENDER AGGREGATE CONNECTION INFORMATION  
IST924I -----  
IST1680I LOCAL IP ADDRESS 9.67.1.1  
IST1910I LOCAL HOSTNAME VIPA.SSCP1A.TCP.RALEIGH.IBM.COM  
IST2004I LIVTIME = (10,30) SRQTIME = 30 SRQRETRY = 5  
IST2009I RTP PIPES = 4 LU-LU SESSIONS = 3  
IST2010I INOPS DUE TO SRQRETRY EXPIRATION = 0  
IST2013I AVAILABLE LINES FOR PREDEFINED EE CONNECTIONS = 0  
IST2014I ACTIVE PREDEFINED EE CONNECTIONS = 1  
IST2015I ACTIVE LOCAL VRN EE CONNECTIONS = 0  
IST2016I ACTIVE GLOBAL VRN EE CONNECTIONS = 0  
IST2043I TOTAL ACTIVE EE CONNECTIONS FOR LOCAL HOSTNAME = 1  
IST924I -----  
IST2030I PORT PRIORITY = SIGNAL  
IST2036I NLPS SENT = 4 ( 000K )  
IST2037I BYTES SENT = 526 ( 000K )  
IST2038I NLPS RETRANSMITTED = 0 ( 000K )  
IST2039I BYTES RETRANSMITTED = 0 ( 000K )  
IST2040I NLPS RECEIVED = 4 ( 000K )  
IST2041I BYTES RECEIVED = 577 ( 000K )  
IST924I -----  
IST2031I PORT PRIORITY = NETWORK  
IST2036I NLPS SENT = 187 ( 000K )



```

IST2037I  BYTES SENT           =           13397 ( 013K )
IST2038I  NLPS RETRANSMITTED  =              0 ( 000K )
IST2039I  BYTES RETRANSMITTED =              0 ( 000K )
IST2040I  NLPS RECEIVED       =             197 ( 000K )
IST2041I  BYTES RECEIVED      =          14115 ( 014K )
IST924I  -----
IST2032I  PORT PRIORITY = HIGH
IST2036I  NLPS SENT           =          140332 ( 140K )
IST2037I  BYTES SENT           =        12888984 ( 012M )
IST2038I  NLPS RETRANSMITTED  =              0 ( 000K )
IST2039I  BYTES RETRANSMITTED =              0 ( 000K )
IST2040I  NLPS RECEIVED       =          140328 ( 140K )
IST2041I  BYTES RECEIVED      =        12888352 ( 012M )
IST924I  -----
IST2033I  PORT PRIORITY = MEDIUM
IST2036I  NLPS SENT           =              0 ( 000K )
IST2037I  BYTES SENT           =              0 ( 000K )
IST2038I  NLPS RETRANSMITTED  =              0 ( 000K )
IST2039I  BYTES RETRANSMITTED =              0 ( 000K )
IST2040I  NLPS RECEIVED       =              0 ( 000K )
IST2041I  BYTES RECEIVED      =              0 ( 000K )
IST924I  -----
IST2034I  PORT PRIORITY = LOW
IST2036I  NLPS SENT           =              0 ( 000K )
IST2037I  BYTES SENT           =              0 ( 000K )
IST2038I  NLPS RETRANSMITTED  =              0 ( 000K )
IST2039I  BYTES RETRANSMITTED =              0 ( 000K )
IST2040I  NLPS RECEIVED       =              0 ( 000K )
IST2041I  BYTES RECEIVED      =              0 ( 000K )
IST924I  -----
IST2035I  TOTALS FOR ALL PORT PRIORITIES
IST2036I  NLPS SENT           =          140523 ( 140K )
IST2037I  BYTES SENT           =        12902907 ( 012M )
IST2038I  NLPS RETRANSMITTED  =              0 ( 000K )
IST2039I  BYTES RETRANSMITTED =              0 ( 000K )
IST2040I  NLPS RECEIVED       =          140529 ( 140K )
IST2041I  BYTES RECEIVED      =        12903044 ( 012M )
IST314I  END

```

Displaying Enterprise Extender connection information by CPNAME in summary format:

**D NET,EE,CPNAME=SSCP2A**

```

IST097I  DISPLAY ACCEPTED
IST350I  DISPLAY TYPE = EE
IST200I  ENTERPRISE EXTENDER CONNECTION INFORMATION
IST924I  -----
IST1680I LOCAL IP ADDRESS 10.81.1.1
IST1680I REMOTE IP ADDRESS 10.81.2.2
IST2346I CP NAME = NETA.SSCP2A
IST2022I EE CONNECTION ACTIVATED ON 09/28/12 AT 09:17:44
IST2114I LIVTIME:  INITIAL = 10  MAXIMUM =  0  CURRENT = 10
IST2023I CONNECTED TO LINE LNEE4001
IST2024I CONNECTED TO SWITCHED PU SWEE42AH
IST2025I LDLC SIGNALS RETRANSMITTED AT LEAST ONE TIME  =  0
IST2026I LDLC SIGNALS RETRANSMITTED SRQRETRY TIMES    =  0
IST2009I RTP PIPES =  0  LU-LU SESSIONS              =  0
IST2027I DWINOP = NO  REDIAL = *NA*  REDDELAY =  *NA*
IST2028I KEEPACT = YES
IST924I  -----
IST2035I TOTALS FOR ALL PORT PRIORITIES
IST2036I  NLPS SENT           =              10 ( 000K )
IST2037I  BYTES SENT           =             910 ( 000K )
IST2038I  NLPS RETRANSMITTED  =              0 ( 000K )
IST2039I  BYTES RETRANSMITTED =              0 ( 000K )
IST2040I  NLPS RECEIVED       =              10 ( 000K )
IST2041I  BYTES RECEIVED      =             892 ( 000K )

```

## DISPLAY EE

```

IST924I -----
IST1680I LOCAL IP ADDRESS 2001:DB8:10::81:1:1
IST1680I REMOTE IP ADDRESS 2001:DB8:10::81:2:2
IST2346I CP NAME = NETA.SSCP2A
IST2022I EE CONNECTION ACTIVATED ON 09/28/12 AT 09:17:32
IST2114I LIVTIME:  INITIAL = 10  MAXIMUM =  0  CURRENT = 10
IST2023I CONNECTED TO LINE LNEE6001
IST2024I CONNECTED TO SWITCHED PU SWEE62AH
IST2025I LDLC SIGNALS RETRANSMITTED AT LEAST ONE TIME  =  0
IST2026I LDLC SIGNALS RETRANSMITTED SRQRETRY TIMES    =  0
IST2009I RTP PIPES = 1  LU-LU SESSIONS = 2
IST2027I DWINOP = NO  REDIAL = *NA*  REDDELAY = *NA*
IST2028I KEEPACT = YES
IST924I -----
IST2035I TOTALS FOR ALL PORT PRIORITIES
IST2036I NLPS SENT = 41 ( 000K )
IST2037I BYTES SENT = 4305 ( 004K )
IST2038I NLPS RETRANSMITTED = 0 ( 000K )
IST2039I BYTES RETRANSMITTED = 0 ( 000K )
IST2040I NLPS RECEIVED = 42 ( 000K )
IST2041I BYTES RECEIVED = 4134 ( 004K )
IST2042I 2 OF 2 EE CONNECTIONS DISPLAYED
IST314I END
  
```

## DISPLAY EEDIAG command

**Display Enterprise Extender (EE) connections that meet or exceed a specified retransmission threshold:**

```

▶▶—DISPLAY— —NET—,—EEDIAG—,—REXMIT—==—retransmission_rate_percentage—▶▶

```

```

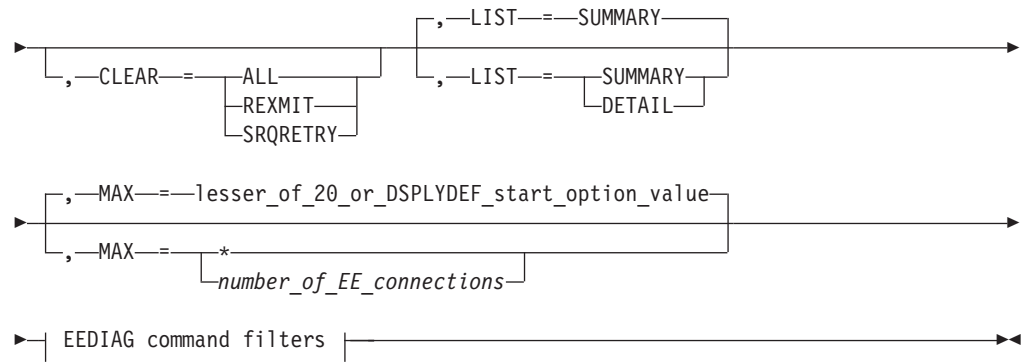
▶▶—MAX—==lesser_of_20_or_DSPLYDEF_start_option_value—▶▶
▶▶—MAX—==*—number_of_EE_connections—▶▶
▶▶ EEDIAG command filters ▶▶
  
```

**Tip:** Specify the CLEAR operand on this command to clear the diagnostic counters. The REXMIT information is displayed before the diagnostic counters are cleared.

**Display Enterprise Extender connections that meet or exceed a specified SRQRETRY threshold:**

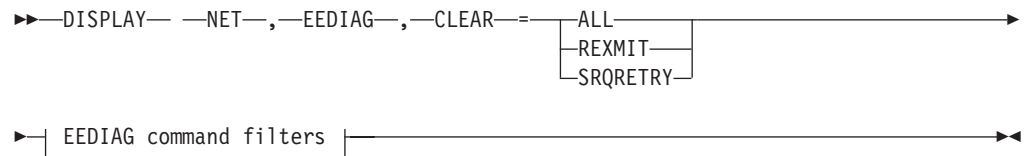
```

▶▶—DISPLAY— —NET—,—EEDIAG—,—SRQRETRY—==—retries—▶▶
▶▶—SRQRETRY—==*—▶▶
  
```

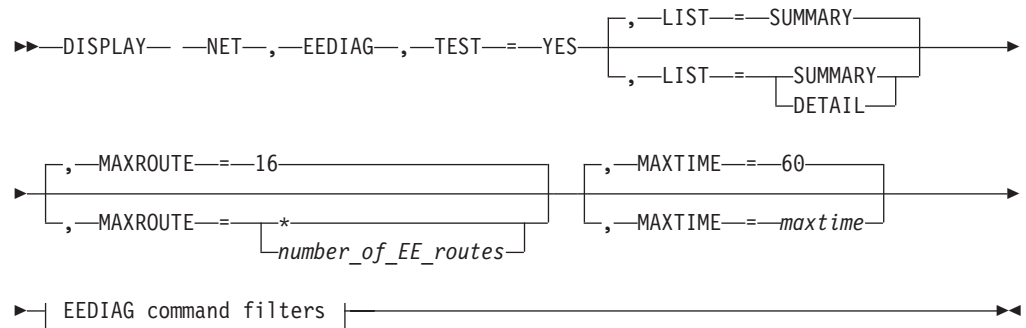


**Tip:** Specify the CLEAR operand on this command to clear the diagnostic counters. The SRQRETRY information is displayed before the diagnostic counters are cleared.

**Clear Enterprise Extender diagnostic counters:**

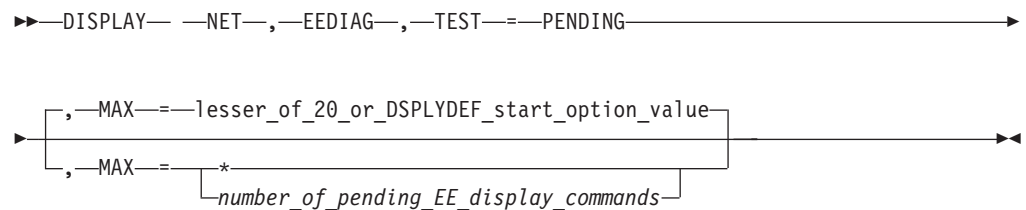


**Display Enterprise Extender connectivity test information:**



**Tip:** To query outstanding DISPLAY EEDIAG,TEST=YES commands that are pending test results, issue the D NET,EEDIAG,TEST=PENDING command.

**Query outstanding Enterprise Extender display commands:**



The following information describes the EEDIAG command filters.

## DISPLAY EEDIAG

**Note:** You must specify either the ID filter or both local and remote endpoint information for the EE connectivity test (EEDIAG operand TEST=YES).

**Limit the DISPLAY EEDIAG command scope to one EE connection that is identified by LINE or PU name:**

►► —, —ID— —name— ◀◀

The *name* value represents an Enterprise Extender line or a switched PU that has an active EE connection.

**Limit the DISPLAY EEDIAG command scope to EE connections that are identified by an IP address (IPADDR):**

►► —, —IPADDR— — ◀◀

<i>local_ipaddr</i>	└, —HOSTNAME— — (—, <i>remote_hostname</i> —) ┘
(— <i>local_ipaddr</i> —)	└, —HOSTNAME— — (—, <i>remote_hostname</i> —) ┘
(— <i>local_ipaddr</i> —, — <i>remote_ipaddr</i> —)	
(—, — <i>remote_ipaddr</i> —)	

**Limit the DISPLAY EEDIAG command scope to EE connections that are identified by a host name (HOSTNAME):**

►► —, —HOSTNAME— — ◀◀

<i>local_hostname</i>	└, —IPADDR— — (—, <i>remote_ipaddr</i> —) ┘
(— <i>local_hostname</i> —)	└, —IPADDR— — (—, <i>remote_ipaddr</i> —) ┘
(— <i>local_hostname</i> —, — <i>remote_hostname</i> —)	
(—, — <i>remote_hostname</i> —)	

### Abbreviations

Operand	Abbreviation
DISPLAY	D
CLEAR=ALL	CLEAR
HOSTNAME	HN
IPADDR	IP
LIST=DETAIL	DETAIL or DET
LIST=SUMMARY	SUMMARY or SUM
TEST=PENDING	PEND
TEST=YES	TEST

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for LIST=DETAIL, code only DETAIL or DET. Do not code LIST=DET.

### Purpose

The DISPLAY EEDIAG command can be used to display diagnostic information about one or more EE connections.

The REXMIT format lists Enterprise Extender connections whose retransmission rate, calculated at each port priority, meet, or exceed a specified threshold. The SRQRETRY format lists Enterprise Extender connections that are experiencing LDLC signal retries that meet or exceed a specified threshold. A CLEAR function enables the diagnostic counters used by these commands to be cleared for the next measurement interval. You can specify the CLEAR operand by itself or with either the REXMIT or the SRQRETRY operands. When specified with the REXMIT or SRQRETRY operands, the diagnostic counters are cleared after the display output for the current command is complete.

The Enterprise Extender connectivity test command is useful for debugging various network problems. Use this command to test an existing Enterprise Extender connection, or use it to assist in diagnosing the reason an EE connection cannot be established. Because this is a potentially long-running command, the number of outstanding EE connectivity tests is limited by the value of the MAXEETST start option. See z/OS Communications Server: SNA Resource Definition Reference for details.

An EE connectivity test that specifies LIST=DETAIL verifies that an EE line is available, that address resolution is possible, and that a partner can be reached. To verify that a partner can be reached, LDLC probe commands with varying TTL (time-to-live) or hop count values are sent to the EE partner host. The first LDLC probe request contains the TTL value 1 and is sent to the EE partner node. The command then waits up to 3 seconds for a response to this probe. The expected response is the ICMP message "Time Exceeded" (which indicates that the TTL value has been exceeded), or an LDLC probe response from the partner node. If no response is received, then the LDLC probe request is transmitted up to two additional times, using the same TTL value and wait time. If still no response is received, the TTL value is incremented by 1 and the process is repeated. If no responses to any of the LDLC probe requests are received, then command processing stops when the MAXTIME value is exceeded. When an ICMP "Time Exceeded" message is received in response to the LDLC probe requests, the IP address of the node sending the ICMP message and the round-trip time to that node are recorded. Typically, processing continues until an unexpected ICMP message is received, an LDLC probe response is received from the partner node, or when the MAXTIME value is exceeded. The output generated by this request shows whether the remote EE endpoint can be reached over each of the five UDP ports that are reserved for EE. When multipath support or policy-based routing is being used, all available routes calculated by the local TCP/IP stack to the remote EE endpoint are tested.

An EE connectivity test that specifies LIST=SUMMARY provides the remote partner reachability information quickly. VTAM sets the TTL count to 255 and sends an LDLC probe to the remote partner, using all five ports. Use this command to quickly determine whether the remote partner is reachable on all five ports. Because VTAM sets the TTL count to 255, the hop count is not determined for LIST=SUMMARY output; however, LIST=DETAIL output includes the hop count. When multipath support or policy-based routing is being used, all available routes calculated by the local TCP/IP stack to the remote EE endpoint are tested.

The TEST=PENDING format lists outstanding Enterprise Extender displays that are pending host name resolution or EE connectivity test results. This might be useful because both host name resolution and the EE connectivity test are potentially long-running functions.

## DISPLAY EEDIAG

This EEDIAG command format enables you to query the outstanding displays to obtain the status. Each pending display has a unique correlator assigned to it that you can use to identify each outstanding display request. You can use filters on the DISPLAY EEDIAG command to limit the EE diagnostic scan to a subset of the overall EE connections.

**Tip:** Specify filters to reduce the scope of the command to EE connections that you are interested in. This eliminates unnecessary overhead while processing the display command.

### Operands

#### CLEAR

Specifies which diagnostic counters are to be cleared.

##### CLEAR=ALL

Clears both REXMIT and SRQRETRY diagnostic counters.

##### CLEAR=REXMIT

Clears only the REXMIT diagnostic counters.

##### CLEAR=SRQRETRY

Clears only the SRQRETRY diagnostic counters.

**Rule:** The REXMIT and SRQRETRY operands limit the scope of the display output, but only the command filters (for example, ID, IPADDR, HOSTNAME) limit the scope of the CLEAR operand. If the command filters are not included on the D EEDIAG command, all EE connections are affected by the scope of this command. Otherwise, the scope of the D EEDIAG command is limited to the EE connections that match the values of the filters. For example, a local IP address (IPADDR) that is used by 500 EE connections can be specified on the command. The CLEAR=ALL option clears both the REXMIT and SRQRETRY counters for all 500 EE connections. However, only one of these EE connections might be experiencing retransmission problems. In this case, message IST2042I lists only one connection.

#### HOSTNAME

Filter used to limit the scope of the diagnostic scan or connectivity test to Enterprise Extender connections that are specified by the local host name, the remote host name, or both. The local and remote host name filters you specify on this command should be fully qualified TCP/IP domain names, up to 64 characters long.

The Enterprise Extender definitions for your network do not necessarily have to use a HOSTNAME scheme for the DISPLAY EEDIAG command to use host names. VTAM must be able to perform TCP/IP name-to-address resolution, either by connectivity to a DNS name server, or by using a local host file such as HOSTS.SITEINFO or /etc/ipnodes. For more information, see z/OS Communications Server: IP Configuration Guide. If the TCP/IP name-to-address resolution fails for either the local or remote host name, the DISPLAY EEDIAG command will also fail as a result.

The *local\_hostname* value is used to acquire the static VIPA addresses that other Enterprise Extender nodes use in order to communicate with this host using Enterprise Extender. The *remote\_hostname* value is used to acquire the IP address used by the TCP/IP stack on the remote end of the Enterprise Extender connection. Furthermore, if the *remote\_hostname* value represents a z/OS Communications Server APPN node, the address returned must be a static VIPA address.

**Guideline:** Ensure that each host name resolves to a unique IP address. When VTAM performs the TCP/IP name-to-address resolution, and the host name resolves to multiple IP address, the first address returned by the resolver is the address used by VTAM.

**Restrictions:**

- The number of outstanding DISPLAY EE and DISPLAY EEDIAG commands that require host name resolution are limited by the value of the MAXHNRES start option. See z/OS Communications Server: SNA Resource Definition Reference for details. When the MAXHNRES start option value is exceeded, the DISPLAY EE or DISPLAY EEDIAG command fails with message IST2122I.
- VTAM commands that exceed 130 characters in length are subject to being truncated. In particular, the D NET, EEDIAG command allows up to two host name filters as input, each of which can be up to 64 characters in length. However, if the command exceeds 130 characters, the command is truncated and error messages can be issued. To avoid this limitation, perform one of the following actions:
  - Use command abbreviations whenever possible.
  - Define shorter host names to be used as input to the D NET,EEDIAG command.
  - Instead of using host name filters on the D NET, EEDIAG command, use either the ID or IPADDR filters.

**Result:** When an IP address is passed as input on the HOSTNAME operand, the IP address is simply passed back as output from the resolver. Instead of failing the display command with a host name that is not valid, the IP address is used to process the display command.

**Tip:** To query outstanding DISPLAY EEDIAG commands that are pending host name resolution, issue the DISPLAY NET,EEDIAG,TEST=PENDING command.

**Rule:** The *remote\_hostname* value is not always available for use by this command. The *remote\_hostname* value is available for use only by a host when it initiates the connection (dial-out) to the remote EE partner. For a predefined EE connection (non-connection network), which is the dial-in side of the connection, the *remote\_hostname* value is not available for use by this command. For a virtual routing node (VRN) EE connection which is the dial-in side of the connection, the *remote\_hostname* value is available for use after a dial-out is attempted to the remote EE partner. A new session request, initiated from that EE endpoint, must cause the dial to occur to the partner EE endpoint. At that time, the *remote\_hostname* value is resolved, the existing EE connection is found and is used for the session, and the remote host name becomes available for use by this display command.

**HOSTNAME=***local\_hostname*

Limits the scope of the diagnostic scan or connectivity test to Enterprise Extender connections that have a local host name that matches the *local\_hostname* parameter value.

**Tip:** Code either a remote host name (HOSTNAME) or remote IP address (IPADDR) to further refine the scope of the DISPLAY EEDIAG command.



## DISPLAY EEDIAG

**HOSTNAME=(,remote\_hostname)**

Limits the scope of the diagnostic scan or connectivity test to Enterprise Extender connections that have a remote host name that matches the *remote\_hostname* value.

**Tip:** Code either a local host name (HOSTNAME) or local IP address (IPADDR) to further refine the scope of the DISPLAY EEDIAG command.

**HOSTNAME=(local\_hostname,remote\_hostname)**

Limits the scope of the diagnostic scan or connectivity test to Enterprise Extender connections that have a local host name that matches the *local\_hostname* value and a remote host name that matches the *remote\_hostname* value.

**ID=name**

Filter used to limit the scope of the diagnostic scan or connectivity test to a single Enterprise Extender connection that is specified by LINE or switched PU name.

### Restrictions:

- When issuing a DISPLAY NET,EEDIAG,TEST=YES command on an active EE connection, you can specify the name of the active line or switched PU that is being used for the EE connection.
- If the EE connection is inactive, and you want to use the ID filter to identify the EE connection, you must specify the name of the predefined switched PU name. You must provide a GRPNM value for the predefined switched PU, and either the IPADDR or HOSTNAME operands specified on the associated PATH statement. The GRPNM value must define an active group name within the Enterprise Extender XCA major node. The local IP address or host name used for the connectivity test is obtained from the defined group within the EE XCA major node. The remote IP address or host name used for the connectivity test is taken directly from the PATH definition statement. The ID filter cannot accept a line name when the EE connection is inactive, because it does not uniquely identify the EE endpoints to test.
- Alternatively, you can uniquely identify the EE connection to test by specifying any combination of the IPADDR and HOSTNAME filters that provides both a local and remote input.

**IPADDR**

Filter used to limit the scope of the diagnostic scan or connectivity test to Enterprise Extender connections specified by the local IP address, remote IP address, or both. The IP address accepts a fully qualified dotted decimal value for IPv4-type addresses, or colon-hexadecimal format for IPv6-type addresses.

**IPADDR=local\_ipaddr**

Limits the scope of the diagnostic scan or connectivity test to Enterprise Extender connections that have a local IP address that matches the *local\_ipaddr* value.

**Note:** Code either a remote IP address (IPADDR) or remote host name (HOSTNAME) to further refine the scope of the DISPLAY EEDIAG command.

**IPADDR=(,remote\_ipaddr)**

Limits the scope of the diagnostic scan or connectivity test to Enterprise Extender connections which have a remote IP address that matches the *remote\_ipaddr* value.



**Tip:** Code either a local IP address (IPADDR) or a local host name (HOSTNAME) to further refine the scope of the DISPLAY EEDIAG command.

**IPADDR=(local\_ipaddr,remote\_ipaddr)**

Limits the scope of the diagnostic scan or connectivity test to Enterprise Extender connections that have a local IP address that matches the *local\_ipaddr* value and a remote IP address that matches the *remote\_ipaddr* value.

**LIST**

Specifies the amount of detail the output contains. If you specify the LIST operand without specifying a value, the default of LIST=SUMMARY is assumed.

**LIST=DETAIL**

When LIST=DETAIL is specified on the DISPLAY NET,EEDIAG,REXMIT command, for connections meeting or exceeding the specified retransmission rate, the output contains Enterprise Extender retransmission rates displayed at the port priority level.

When LIST=DETAIL is specified on the DISPLAY NET,EEDIAG,SRQRETRY command, for connections meeting or exceeding the specified threshold, the output lists each SRQRETRY attempt and the count of LDLC signals that received responses on each attempt to try again. For example, if an LDLC signal requires three retries before receiving a response, the display indicates one occurrence for the third SRQRETRY attempt.

When LIST=DETAIL is specified on the DISPLAY NET,EEDIAG,TEST=YES command, the output lists each hop that was tested during the EE connectivity test.

**LIST=SUMMARY**

When LIST=SUMMARY is specified on the DISPLAY NET,EEDIAG,REXMIT command, for connections meeting or exceeding the specified retransmission rate, the output contains an Enterprise Extender retransmission rate composed of the average of all port priorities.

When LIST=SUMMARY is specified on the DISPLAY NET,EEDIAG,SRQRETRY command, for connections meeting or exceeding the specified threshold, the output lists only SRQRETRY attempts (and the count of LDLC signals that received responses on this attempt to try again) that meet or exceed the specified threshold. That is, LIST=SUMMARY lists only SRQRETRY attempts that meet or exceed the specified threshold, while LIST=DETAIL lists all SRQRETRY attempts.

**Rule:** If you specify REXMIT=xx with the LIST=SUMMARY option, the display provides an overall retransmission rate for all port priorities. It is possible that the retransmission rate displayed in message IST2068I, which is associated with all port priorities, is smaller than the rate specified by REXMIT=xx. This means that at least one of the EE port priorities for this EE connection is experiencing a retransmission rate that meets or exceeds the specified rate. In this case, the LIST=SUMMARY option displays the message groups for the specific port priorities that meet or exceed the specified rate, along with the summary of all port priorities.

When LIST=SUMMARY is specified on the DISPLAY NET,EEDIAG,TEST=YES command, the output lists the remote partner reachability information quickly.

## DISPLAY EEDIAG

### MAX

Specifies the maximum number of Enterprise Extender connections that VTAM displays for this command.

The REXMIT and SRQRETRY command can be in one of the following formats:

#### MAX=\*

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

#### MAX=*number\_of\_EE\_connections*

Specifies the number of Enterprise Extender connections that VTAM displays for this command. Valid values for this keyword are in the range 1 - DSPLYMAX start option value. The default is 20, or the value specified for the DSPLYDEF start option, whichever is less.

**Result:** Specifying the MAX operand limits the display output. If fewer Enterprise Extender connections are found than you have specified on the MAX operand, VTAM displays only the Enterprise Extender connections that are found.

**Rule:** If you specify the CLEAR operand and the display output is truncated as a result of the MAX operand value, processing continues to clear the diagnostic counters for all EE connections affected by the scope of the command.

The TEST=PENDING command can be in the following format:

#### MAX=*number\_of\_pending\_EE\_display\_commands*

Specifies the maximum number of pending Enterprise Extender diagnostic commands that VTAM displays for the TEST=PENDING command. Valid values for this keyword are in the range 1 - DSPLYMAX start option value. The default is 20 or the value specified for the DSPLYDEF start option, whichever is less.

**Result:** Specifying the MAX operand limits the display output. If fewer pending Enterprise Extender displays are found than you have specified on the MAX operand, VTAM displays only the pending Enterprise Extender displays that are found.

**Tip:** If the default value of 20 is not optimal for your environment, this value can be modified by altering the IBM-supplied USS table, ISTINCNO. See "Unformatted system services command syntax" on page 14 for details.

### MAXROUTE

Specifies the maximum number of valid TCP/IP routes that can be tested between two Enterprise Extender (EE) endpoints. Multiple routes might exist when multipath support or policy-based routing is being used in the route calculations between the EE endpoints.

#### MAXROUTE=\*

Specifies that all valid TCP/IP routes between two Enterprise Extender endpoints are to be tested.

#### MAXROUTE=*number\_of\_EE\_routes*

Specifies the maximum number of valid TCP/IP routes between two Enterprise Extender endpoints to test. The valid values are in the range 1 - 99. The default is 16 routes.

**Result:** If the maximum number of routes that are found exceeds this value, then the additional routes are not tested.

**Tip:** Typically, 16 routes are sufficient to fully test connectivity between two Enterprise Extender endpoints. If message IST2139I indicates that all routes are not being tested, use this operand to increase the number of routes to be tested.

#### MAXTIME=*maxtime*

The *maxtime* value specifies the overall time in seconds that VTAM will spend performing the EE connectivity test. This time does not include the time necessary to resolve host name filters; this is already a timed function within the TCP/IP stack. See *z/OS Communications Server: IP Configuration Reference*.

Valid range: 30-600. The default is 60 seconds.

**Result:** If the maximum time is exceeded before the connectivity test is complete, connectivity testing is stopped and the available information is displayed.

**Tip:** If the default value of 60 seconds is not optimal for your environment, this value can be modified by altering the IBM-supplied USS table, ISTINCNO. See “Unformatted system services command syntax” on page 14 for details.

#### REXMIT=*retransmission\_rate\_percentage*

The *retransmission\_rate\_percentage* value specifies that only EE connections that have a retransmission rate equal to or exceeding the specified percentage should be displayed. The REXMIT counters are maintained from the time the EE connection was activated, or since the last DISPLAY EEDIAG command that cleared the REXMIT counters for this EE connection was issued.

The valid range is 0-100. The *retransmission\_rate\_percentage* value can be specified up to two decimal points (for example, 0.22, 1.3, 14.5, 2.69).

**Result:** When a value of 0 is specified for the REXMIT operand, all EE connections associated with the command filters, up to a maximum limited by the MAX operand, are displayed.

**Rule:** The REXMIT and SRQRETRY operands limit the scope of the display output, but only the command filters (for example ID, IPADDR, and HOSTNAME) limit the scope of the CLEAR operand. If the command filters are not included on the DISPLAY EEDIAG command, all EE connections are affected by the scope of this command. Otherwise, the scope of the DISPLAY EEDIAG command is limited to the EE connections that match the values of the filters. For example, a local IP address (IPADDR) that is used by 500 EE connections can be specified on the command. The CLEAR=REXMIT option clears the REXMIT counters for all 500 EE connections. However, only one of these EE connections might be experiencing retransmission problems. In this case, message IST2042I lists only one connection.

See *z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures* for more information related to the DISPLAY EEDIAG command.

#### SRQRETRY

Specifies that only EE connections that have had an LDLC signal retransmitted a specified number of times or more before receiving a response should be displayed.

## DISPLAY EEDIAG

### SRQRETRY=\*

Specifies that the value of the SRQRETRY operand associated with the PORT keyword of the Enterprise Extender XCA major node is to be used. Only EE connections that have had an LDLC signal retransmitted the maximum number of times before receiving a response should be displayed.

### SRQRETRY=*retries*

The *retries* value specifies that only EE connections with LDLC signal retries equal to or exceeding *retries* before receiving a response should be displayed.

Entering D NET,EEDIAG,SRQRETRY=*retries* specifies that only EE connections with LDLC signal retries equal to or exceeding *retries* before receiving a response should be displayed. The SRQRETRY counters are maintained from the time the EE connection was activated, or since the last DISPLAY EEDIAG command was issued which cleared the SRQRETRY counters for this EE connection.

Valid range: 0-value of the SRQRETRY operand

The upper limit of the range is the value of the SRQRETRY keyword that is associated with the Enterprise Extender XCA major node PORT definition statement. The SRQRETRY operand has a maximum value of 9.

**Result:** When a value of 0 is specified for the SRQRETRY operand, all EE connections associated with the command filters, up to a maximum limited by the MAX operand, are displayed.

**Rule:** The REXMIT and SRQRETRY operands limit the scope of the display output, but only the command filters (for example ID, IPADDR, and HOSTNAME) limit the scope of the CLEAR operand. If the command filters are not included on the DISPLAY EEDIAG command, all EE connections are affected by the scope of this command. Otherwise, the scope of the DISPLAY EEDIAG command is limited to the EE connections that match the values of the filters. For example, a local IP address (IPADDR) that is used by 500 EE connections can be specified on the command. The CLEAR=SRQRETRY option clears the SRQRETRY counters for all 500 EE connections. However, only one of these EE connections might be experiencing retransmission problems. In this case, message IST2042I lists only one connection.

See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures for more information related to the DISPLAY EEDIAG command.

### Rules:

- The REXMIT, SRQRETRY, and TEST operands are mutually exclusive.
- Do not specify values for both *remote\_hostname* and *remote\_ipaddr*.
- Do not specify values for both *local\_hostname* and *local\_ipaddr*.
- You must specify at least one local or one remote input when issuing the D NET,EEDIAG command with the IPADDR operand, the HOSTNAME operand, or both. A local input is either *local\_ipaddr* or *local\_hostname*. A remote input is either *remote\_ipaddr* or *remote\_hostname*. More specifically, when issuing the DISPLAY NET,EEDIAG,TEST=YES command, you must specify command filters that uniquely defines an EE connection. This includes specifying the ID operand, or any combination of the IPADDR and HOSTNAME operands that define both a local and remote input.

- VTAM permits only one EE connectivity test to a specific EE endpoint at a time. If another DISPLAY EEDIAG,TEST=YES command is issued to the same EE endpoint, before the previous Enterprise Extender connectivity test completes, VTAM rejects the most recent display command with the IST2142I message group.

**TEST**

Specifies whether you want to query the status of outstanding EE display commands, or you want to initiate an EE connectivity test.

**TEST=PENDING**

Use the DISPLAY NET,EEDIAG,TEST=PENDING command to query the status of the Enterprise Extender display commands that are waiting for host name resolution or EE connectivity test results.

**TEST=YES**

The DISPLAY NET,EEDIAG,TEST=YES command, or Enterprise Extender (EE) connectivity test, is useful for debugging various network problems. Use this command to test an active Enterprise Extender connection, or to assist in diagnosing the reason an EE connection cannot be activated. This command is similar in operation to the TRACERTE command, except that it uses UDP flows to test connectivity to the EE partner. As with the TRACERTE command, there might be environmental restrictions that limit the information that this command provides.

This command verifies that an EE line is available, that address resolution is possible, and that the partner can be reached. This command verifies the routes from this EE endpoint to a remote EE destination on all defined EE ports. When multipath support or policy-based routing is being used, all available routes calculated by the local TCP/IP stack to the remote EE endpoint are tested.

**Restrictions:**

- If TCP/IP intrusion detection support (IDS) is enabled and has active policies configured such that ICMP packets are considered to be a restricted protocol, IDS will discard the ICMP messages. This will adversely affect the operation of the EE connectivity test, limiting the diagnostic information.
- Because this is a potentially long-running command, the number of outstanding DISPLAY EEDIAG,TEST=YES commands is limited by the value of the MAXEETST start option. See z/OS Communications Server: SNA Resource Definition Reference for details. When the MAXEETST start option value is exceeded, the DISPLAY EEDIAG,TEST=YES command fails with message IST2144I.
- In order to use the EE connectivity test command, at least one EE line associated with each local static VIPA address (IPADDR) that you want to test must be active and available for use. If an existing EE connection is detected during the connectivity test, the connectivity test requires an available line to test the connection. Having an available line enables the EE connectivity test to run concurrently with the existing EE connection.
- The EEDIAG command filters specified on the EE connectivity test must uniquely identify the EE endpoints you want to test. This can be accomplished by specifying the ID filter, or any combination of the IPADDR and HOSTNAME filters that provides both a local and remote input.

## DISPLAY EEDIAG

- Enterprise Extender connections that route through firewalls might have limited diagnostic output. The EE connectivity test sends diagnostic probe commands to each hop in the EE route. For the EE connectivity test to function correctly, the ICMP messages that are sent in response must be returned. If firewalls are configured such that ICMP messages are blocked, the output will look as though each hop past the firewall is nonresponsive to the test probe. In some cases, the EE connectivity test will time out because the maximum time allowed for the test to be performed (MAXTIME) has been exceeded. In other cases, if the test probe reaches the EE partner and the partner supports the EE connectivity test, the diagnostic output will validate partner reachability and should provide a count of the number of hops to the partner node. For the EE connectivity test to yield usable results when firewalls are being employed, the firewalls must at least be configured to allow ICMP "Time Exceeded" error messages to be returned. The ICMP "Time Exceeded" error types follow:

```
IPv4 protocol: ICMP Message Type 11 - "Time Exceeded"  
IPv6 protocol: ICMPv6 Message Type 3 - "Time Exceeded"
```

Firewalls permit ICMP message filtering based on the message type. This gives you the flexibility to open the firewalls for specific ICMP messages in order to have the EE connectivity test function at a base level. If you let all ICMP messages pass through your firewalls, the EE connectivity test might be able to provide more diagnostic information. For the EE connectivity test to provide you with more diagnostic information, open your firewalls so the following ICMP messages can be returned:

```
IPv4 protocol: Type 3 - "Destination Unreachable"  
                Type 4 - " Source Quench"  
                Type 11 - " Time Exceeded"  
                Type 12 - " Parameter Problem"  
  
IPv6 protocol: Type 1 - "Destination Unreachable"  
                Type 2 - " Packet too big"  
                Type 3 - " Time Exceeded"  
                Type 4 - " Parameter Problem"
```

## Examples

Find all Enterprise Extender connections whose retransmission rates meet or exceed 5%, display the output in summary format, and clear all diagnostic counters after command processing is complete:

```
D NET,EEDIAG,REXMIT=5,CLEAR,LIST=SUMMARY  
IST097I DISPLAY ACCEPTED  
IST350I DISPLAY TYPE = EEDIAG  
IST2065I ENTERPRISE EXTENDER CONNECTION REXMIT INFORMATION  
IST2067I EEDIAG DISPLAY ISSUED ON 08/19/04 AT 10:30:19  
IST924I -----  
IST1680I LOCAL IP ADDRESS 9::67:1:1  
IST1910I LOCAL HOSTNAME IP.SSCP1AV6  
IST1680I REMOTE IP ADDRESS 9::67:1:6  
IST1909I REMOTE HOSTNAME IP.SSCP2AV8  
IST2024I CONNECTED TO SWITCHED PU SWIP2A1  
IST924I -----  
IST2035I TOTALS FOR ALL PORT PRIORITIES  
IST2036I NLPS SENT = 13647 ( 013K )  
IST2038I NLPS RETRANSMITTED = 1279 ( 001K )  
IST2068I NLP RETRANSMIT RATE = 9.37%  
IST2069I REXMIT COUNTERS LAST CLEARED ON 08/19/04 AT 10:27:18  
IST2071I ALL DIAGNOSTIC COUNTERS CLEARED FOR 3 EE CONNECTIONS  
IST2042I 1 OF 1 EE CONNECTIONS DISPLAYED  
IST314I END
```



Display the Enterprise Extender connection that is identified by the switched PU name in summary format when its retransmission rate meets or exceeds 5%:

```

D NET,EEDIAG,REXMIT=5,ID=SWIP2A1,LIST=SUMMARY
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EEDIAG
IST2065I ENTERPRISE EXTENDER CONNECTION REXMIT INFORMATION
IST2067I EEDIAG DISPLAY ISSUED ON 08/19/04 AT 10:31:11
IST924I -----
IST1680I LOCAL IP ADDRESS 9::67:1:1
IST1910I LOCAL HOSTNAME IP.SSCP1AV6
IST1680I REMOTE IP ADDRESS 9::67:1:6
IST1909I REMOTE HOSTNAME IP.SSCP2AV8
IST2023I CONNECTED TO LINE LNEE1000
IST924I -----
IST2035I TOTALS FOR ALL PORT PRIORITIES
IST2036I NLPS SENT = 13647 ( 013K )
IST2038I NLPS RETRANSMITTED = 1279 ( 001K )
IST2068I NLP RETRANSMIT RATE = 9.37%
IST2069I REXMIT COUNTERS LAST CLEARED ON 08/19/04 AT 10:27:18
IST2042I 1 OF 1 EE CONNECTIONS DISPLAYED
IST314I END
    
```

Display the Enterprise Extender connection that is identified by the LINE name in summary format when its retransmission rate meets or exceeds 5%:

```

D NET,EEDIAG,REXMIT=5,ID=LNEE1000,LIST=SUMMARY
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EEDIAG
IST2065I ENTERPRISE EXTENDER CONNECTION REXMIT INFORMATION
IST2067I EEDIAG DISPLAY ISSUED ON 08/19/04 AT 10:30:19
IST924I -----
IST1680I LOCAL IP ADDRESS 9::67:1:1
IST1910I LOCAL HOSTNAME IP.SSCP1AV6
IST1680I REMOTE IP ADDRESS 9::67:1:6
IST1909I REMOTE HOSTNAME IP.SSCP2AV8
IST2024I CONNECTED TO SWITCHED PU CNV00009
IST924I -----
IST2035I TOTALS FOR ALL PORT PRIORITIES
IST2036I NLPS SENT = 13647 ( 013K )
IST2038I NLPS RETRANSMITTED = 1279 ( 001K )
IST2068I NLP RETRANSMIT RATE = 9.37%
IST2069I REXMIT COUNTERS LAST CLEARED ON 08/19/04 AT 10:27:18
IST2042I 1 OF 1 EE CONNECTIONS DISPLAYED
IST314I END
    
```

Find all Enterprise Extender connections using local IP address 9.67.1.4 whose retransmission rates meet or exceed 20%. Present the display in summary format and clear all diagnostic counters for all EE connections that are affected by the scope of this command. This example demonstrates a case where the overall retransmission rate for all port priorities is less than the requested retransmission rate, but one of the port priorities exceeds the requested retransmission rate.

```

D NET,EEDIAG,REXMIT=20,IP=9.67.1.4,CLEAR=ALL,LIST=SUMMARY
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EEDIAG
IST2065I ENTERPRISE EXTENDER CONNECTION REXMIT INFORMATION
IST2067I EEDIAG DISPLAY ISSUED ON 08/27/04 AT 13:30:42
IST924I -----
IST1680I LOCAL IP ADDRESS 9.67.1.4
IST1910I LOCAL HOSTNAME IP.SSCP1AV6
IST1680I REMOTE IP ADDRESS 9.67.1.3
IST2024I CONNECTED TO SWITCHED PU CNV00003
IST924I -----
IST2032I PORT PRIORITY = HIGH
IST2036I NLPS SENT = 134 ( 000K )
IST2038I NLPS RETRANSMITTED = 67 ( 000K )
    
```

## DISPLAY EEDIAG

```
IST2068I  NLP RETRANSMIT RATE =                50.00%
IST924I  -----
IST2035I  TOTALS FOR ALL PORT PRIORITIES
IST2036I  NLPS SENT =                590 ( 000K )
IST2038I  NLPS RETRANSMITTED =                67 ( 000K )
IST2068I  NLP RETRANSMIT RATE =                11.36%
IST2069I  REXMIT COUNTERS LAST CLEARED ON 08/27/04 AT 13:30:14
IST2071I  ALL DIAGNOSTIC COUNTERS CLEARED FOR 3 EE CONNECTIONS
IST2042I  1 OF 1 EE CONNECTIONS DISPLAYED
IST314I  END
```

Find all Enterprise Extender connections using local IP address 9.67.1.4 whose retransmission rates meet or exceed 20%. Present the display in detail and clear all diagnostic counters for all EE connections affected by the scope of this command.

### **D NET, EEDIAG, REXMIT=20, IP=9.67.1.4, CLEAR, DET**

```
IST097I  DISPLAY ACCEPTED
IST350I  DISPLAY TYPE = EEDIAG
IST2065I  ENTERPRISE EXTENDER CONNECTION REXMIT INFORMATION
IST2067I  EEDIAG DISPLAY ISSUED ON 08/27/04 AT 13:30:54
IST924I  -----
IST1680I  LOCAL IP ADDRESS 9.67.1.4
IST1910I  LOCAL HOSTNAME IP.SSCP1AV6
IST1680I  REMOTE IP ADDRESS 9.67.1.3
IST2024I  CONNECTED TO SWITCHED PU CNV00003
IST924I  -----
IST2030I  PORT PRIORITY = SIGNAL
IST2036I  NLPS SENT =                22 ( 000K )
IST2038I  NLPS RETRANSMITTED =                0 ( 000K )
IST2068I  NLP RETRANSMIT RATE =                0.00%
IST924I  -----
IST2031I  PORT PRIORITY = NETWORK
IST2036I  NLPS SENT =                56 ( 000K )
IST2038I  NLPS RETRANSMITTED =                0 ( 000K )
IST2068I  NLP RETRANSMIT RATE =                0.00%
IST924I  -----
IST2032I  PORT PRIORITY = HIGH
IST2036I  NLPS SENT =                134 ( 000K )
IST2038I  NLPS RETRANSMITTED =                67 ( 000K )
IST2068I  NLP RETRANSMIT RATE =                50.00%
IST924I  -----
IST2033I  PORT PRIORITY = MEDIUM
IST2036I  NLPS SENT =                278 ( 000K )
IST2038I  NLPS RETRANSMITTED =                0 ( 000K )
IST2068I  NLP RETRANSMIT RATE =                0.00%
IST924I  -----
IST2034I  PORT PRIORITY = LOW
IST2036I  NLPS SENT =                100 ( 000K )
IST2038I  NLPS RETRANSMITTED =                1 ( 000K )
IST2068I  NLP RETRANSMIT RATE =                1.00%
IST924I  -----
IST2035I  TOTALS FOR ALL PORT PRIORITIES
IST2036I  NLPS SENT =                590 ( 000K )
IST2038I  NLPS RETRANSMITTED =                67 ( 000K )
IST2068I  NLP RETRANSMIT RATE =                11.36%
IST2069I  REXMIT COUNTERS LAST CLEARED ON 08/27/04 AT 13:30:42
IST2071I  ALL DIAGNOSTIC COUNTERS CLEARED FOR 3 EE CONNECTIONS
IST2042I  1 OF 1 EE CONNECTIONS DISPLAYED
IST314I  END
```

Find all Enterprise Extender connections to the host using remote host name IP.SSCP2AV7 that experienced LDLC tries of three or more attempts again, and present the output in summary format.

### **D NET, EEDIAG, SRQRETRY=3, HOSTNAME=(, IP.SSCP2AV7)**

```
IST097I  DISPLAY ACCEPTED
IST350I  DISPLAY TYPE = EEDIAG
```



```

IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE000005
IST2067I EEDIAG DISPLAY ISSUED ON 08/23/05 AT 21:00:01
IST2120I HOSTNAME RESOLUTION IN PROGRESS
IST314I END
.
.
IST350I DISPLAY TYPE = EEDIAG
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE000005
IST2121I HOSTNAME RESOLUTION COMPLETE
IST1680I REMOTE IP ADDRESS 9.67.1.4
IST1910I REMOTE HOSTNAME IP.SSCP2AV7
IST314I END
.
.
IST350I DISPLAY TYPE = EEDIAG
IST2066I ENTERPRISE EXTENDER CONNECTION SRQRETRY INFORMATION
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE000005
IST2131I EEDIAG DISPLAY COMPLETED ON 08/23/05 AT 21:00:03
IST924I -----
IST1680I LOCAL IP ADDRESS 9.67.1.1
IST1910I LOCAL HOSTNAME IP.SSCP1AV6
IST1680I REMOTE IP ADDRESS 9.67.1.4
IST1909I REMOTE HOSTNAME IP.SSCP2AV7
IST2004I LIVTIME = (10,30) SRQTIME = 30 SRQRETRY = 5
IST2024I CONNECTED TO SWITCHED PU CNV00006
IST2074I SUCCESSFUL SRQRETRY ATTEMPT = 3 OCCURRENCES = 1
IST2070I SRQRETRY COUNTERS LAST CLEARED ON 08/23/04 AT 20:55:15
IST2042I 1 OF 1 EE CONNECTIONS DISPLAYED
IST314I END

```

Find all Enterprise Extender connections that experienced LDLC tries of three or more attempts again. Present the output in detailed format and clear the SRQRETRY diagnostic counters for all connections.

**D NET,EEDIAG,SRQRETRY=3,LIST=DETAIL,CLEAR=SRQRETRY**

```

IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EEDIAG
IST2066I ENTERPRISE EXTENDER CONNECTION SRQRETRY INFORMATION
IST2067I EEDIAG DISPLAY ISSUED ON 08/23/04 AT 21:00:01
IST924I -----
IST1680I LOCAL IP ADDRESS 9.67.1.1
IST1910I LOCAL HOSTNAME IP.SSCP1AV6
IST1680I REMOTE IP ADDRESS 9.67.1.4
IST1909I REMOTE HOSTNAME IP.SSCP2AV7
IST2004I LIVTIME = (10,30) SRQTIME = 30 SRQRETRY = 5
IST2024I CONNECTED TO SWITCHED PU CNV00006
IST2074I SUCCESSFUL SRQRETRY ATTEMPT = 0 OCCURRENCES = 98
IST2074I SUCCESSFUL SRQRETRY ATTEMPT = 1 OCCURRENCES = 5
IST2074I SUCCESSFUL SRQRETRY ATTEMPT = 2 OCCURRENCES = 1
IST2074I SUCCESSFUL SRQRETRY ATTEMPT = 3 OCCURRENCES = 1
IST2070I SRQRETRY COUNTERS LAST CLEARED ON 08/23/04 AT 20:55:15
IST2073I SRQRETRY COUNTERS CLEARED FOR 3 EE CONNECTIONS
IST2042I 1 OF 1 EE CONNECTIONS DISPLAYED
IST314I END

```

Display the Enterprise Extender connection that is identified by the switched PU name in summary format, if it experienced the maximum number of LDLC attempts to try again. In this example, the value of the SRQRETRY operand (3 in this case) that is associated with the PORT keyword of the Enterprise Extender XCA major node is used.

**D NET,EEDIAG,SRQRETRY=\*,ID=CNV00006**

```

IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EEDIAG
IST2066I ENTERPRISE EXTENDER CONNECTION SRQRETRY INFORMATION
IST2067I EEDIAG DISPLAY ISSUED ON 08/23/04 AT 21:07:27

```

## DISPLAY EEDIAG

```
IST924I -----
IST1680I LOCAL IP ADDRESS 9.67.1.1
IST1910I LOCAL HOSTNAME IP.SSCP1AV6
IST1680I REMOTE IP ADDRESS 9.67.1.2
IST2004I LIVTIME = (10,30) SRQTIME = 30 SRQRETRY = 5
IST2023I CONNECTED TO LINE LN11
IST2074I SUCCESSFUL SRQRETRY ATTEMPT = 3 OCCURRENCES = 1
IST2070I SRQRETRY COUNTERS LAST CLEARED ON 08/23/04 AT 21:00:01
IST314I END
```

Clear all diagnostic counters for all Enterprise Extender connections.

### D NET,EEDIAG,CLEAR

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EEDIAG
IST2067I EEDIAG DISPLAY ISSUED ON 08/23/04 AT 22:05:22
IST2071I ALL DIAGNOSTIC COUNTERS CLEARED FOR 3 EE CONNECTIONS
IST314I END
```

Perform an EE connectivity test by specifying local and remote IP addresses and display the output in summary format. In this example, the test results show successful connectivity to the partner node across all five EE ports.

### D NET,EEDIAG,TEST=YES,IPADDR=(9.67.1.1,9.67.1.5),LIST=SUMMARY

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EEDIAG
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE000001
IST2067I EEDIAG DISPLAY ISSUED ON 08/29/05 AT 15:41:22
IST1680I LOCAL IP ADDRESS 9.67.1.1
IST1680I REMOTE IP ADDRESS 9.67.1.5
IST2023I CONNECTED TO LINE LNGV2000
IST2126I CONNECTIVITY TEST IN PROGRESS
IST314I END
```

```
IST350I DISPLAY TYPE = EEDIAG
IST2130I ENTERPRISE EXTENDER CONNECTIVITY TEST INFORMATION
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE000001
IST2131I EEDIAG DISPLAY COMPLETED ON 08/29/05 AT 15:41:22
IST2132I LDLC PROBE VERSIONS: VTAM = V1 PARTNER = V1
IST1680I LOCAL IP ADDRESS 9.67.1.1
IST1680I REMOTE IP ADDRESS 9.67.1.5
IST924I -----
IST2133I INTFNAME: LTRLE1A INTFTYPE: MPCPTP
IST2134I CONNECTIVITY SUCCESSFUL PORT: 12000
IST2137I *NA 9.67.1.5 RTT: 6
IST2134I CONNECTIVITY SUCCESSFUL PORT: 12001
IST2137I *NA 9.67.1.5 RTT: 6
IST2134I CONNECTIVITY SUCCESSFUL PORT: 12002
IST2137I *NA 9.67.1.5 RTT: 6
IST2134I CONNECTIVITY SUCCESSFUL PORT: 12003
IST2137I *NA 9.67.1.5 RTT: 6
IST2134I CONNECTIVITY SUCCESSFUL PORT: 12004
IST2137I *NA 9.67.1.5 RTT: 7
IST924I -----
IST2139I CONNECTIVITY TEST RESULTS DISPLAYED FOR 1 OF 1 ROUTES
IST314I END
```

Perform an EE connectivity test by specifying local and remote IP addresses, and display the output in detailed format. In this example, the test results show successful connectivity to partner node across all five Enterprise Extender ports.

**Note:** Hop four took two attempts to reach the partner across port 12004.

### D NET,EEDIAG,TEST=YES,IPADDR=(9.67.1.1,9.67.1.5),LIST=DETAIL

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EEDIAG
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE000002
```

```
IST2067I EEDIAG DISPLAY ISSUED ON 08/29/05 AT 15:42:02
IST1680I LOCAL IP ADDRESS 9.67.1.1
IST1680I REMOTE IP ADDRESS 9.67.1.5
IST2023I CONNECTED TO LINE LNGV2000
IST2126I CONNECTIVITY TEST IN PROGRESS
IST314I END
```

```
IST350I DISPLAY TYPE = EEDIAG
IST2130I ENTERPRISE EXTENDER CONNECTIVITY TEST INFORMATION
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE000002
IST2131I EEDIAG DISPLAY COMPLETED ON 08/29/05 AT 15:42:02
IST2132I LDLC PROBE VERSIONS: VTAM = V1          PARTNER = V1
IST1680I LOCAL IP ADDRESS 9.67.1.1
IST1680I REMOTE IP ADDRESS 9.67.1.5
IST924I -----
IST2133I INTFNAME: LTRLE1A          INTFTYPE: MPCPTP
IST2134I CONNECTIVITY SUCCESSFUL          PORT: 12000
IST2137I 1 9.67.1.2          RTT: 1
IST2137I 2 9.67.1.3          RTT: 4
IST2137I 3 9.67.1.4          RTT: 4
IST2137I 4 9.67.1.5          RTT: 6
IST2134I CONNECTIVITY SUCCESSFUL          PORT: 12001
IST2137I 1 9.67.1.2          RTT: 2
IST2137I 2 9.67.1.3          RTT: 4
IST2137I 3 9.67.1.4          RTT: 4
IST2137I 4 9.67.1.5          RTT: 6
IST2134I CONNECTIVITY SUCCESSFUL          PORT: 12002
IST2137I 1 9.67.1.2          RTT: 2
IST2137I 2 9.67.1.3          RTT: 4
IST2137I 3 9.67.1.4          RTT: 4
IST2137I 4 9.67.1.5          RTT: 6
IST2134I CONNECTIVITY SUCCESSFUL          PORT: 12003
IST2137I 1 9.67.1.2          RTT: 2
IST2137I 2 9.67.1.3          RTT: 4
IST2137I 3 9.67.1.4          RTT: 4
IST2137I 4 9.67.1.5          RTT: 6
IST2134I CONNECTIVITY SUCCESSFUL          PORT: 12004
IST2137I 1 9.67.1.2          RTT: 2
IST2137I 2 9.67.1.3          RTT: 4
IST2137I 3 9.67.1.4          RTT: 4
IST2137I 4 9.67.1.5          RTT: 7
IST924I -----
IST2139I CONNECTIVITY TEST RESULTS DISPLAYED FOR 1 OF 1 ROUTES
IST314I END
```

Perform an EE connectivity test by specifying a local and remote host name and display the output in detailed format. Do not run the connectivity test for longer than 45 seconds.

**Note:** In the display output the connectivity test fails.

**D NET,EEDIAG,TEST=YES,,HOSTNAME=(IP.SSCP1AV6,IP.SSCP2AV8),LIST=DETAIL,MAXTIME=45**

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EEDIAG
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE00001B
IST2067I EEDIAG DISPLAY ISSUED ON 09/22/05 AT 14:52:49
IST2120I HOSTNAME RESOLUTION IN PROGRESS
IST314I END
```

```
IST350I DISPLAY TYPE = EEDIAG
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE00001B
IST2121I HOSTNAME RESOLUTION COMPLETE
IST1680I LOCAL IP ADDRESS 2001:DB8:10::81:1:1
IST1910I LOCAL HOSTNAME IP.SSCP1AV6
IST1680I REMOTE IP ADDRESS 2001:DB8:10::81:2:4
IST1909I REMOTE HOSTNAME IP.SSCP2AV6
IST2023I CONNECTED TO LINE LNEE6000
```

## DISPLAY EEDIAG

```
IST2126I CONNECTIVITY TEST IN PROGRESS
IST314I END

IST350I DISPLAY TYPE = EEDIAG
IST2130I ENTERPRISE EXTENDER CONNECTIVITY TEST INFORMATION
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE00001B
IST2131I EEDIAG DISPLAY COMPLETED ON 09/22/05 AT 14:53:35
IST2132I LDLC PROBE VERSIONS: VTAM = V1          PARTNER = UNKNOWN
IST1680I LOCAL IP ADDRESS 2001:DB8:10::81:1:1
IST1680I REMOTE IP ADDRESS 2001:DB8:10::81:2:4
IST924I -----
IST2133I INTFNAME: MPC6221          INTFTYPE: MPCPTP6
IST2135I CONNECTIVITY UNSUCCESSFUL SENSE: ***NA*** PORT: 12000
IST2136I CONNECTIVITY TEST ENDED - MAXIMUM TIME LIMIT EXCEEDED
IST2138I 1 2001:DB8:10::81:1:2          RTT: 2
IST2138I 2 *                          (3) RTT: *N/A*
IST2138I 5 *                          (2) RTT: *N/A*
IST2135I CONNECTIVITY UNSUCCESSFUL SENSE: ***NA*** PORT: 12001
IST2136I CONNECTIVITY TEST ENDED - MAXIMUM TIME LIMIT EXCEEDED
IST2138I 1 2001:DB8:10::81:1:2          RTT: 2
IST2138I 2 *                          (3) RTT: *N/A*
IST2138I 5 *                          (2) RTT: *N/A*
IST2135I CONNECTIVITY UNSUCCESSFUL SENSE: ***NA*** PORT: 12002
IST2136I CONNECTIVITY TEST ENDED - MAXIMUM TIME LIMIT EXCEEDED
IST2138I 1 2001:DB8:10::81:1:2          RTT: 2
IST2138I 2 *                          (3) RTT: *N/A*
IST2138I 5 *                          (2) RTT: *N/A*
IST2135I CONNECTIVITY UNSUCCESSFUL SENSE: ***NA*** PORT: 12003
IST2136I CONNECTIVITY TEST ENDED - MAXIMUM TIME LIMIT EXCEEDED
IST2138I 1 2001:DB8:10::81:1:2          RTT: 2
IST2138I 2 *                          (3) RTT: *N/A*
IST2138I 5 *                          (2) RTT: *N/A*
IST2135I CONNECTIVITY UNSUCCESSFUL SENSE: ***NA*** PORT: 12004
IST2136I CONNECTIVITY TEST ENDED - MAXIMUM TIME LIMIT EXCEEDED
IST2138I 1 2001:DB8:10::81:1:2          RTT: 2
IST2138I 2 *                          (3) RTT: *N/A*
IST2138I 5 *                          (2) RTT: *N/A*
IST924I -----
IST2139I CONNECTIVITY TEST RESULTS DISPLAYED FOR 1 OF 1 ROUTES
IST314I END
```

Perform an EE connectivity test by specifying a switched PU name that identifies the EE connection that you want to test. In this example, the switched PU defines a remote host name (IP.SSCP2AV8) on the PATH statement. The GRPNM value specified on the PATH statement points to an active EE GROUP within the EE XCA major node, which specified a local host name of IP.SSCP1AV6. Display the output in detailed format.

**Note:** In the display output the connectivity test fails because hop five reported an error when trying to route the IPv6 packet.

```
D NET, EEDIAG, TEST=YES, ID=SWIP2A1, LIST=DETAIL
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EEDIAG
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE00001C
IST2067I EEDIAG DISPLAY ISSUED ON 09/22/05 AT 14:52:49
IST2120I HOSTNAME RESOLUTION IN PROGRESS
IST314I END

IST350I DISPLAY TYPE = EEDIAG
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE00001C
IST2121I HOSTNAME RESOLUTION COMPLETE
IST1680I LOCAL IP ADDRESS 2001:DB8:10::81:1:1
IST1910I LOCAL HOSTNAME IP.SSCP1AV6
IST1680I REMOTE IP ADDRESS 2001:DB8:10::81:2:4
IST1909I REMOTE HOSTNAME IP.SSCP2AV6
```

```

IST2023I CONNECTED TO LINE LNEE6001
IST2126I CONNECTIVITY TEST IN PROGRESS
IST314I END

IST350I DISPLAY TYPE = EEDIAG
IST2130I ENTERPRISE EXTENDER CONNECTIVITY TEST INFORMATION
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE00001C
IST2131I EEDIAG DISPLAY COMPLETED ON 09/22/05 AT 14:52:51
IST2132I LDLC PROBE VERSIONS: VTAM = V1          PARTNER = UNKNOWN
IST1680I LOCAL IP ADDRESS 2001:DB8:10::81:1:1
IST1680I REMOTE IP ADDRESS 2001:DB8:10::81:2:4
IST924I -----
IST2133I INTFNAME: TRLE1A6          INTFTYPE: MPCPTP6
IST2135I CONNECTIVITY UNSUCCESSFUL SENSE: ***NA*** PORT: 12000
IST2138I 1 2001:DB8:9::67:20:1          RTT: 2
IST2138I 2 2001:DB8:9::67:20:11         RTT: 5
IST2138I 3 2001:DB8:9::67:20:12         RTT: 5
IST2138I 4 2001:DB8:9::67:20:13         RTT: 9
IST2138I 5 2001:DB8:9::67:1:5           D-1 RTT: 14
IST2135I CONNECTIVITY UNSUCCESSFUL SENSE: ***NA*** PORT: 12001
IST2138I 1 2001:DB8:9::67:20:1          RTT: 2
IST2138I 2 2001:DB8:9::67:20:11         RTT: 6
IST2138I 3 2001:DB8:9::67:20:12         RTT: 7
IST2138I 4 2001:DB8:9::67:20:13         RTT: 13
IST2138I 5 2001:DB8:9::67:1:5           D-1 RTT: 13
IST2135I CONNECTIVITY UNSUCCESSFUL SENSE: ***NA*** PORT: 12002
IST2138I 1 2001:DB8:9::67:20:1          RTT: 2
IST2138I 2 2001:DB8:9::67:20:11         RTT: 8
IST2138I 3 2001:DB8:9::67:20:12         RTT: 9
IST2138I 4 2001:DB8:9::67:20:13         RTT: 15
IST2138I 5 2001:DB8:9::67:1:5           D-1 RTT: 17
IST2135I CONNECTIVITY UNSUCCESSFUL SENSE: ***NA*** PORT: 12003
IST2138I 1 2001:DB8:9::67:20:1          RTT: 3
IST2138I 2 2001:DB8:9::67:20:11         RTT: 7
IST2138I 3 2001:DB8:9::67:20:12         RTT: 8
IST2138I 4 2001:DB8:9::67:20:13         RTT: 12
IST2138I 5 2001:DB8:9::67:1:5           D-1 RTT: 11
IST2135I CONNECTIVITY UNSUCCESSFUL SENSE: ***NA*** PORT: 12004
IST2138I 1 2001:DB8:9::67:20:1          RTT: 4
IST2138I 2 2001:DB8:9::67:20:11         RTT: 7
IST2138I 3 2001:DB8:9::67:20:12         RTT: 6
IST2138I 4 2001:DB8:9::67:20:13         RTT: 16
IST2138I 5 2001:DB8:9::67:1:5           D-1 RTT: 19
IST924I -----
IST2139I CONNECTIVITY TEST RESULTS DISPLAYED FOR 1 OF 1 ROUTES
IST314I END

```

Perform an EE connectivity test to assist in diagnosing the reason an EE connection will not activate. Specify the name of the switched PU that failed to activate when the dial operation was performed. In this example, the firewall protecting the partner EE endpoint does not have its UDP ports opened for EE traffic. See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures for more information about a new EE connection not activating.

```

D NET, EEDIAG, TEST=YES, ID=SWPA2B, LIST=DETAIL
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EEDIAG
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE000001
IST2067I EEDIAG DISPLAY ISSUED ON 08/21/05 AT 21:07:01
IST1680I LOCAL IP ADDRESS 9.67.1.1
IST1680I REMOTE IP ADDRESS 129.67.1.5
IST2023I CONNECTED TO LINE LN11
IST2126I CONNECTIVITY TEST IN PROGRESS
IST314I END

```

```

IST350I DISPLAY TYPE = EEDIAG

```

## DISPLAY EEDIAG

```
IST2130I ENTERPRISE EXTENDER CONNECTIVITY TEST INFORMATION
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE000001
IST2131I EEDIAG DISPLAY COMPLETED ON 08/21/05 AT 21:08:02
IST2132I LDLC PROBE VERSIONS: VTAM = V1          PARTNER = UNKNOWN
IST1680I LOCAL IP ADDRESS 9.67.1.1
IST1680I REMOTE IP ADDRESS 129.67.1.5
IST924I -----
IST2133I INTFNAME: LTRLE1A                      INTFTYPE: MPCPTP
IST2135I CONNECTIVITY UNSUCCESSFUL  SENSE: ***NA***  PORT: 12000
IST2136I CONNECTIVITY TEST ENDED - MAXIMUM TIME LIMIT EXCEEDED
IST2137I 1 1.2.3.4                          RTT: 3
IST2137I 2 *                               (3) RTT: *N/A*
IST2137I 7 *                               (2) RTT: *N/A*
IST2135I CONNECTIVITY UNSUCCESSFUL  SENSE: ***NA***  PORT: 12001
IST2136I CONNECTIVITY TEST ENDED - MAXIMUM TIME LIMIT EXCEEDED
IST2137I 1 1.2.3.4                          RTT: 4
IST2137I 2 *                               (3) RTT: *N/A*
IST2137I 7 *                               (2) RTT: *N/A*
IST2135I CONNECTIVITY UNSUCCESSFUL  SENSE: ***NA***  PORT: 12002
IST2136I CONNECTIVITY TEST ENDED - MAXIMUM TIME LIMIT EXCEEDED
IST2137I 1 1.2.3.4                          RTT: 4
IST2137I 2 *                               (3) RTT: *N/A*
IST2137I 7 *                               (2) RTT: *N/A*
IST2135I CONNECTIVITY UNSUCCESSFUL  SENSE: ***NA***  PORT: 12003
IST2136I CONNECTIVITY TEST ENDED - MAXIMUM TIME LIMIT EXCEEDED
IST2137I 1 1.2.3.4                          RTT: 4
IST2137I 2 *                               (3) RTT: *N/A*
IST2137I 7 *                               (2) RTT: *N/A*
IST2135I CONNECTIVITY UNSUCCESSFUL  SENSE: ***NA***  PORT: 12004
IST2136I CONNECTIVITY TEST ENDED - MAXIMUM TIME LIMIT EXCEEDED
IST2137I 1 1.2.3.4                          RTT: 4
IST2137I 2 *                               (3) RTT: *N/A*
IST2137I 7 *                               (2) RTT: *N/A*
IST924I -----
IST2139I CONNECTIVITY TEST RESULTS DISPLAYED FOR 1 OF 1 ROUTES
IST314I END
```

Perform an EE connectivity test to assist in diagnosing the reason RTP pipes using an EE connection are performing poorly. Specify the local and remote IP addresses on the test command, and display the output in detailed format. In the following example, MULTIPATH is enabled on the TCP/IP stack. In this example, the path over interface OSA1 does not have connectivity to the partner EE endpoint. See *z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures* for information about RTP performance problems over EE with multipath enabled.

### **D NET, EEDIAG, TEST=YES, IPADDR=(9.67.1.1,9.67.1.6), LIST=DETAIL**

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EEDIAG
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE00000E
IST2067I EEDIAG DISPLAY ISSUED ON 10/04/05 AT 11:05:50
IST1680I LOCAL IP ADDRESS 9.67.1.1
IST1680I REMOTE IP ADDRESS 9.67.1.6
IST2023I CONNECTED TO LINE LN11
IST2126I CONNECTIVITY TEST IN PROGRESS
IST314I END

IST350I DISPLAY TYPE = EEDIAG
IST2130I ENTERPRISE EXTENDER CONNECTIVITY TEST INFORMATION
IST2119I ENTERPRISE EXTENDER DISPLAY CORRELATOR: EE00000E
IST2131I EEDIAG DISPLAY COMPLETED ON 10/04/05 AT 11:05:52
IST2132I LDLC PROBE VERSIONS: VTAM = V1 PARTNER = V1
IST1680I LOCAL IP ADDRESS 9.67.1.1
IST1680I REMOTE IP ADDRESS 9.67.1.6
IST924I -----
IST2133I INTFNAME: OSA1                      INTFTYPE: OSAFDDI
IST2135I CONNECTIVITY UNSUCCESSFUL  SENSE: ***NA***  PORT: 12000
```

## DISPLAY EEDIAG

```

IST2137I      1 9.67.1.2                RTT:      2
IST2137I      2 9.67.1.21              D-1      RTT:      3
IST2135I CONNECTIVITY UNSUCCESSFUL    SENSE: ***NA*** PORT: 12001
IST2137I      1 9.67.1.2                RTT:      2
IST2137I      2 9.67.1.21              D-1      RTT:      3
IST2135I CONNECTIVITY UNSUCCESSFUL    SENSE: ***NA*** PORT: 12002
IST2137I      1 9.67.1.2                RTT:      2
IST2137I      2 9.67.1.21              D-1      RTT:      4
IST2135I CONNECTIVITY UNSUCCESSFUL    SENSE: ***NA*** PORT: 12003
IST2137I      1 9.67.1.2                RTT:      2
IST2137I      2 9.67.1.21              D-1      RTT:      4
IST2135I CONNECTIVITY UNSUCCESSFUL    SENSE: ***NA*** PORT: 12004
IST2137I      1 9.67.1.2                RTT:      2
IST2137I      2 9.67.1.21              D-1      RTT:      3
IST924I -----
IST2133I INTFNAME: OSA2                INTFTYPE: OSAFDDI
IST2134I CONNECTIVITY SUCCESSFUL      PORT: 12000
IST2137I      1 9.67.1.3                RTT:      9
IST2137I      2 9.67.1.11              RTT:     14
IST2137I      3 9.67.1.12              RTT:     19
IST2137I      4 9.67.1.4                RTT:     23
IST2137I      5 9.67.1.6                RTT:     27
IST2134I CONNECTIVITY SUCCESSFUL      PORT: 12001
IST2137I      1 9.67.1.3                RTT:      8
IST2137I      2 9.67.1.11              RTT:     14
IST2137I      3 9.67.1.12              RTT:     17
IST2137I      4 9.67.1.5                RTT:     21
IST2137I      5 9.67.1.6                RTT:     25
IST2134I CONNECTIVITY SUCCESSFUL      PORT: 12002
IST2137I      1 9.67.1.3                RTT:      8
IST2137I      2 9.67.1.11              RTT:     13
IST2137I      3 9.67.1.12              RTT:     18
IST2137I      4 9.67.1.5                RTT:     22
IST2137I      5 9.67.1.6                RTT:     27
IST2134I CONNECTIVITY SUCCESSFUL      PORT: 12003
IST2137I      1 9.67.1.3                RTT:      9
IST2137I      2 9.67.1.11              RTT:     19
IST2137I      3 9.67.1.12              RTT:     22
IST2137I      4 9.67.1.4                RTT:     24
IST2137I      5 9.67.1.6                RTT:     27
IST2134I CONNECTIVITY SUCCESSFUL      PORT: 12004
IST2137I      1 9.67.1.3                RTT:      7
IST2137I      2 9.67.1.11              RTT:     11
IST2137I      3 9.67.1.12              RTT:     12
IST2137I      4 9.67.1.4                RTT:     17
IST2137I      5 9.67.1.6                RTT:     23
IST924I -----
IST2139I CONNECTIVITY TEST RESULTS DISPLAYED FOR 2 OF 2 ROUTES
IST314I END

```

Display all of the Enterprise Extender display commands that are pending.

### D NET, EEDIAG, TEST=PENDING

```

IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EEDIAG
IST2145I PENDING ENTERPRISE EXTENDER DISPLAY COMMANDS
IST2067I EEDIAG DISPLAY ISSUED ON 10/13/05 AT 21:07:27
IST924I -----
IST2147I CORRELATOR: EE000002 LINE: ***NA*** STATUS: PGAIN - LOCAL
IST2146I EE DISPLAY ISSUED ON 10/13/05 AT 21:07:03
IST1910I LOCAL HOSTNAME IP.SSCP1A.TCP.RALEIGH.IBM.COM
IST924I -----
IST2147I CORRELATOR: EE000004 LINE: LN11 STATUS: TEST-IN-PROGRESS
IST2148I EE CONNECTIVITY TEST REACHES MAXTIME ON 10/13/05 AT 21:52:53
IST1680I LOCAL IP ADDRESS 9.67.1.1

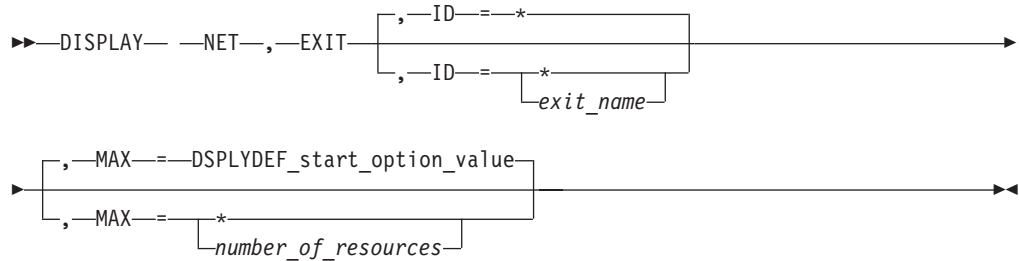
```

## DISPLAY EEDIAG

```

IST1680I REMOTE IP ADDRESS 9.67.1.5
IST924I -----
IST2149I 2 OF 2 CORRELATORS DISPLAYED
IST314I END
  
```

## DISPLAY EXIT command



## Abbreviations

Operand	Abbreviation
DISPLAY	D

## Purpose

The DISPLAY EXIT command displays the name, exit level, module name, and status of installation-wide exit routines.

## Operands

**ID** Specifies which installation-wide exit routine to display.

### ID=*exit\_name*

Specifies one of the following installation-wide exit routines:

#### ISTCMMND

Command verification exit routine

#### ISTEXCAA

Session management exit routine

#### ISTEXCCS

Configuration services XID exit routine

#### ISTEXCDM

Directory services management exit routine

#### ISTEXCGR

Generic resource resolution exit routine

#### ISTEXCPM

Performance monitor exit routine

#### ISTEXCSD

Selection of definitions for dependent logical units (SDDL) exit routine

#### ISTEXCUV

USERVAR exit routine



**ISTEXCVR**

Virtual route selection exit routine

**ID=\***

Specifies all installation-wide exit routines.

**MAX**

Specifies the maximum number of installation-wide exit routines that VTAM displays for this command.

**MAX=\***

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

**MAX=number\_of\_resources**

Specifies the number of installation-wide exit routines to display for this command. The valid range is 1 to the value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer installation-wide exit routines are found than you have specified on MAX, VTAM displays only the installation-wide exit routines that are found.

**Resulting display**

The resulting display shows the exit routine name, the exit level, the module name for the exit, and the status of the exit at the time the command was issued.

If ISTECCA is specified on the ID operand and the exit is active, the resulting display also shows the active functions of the session management exit routine.

**Note:** For ISTECCPM, the base exit instance is always displayed regardless of its status, and is displayed before any multiple exit. Multiple exit instances are not displayed if they are inactive.

See the z/OS Communications Server: SNA Customization for information about the exit level.

**Examples**

Displaying all installation-wide exit routines:

```
d net,exit
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EXIT
IST1250I NAME      LEVEL  MODULE      STATUS
IST1251I ISTCMMND ***NA***          INACTIVE
IST1251I ISTECCUV  ***NA*** ISTECCUV     ACTIVE
IST1251I ISTECCS   ***NA*** ISTECCS     ACTIVE
IST1251I ISTECCSD  ***NA*** ISTECCSD     ACTIVE
IST1251I ISTECCA   ***NA***          INACTIVE
IST1251I ISTECCVR  ***NA***          INACTIVE
IST1251I ISTECCPM  ***NA***          INACTIVE
IST1251I ISTECCDM  ***NA***          INACTIVE
IST1251I ISTECCGR  ***NA*** ISTECCGR     ACTIVE
IST1454I 9 EXIT(S) DISPLAYED
IST314I END
```

## DISPLAY EXIT

Displaying the ISTEEXCPM installation-wide exit routine:

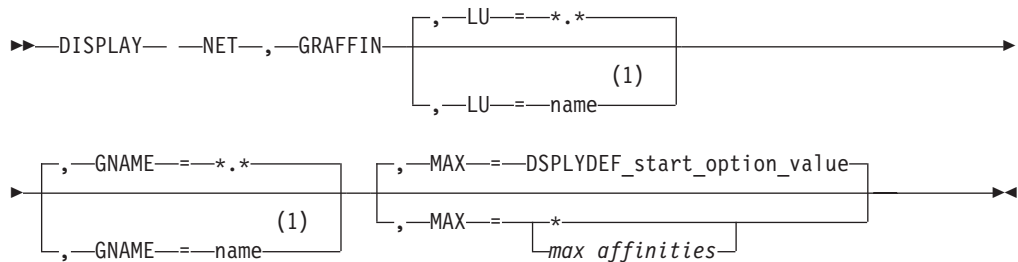
```
d net,exit,id=istexcpm
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EXIT
IST1250I NAME      LEVEL  MODULE      STATUS
IST1251I ISTEEXCPM ***NA***          INACTIVE
IST1251I ISTEEXCPM ***NA*** P1       ACTIVE
IST1251I ISTEEXCPM ***NA*** P2       ACTIVE
IST1251I ISTEEXCPM ***NA*** P3       ACTIVE
IST1454I 4 EXIT(S) DISPLAYED
IST314I END
```

Displaying the ISTEEXCAA installation-wide exit routine:

```
d net,exit,id=istexcaa
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = EXIT
IST1250I NAME      LEVEL  MODULE      STATUS
IST1251I ISTEEXCAA ***NA*** ISTEEXCAA ACTIVE
IST199I OPTIONS = BEGIN INITAUTH SECAUTH ACCTING GWPATH END XRF
IST199I OPTIONS = ADJSSCP ADJ_DSRL INITA_IO ALIAS ALS ALS_DSRL
IST199I OPTIONS = ALS_CDRS MNPS HPRVRSSEL HPRP_OLU HPRP_ANR HPRP_DLU
IST1454I 1 EXIT(S) DISPLAYED
IST314I END
```

---

## DISPLAY GRAFFIN command



### Notes:

- 1 Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.

### Purpose

The DISPLAY GRAFFIN command displays affinity information for generic resources. Because affinities for TSO generic resources exist only temporarily during TSO logon processing, DISPLAY GRAFFIN does not display affinities for sessions with these types of resources.

### Operands

**LU** Specifies the name of the partner LU. The name can be a network-qualified name.

#### Note:

1. Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand. For more information about using wildcards, see "Using wildcard names" on page 11.
2. Specifying a wildcard name might degrade performance because VTAM checks every application major node in the network.

**GNAME**

Specifies the generic resource name. The name can be a network-qualified name.

**Note:**

1. Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand. For more information about using wildcards, see "Using wildcard names" on page 11.
2. Specifying a wildcard name might degrade performance because VTAM checks every application major node in the network.

**MAX**

Specifies the maximum number of affinities that VTAM displays for this command.

**MAX=\***

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

**MAX=max\_affinities**

Specifies the number of affinities to display for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer affinities are found than you have specified on MAX, VTAM displays only the affinities that are found.

**Resulting display**

The resulting display shows the affinity values.

**Examples**

Displaying the affinity values:

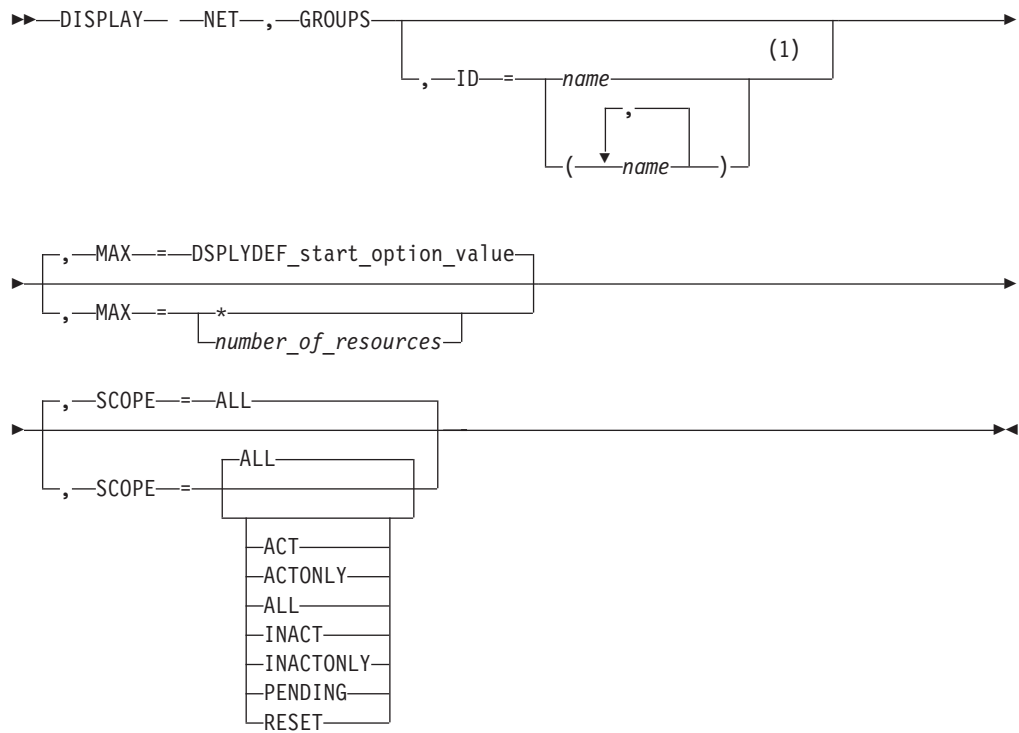
```
d net,graffin,lu=netx.*
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = GENERIC AFFINITY
IST1706I PARTNER NAME      GENERIC RESOURCE    MEMBER    ATTRIBUTES
IST1707I NETX.LUA10027     NETA.GRCICS      CICS1     -VG--V--
IST1707I NETX.LUAPPC55     NETA.MVSAPPC     MVSAPPC1  -VG-MX--
IST1707I NETX.LUAPPC55     NETA.MVSAPPC     MVSAPPC2  -VA-MX--
IST1707I NETX.LUA13039     NETA.GRIMS       IMS01     PAG6-V--
IST1454I 4 AFFINITIES DISPLAYED FOR LU=netx.*
IST314I END
```

**Note:** LUAPPC55 has one SPTE with two session pairs.

---

**DISPLAY GROUPS command**

## DISPLAY GROUPS



### Notes:

- 1 Depending on the value of the `DSPLYWLD` start option, wildcard values can be used for this operand.

### Abbreviations

Operand	Abbreviation
DISPLAY	D
SCOPE=ACT	ACT or A
SCOPE=ACTONLY	ACTONLY
SCOPE=ALL	EVERY or E
SCOPE=INACT	INACT or I
SCOPE=INACTONLY	INACTONL
SCOPE=PENDING	PEND
SCOPE=RESET	RESET

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for `SCOPE=ALL`, code only `EVERY` or `E`. Do not code `SCOPE=E`.

### Purpose

The `DISPLAY GROUPS` command provides information about line groups.

**Note:** To display line groups independently of the major nodes that contain them, use the `DISPLAY RSCLIST` command with `IDTYPE=GROUPS`.

## Operands

### ID=name

Specifies the name of one or more active NCP, channel-attachment, or XCA major nodes whose subordinate line groups are to be displayed.

Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand. For more information about using wildcards, see “Using wildcard names” on page 11.

**Attention:** Specifying a wildcard name might degrade performance because VTAM checks every NCP, channel-attachment, and XCA major node in the network.

### MAX

Specifies the maximum number of line groups that VTAM displays for this command.

#### MAX=\*

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

#### MAX=number\_of\_resources

Specifies the number of line groups that VTAM displays for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer line groups are found than you have specified on MAX, VTAM displays only the line groups that are found.

### SCOPE

Specifies the required scope of the display.

**Note:** If you specify the SCOPE operand without specifying a value SCOPE=ALL is assumed.

#### SCOPE=ACT

Specifies that information is to be displayed about all active, pending, and connectable line groups within the specified major nodes (or within all NCP, channel-attachment, and XCA major nodes if the ID operand is omitted). If this display is undesirably large, you can use SCOPE=ACTONLY to further limit the display.

#### SCOPE=ACTONLY

Specifies that information is to be displayed about all line groups in an active state within the specified major nodes (or within all NCP, channel-attachment, and XCA major nodes if the ID operand is omitted). The display does **not** include line groups in pending or connectable states. If no line groups are found in an active state, you can use SCOPE=ACT to broaden the scope of the display to include those in active, connectable, and pending states.

#### SCOPE=ALL

Specifies that information is to be displayed about all line groups (regardless of status) within the specified major nodes (or within all NCP, channel-attachment, and XCA major nodes if the ID operand is omitted).

## DISPLAY GROUPS

### SCOPE=INACT

Specifies that information is to be displayed about all inactive line groups within the specified major nodes (or within all NCP, channel-attachment, and XCA major nodes if the ID operand is omitted). If this display is undesirably large, you can use SCOPE=INACTONLY or SCOPE=RESET to further limit the display.

### SCOPE=INACTONLY

Specifies that information is to be displayed about all inactive line groups within the specified major nodes (or within all major nodes if the ID operand is omitted). Resources in a RESET state are not included in the SCOPE=INACTONLY display.

### SCOPE=PENDING

Specifies that information is to be displayed about all pending line groups within the specified major nodes (or within all NCP, channel-attachment, and XCA major nodes if the ID operand is omitted). A pending state is a transient state to or from the fully active state.

### SCOPE=RESET

Specifies that information is to be displayed about all line groups in a RESET state within the specified major nodes (or within all NCP, channel-attachment, and XCA major nodes if the ID operand is omitted).

## Resulting display

The resulting display lists the group's major node with its type and status, and the name, type, and status of each line group subordinate to the major node.

## Examples

Displaying all line groups:

```
d net,groups
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = GROUPS
IST089I ISTPUS TYPE = PU T4/5 , ACTIV
IST089I ISTGROUP TYPE = LINE GROUP , ACTIV
IST089I A0462ZC TYPE = PU T4/5 , ACTIV
IST089I A04LBNNB TYPE = LINE GROUP , ACTIV
IST089I A04XNPAX TYPE = LINE GROUP , ACTIV
IST089I A04DBNNS TYPE = LINE GROUP , ACTIV
IST089I A04LBNNS TYPE = LINE GROUP , ACTIV
IST089I A04GPRI TYPE = LINE GROUP , ACTIV
IST089I A04GSEC TYPE = LINE GROUP , ACTIV
IST089I A04LINNS TYPE = LINE GROUP , ACTIV
IST089I A04BPGRP TYPE = LINE GROUP , ACTIV
IST089I A04BLG1 TYPE = LINE GROUP , ACTIV
IST089I A04BLG2 TYPE = LINE GROUP , ACTIV
IST089I A04XCA0 TYPE = LINE GROUP , ACTIV
IST089I C2362ZC TYPE = PU T4/5 , ACTIV
IST172I NO GROUPS EXIST
IST314I END
```

Displaying line groups within a specific major node:

```
d net,groups,id=a0362zc
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = GROUPS
IST089I A0362ZC TYPE = PU T4/5 , ACTIV
IST089I A03LBNNB TYPE = LINE GROUP , ACTIV
IST089I A03XNPAX TYPE = LINE GROUP , ACTIV
IST089I A03L56KP TYPE = LINE GROUP , ACTIV
```

```
IST089I A03LBNS TYPE = LINE GROUP      , ACTIV
IST089I A03FID2 TYPE = LINE GROUP      , ACTIV
IST089I A03BPGRP TYPE = LINE GROUP     , ACTIV
IST089I A03BLG1 TYPE = LINE GROUP     , ACTIV
IST089I A03BLG2 TYPE = LINE GROUP     , ACTIV
IST089I A03XCA0 TYPE = LINE GROUP     , ACTIV
IST314I END
```

Displaying line groups, limiting output to three resources:

```
d net,groups,max=3
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = GROUPS
IST089I ISTPUS TYPE = PU T4/5          , ACTIV
IST089I ISTGROUP TYPE = LINE GROUP    , ACTIV
IST089I NCP3AA1 TYPE = PU T4/5        , PCTD1
IST089I GRP3A1 TYPE = LINE GROUP      , NEVAC
IST089I GRP3A6 TYPE = LINE GROUP      , NEVAC
IST1315I DISPLAY TRUNCATED AT MAX = 3
IST1454I 3 RESOURCE(S) DISPLAYED
IST314I END
```

---

## DISPLAY GRPREFS command

▶—DISPLAY NET,GRPREFS—◀

### Abbreviations

Operand	Abbreviation
DISPLAY	D

### Purpose

The DISPLAY GRPREFS command displays the generic resources preferences table.

### Resulting display

The resulting VTAM display shows the following information:

- The contents of the generic resources preferences table.
- The first generic resources preferences table entry is displayed as **\*\*DEFAULT\*\*** if you did not define a generic resources preferences table or if you defined one with only named entries. The **\*\*DEFAULT\*\*** entry identifies the VTAM default preferences for any generic resources that are not explicitly defined in the table.
- The first generic resources preferences table entry is displayed as **\*\*NAMELESS\*\*** if you defined a generic resources preferences table entry without a name. The **\*\*NAMELESS\*\*** entry identifies the default values that you defined for any generic resources that are not explicitly defined in the table.

### Examples

Displaying the generic resources preferences table that includes named entries and a nameless entry:

```
D NET,GRPREFS
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = GR PREFERENCES TABLE
IST075I NAME = GRPREF01, TYPE = GR PREFERENCES
IST924I -----
```

## DISPLAY GRPREFS

```

IST2210I GR PREFERENCE TABLE ENTRY = **NAMELESS**
IST2202I GREXIT = NO      WLM      = YES      LOCLU = YES
IST2204I LOCAPPL = YES    PASSOLU = YES
IST924I -----
IST2210I GR PREFERENCE TABLE ENTRY = CICSGR
IST2202I GREXIT = NO      WLM      = YES      LOCLU = YES
IST2204I LOCAPPL = YES    PASSOLU = NO
IST924I -----
IST2210I GR PREFERENCE TABLE ENTRY = TSOGR
IST2202I GREXIT = NO      WLM      = YES      LOCLU = YES
IST2204I LOCAPPL = YES    PASSOLU = NO
IST924I -----
IST2210I GR PREFERENCE TABLE ENTRY = APPLGR
IST2202I GREXIT = YES     WLM      = YES      LOCLU = YES
IST2204I LOCAPPL = YES    PASSOLU = NO
IST314I END
  
```

Displaying the generic resource preferences when no generic resource table was defined:

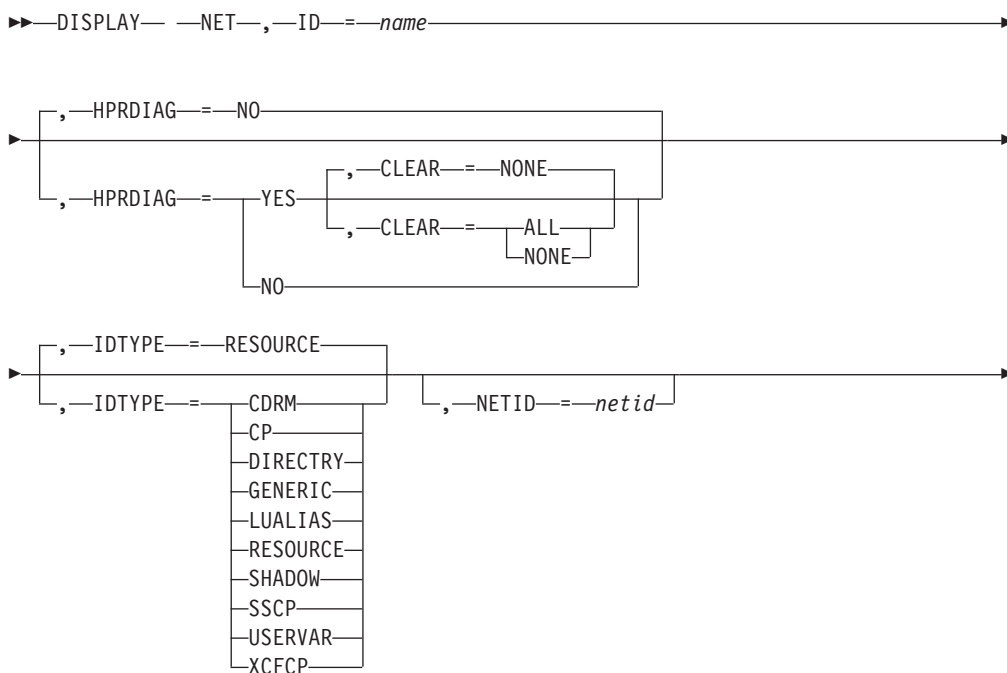
```

D NET, GRPREFS
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = GR PREFERENCES TABLE
IST075I NAME = NONE, TYPE = GR PREFERENCES
IST924I -----
IST2210I GR PREFERENCE TABLE ENTRY = **DEFAULT**
IST2202I GREXIT = NO      WLM      = YES      LOCLU = YES
IST2204I LOCAPPL = YES    PASSOLU = NO
IST314I END
  
```

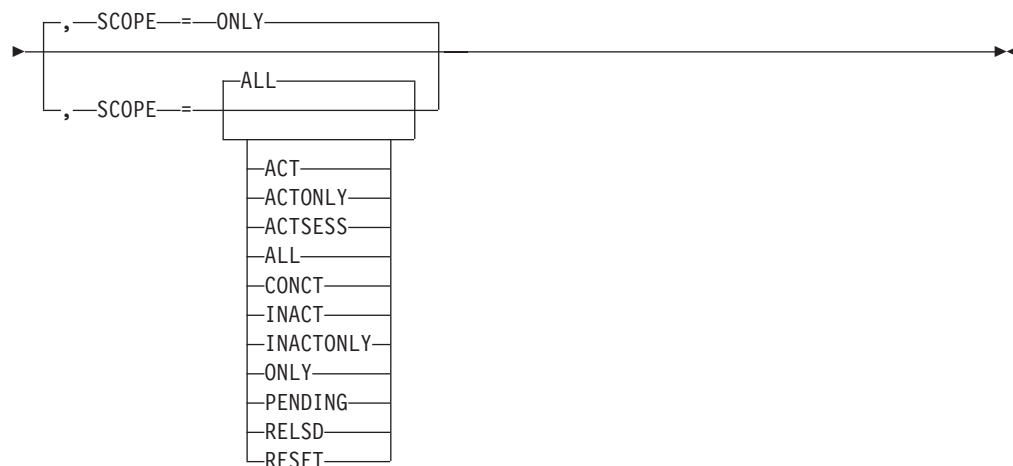
---

## DISPLAY ID command

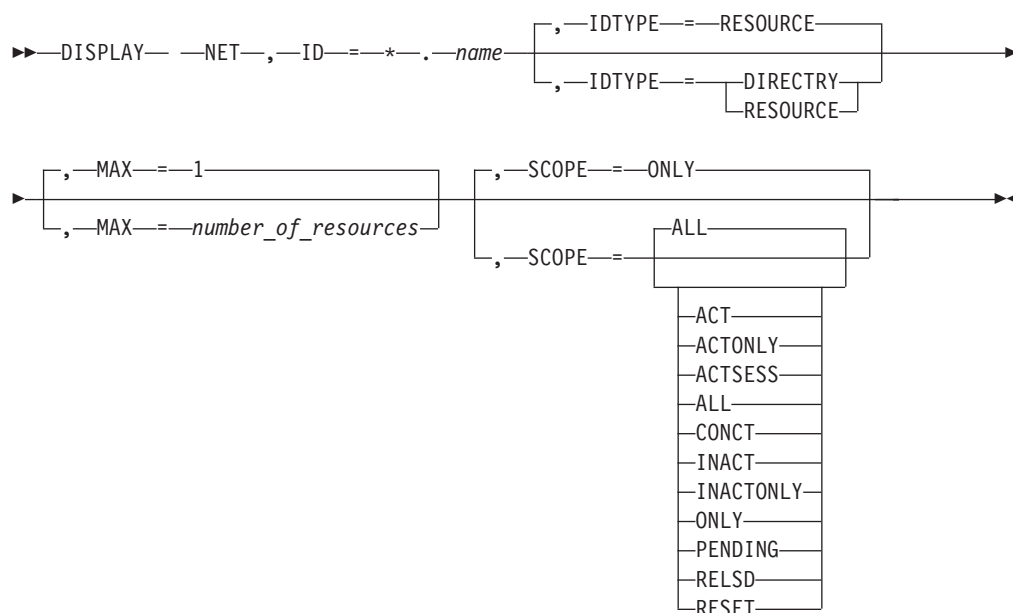
**Display a resource:**



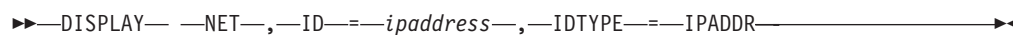




**Display a resource name in any network:**



**Display a resource name using an IP address:**



**Abbreviations**

Operand	Abbreviation
DISPLAY	D
HPRDIAG=YES	HPRDIAG or HPRDIAG=Y
SCOPE=ACT	ACT or A
SCOPE=ACTONLY	ACTONLY
SCOPE=ACTSESS	ACTSESS
SCOPE=ALL	EVERY or E

## DISPLAY ID

Operand	Abbreviation
SCOPE=CONCT	CONCT
SCOPE=INACT	INACT or I
SCOPE=INACTONLY	INACTONL
SCOPE=ONLY	NONE or N
SCOPE=PENDING	PEND
SCOPE=RELSA	RELSA
SCOPE=RELSD	RELSA
SCOPE=RESET	RESET

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for SCOPE=ALL, code only EVERY or E. Do not code SCOPE=E.

### Purpose

The DISPLAY ID command provides information about a particular major node, minor node, or directory entry. Additional information can be displayed about the subordinate resources of the node.

**Note:** This command applies only to active major nodes and minor nodes within active major nodes.

Inactive subarea nodes (for example, NCP major nodes) that have been contacted by VTAM as a result of the activation of a cross-subarea link station can be displayed, if the name of the given subarea node is known to VTAM. Both the NCP being displayed and the NCP containing the link station must be an NCP V1R3 or later release level. In all other cases, inactive major nodes and their minor nodes are not known to VTAM and are therefore not displayed.

When the operator specifies:

- A switched line, the display indicates whether the line is dial-in, dial-out, or both dial-in and dial-out. For a dial-in line, the answer mode is indicated.
- An application program minor node or LU name, the associated z/OS UNIX System Services , interpret, and logon-mode table names and the default logon-mode entry are displayed.

**Note:** Specifying ISTNOP, the name of the application program that represents the network operator, also displays the names of the message-flooding prevention table and the session awareness (SAW) data filter table.

- An NCP or host physical unit name, the following information is displayed:
  - The name and status of the associated dynamic path update members
  - The load module name of the NCP that was loaded (if different from the NCP PU name)
  - An indication of whether a nondisruptive load (MODIFY LOAD) is currently in progress
  - An indication of whether an NCP, MOSS, or CSP dump transfer (MODIFY DUMP) is currently in progress.

- The name of an FRSESET definition statement, an FRSESET display is issued. The display includes a message that shows how the FRSESET was defined, statically or dynamically. (Statically means that it was included in the NCP generation.)
- An application program minor node, the compression-level values are displayed.
- An application program, LU, or cross-domain resource name, the security data for data encryption and message authentication are displayed.

## Operands

### CLEAR

Specifies whether to clear diagnostic counters for the RTP pipe.

#### CLEAR=ALL

The diagnostic counters of the specified RTP pipe are cleared.

#### CLEAR=NONE

The diagnostic counters are not cleared.

The HPRDIAG=YES operand is required when you specify the CLEAR operand. The resource identified by the ID operand must be an RTP physical unit in this host.

### HPRDIAG

Specifies whether additional HPR diagnostic information is to be displayed for the Rapid Transport Protocol (RTP) physical unit.

#### HPRDIAG=YES

Specifies that additional HPR diagnostic information is to be displayed for the Rapid Transport Protocol (RTP) physical unit.

The resource identified by the ID operand must be an RTP physical unit in this host.

#### HPRDIAG=NO

Specifies that additional HPR diagnostic information is not to be displayed for the Rapid Transport Protocol (RTP) physical unit. If specified, the resource identified by the ID operand must be an RTP physical unit in this host.

### ID=name

Specifies the name of a major node, minor node, USERVAR, generic resource name, LUALIAS, or resource in the directory database.

The name can be a network-qualified name. Regardless of whether you specify a network-qualified name on the ID operand, the resource name in the display output is network-qualified only for application programs, SSCPs, CDRSCs, and LUs. The resource name in the display output is not network-qualified for any other type of resource.

For an APPN node, to display information about a dynamic XCF local SNA PU representing the connection to another VTAM, you can specify one of the following names:

- The name of the PU
- The CP name (or SSCP name) of the other VTAM with IDTYPE=XCFCP

For a pure subarea node, to display information about a dynamic XCF TRLE representing the connectivity to another VTAM node, you can specify one of the following names:

- The name of the TRLE

## DISPLAY ID

- The SSCP name (or CP name) of the other VTAM with IDTYPE=XCFCP

### Note:

1. If the name is an NCP major node, the name used must be the name specified on the ID operand when the NCP was activated. If PUNAME was specified on the BUILD definition statement, then *name* is the PUNAME.
2. If the name is an application program in this domain, the ID operand can specify either the application program minor node name or the name under which the application program opened its ACB.
3. For an application program minor node, you can specify the name of a conventionally defined application program, a model application program, or a dynamic application program built from a model application program definition. For a CDRSC minor node, you can specify the name of a conventionally defined CDRSC, a model CDRSC, a clone CDRSC built from a model CDRSC, or a dynamic CDRSC.

If you are specifying a model resource (APPL or CDRSC), you can use wildcard characters in the name you specify. The use of wildcard characters on the ID operand of the DISPLAY ID command does not depend on the value of the DSPLYWLD start option. Unlike wildcard characters in other commands, the wildcard characters you specify on the ID operand of the DISPLAY ID command do not represent unspecified characters. They are interpreted as the actual characters, asterisk (\*) and question mark (?).

Therefore, if you specify DISPLAY ID=APPL\*, VTAM displays information about the model resource (APPL or CDRSC) named APPL\*, but it does not display information about any other application programs or CDRSCs whose names begin with APPL, followed by zero to four valid characters in length. It also does not display detailed information about any clone resource (APPL or CDRSC) that was built from the model resource named APPL\*.

In other words, using wildcard characters in the name that you specify on the ID operand of the DISPLAY ID command results in the display of at most one model application program or one model CDRSC. If you want to display information about all application programs or CDRSCs whose names match a pattern established by the placement of wildcard characters, use the "DISPLAY RSCLIST command" on page 223.

4. For a CDRM, you can specify a network-qualified name, but this does not remove the restriction that the non-network-qualified CDRM name must be unique across networks.
5. If the name is a non-network-qualified CDRSC, VTAM uses the network ID of the host from which the command is issued. If two or more CDRSCs exist with the same resource name, but different network identifiers, and DISPLAY ID=*non-network-qualified\_name* is issued, then one of the following situations occurs:
  - Only one CDRSC is displayed. The displayed CDRSC is one of the following types:
    - The one that has been defined with VTAM's network identifier
    - The one that has been defined as cross-network, but specified with NQNMODE=NAME, either on its CDRSC definition or by the NQNMODE start option

- None of the CDRSCs are displayed if they are all specified with NQNMODE=NQNAME, either on their CDRSC definitions or by the NQNMODE start option.
- 6. If you specify a non-network-qualified USERVAR name, VTAM uses the network ID of the host from which you issue the command.
- 7. You can specify an asterisk (\*) as a wildcard character (or \*NETWORK) as the network ID portion of a network-qualified name. The wildcard character (\*) is useful for displaying a resource for which you do not know the network ID. The wildcard character (\*) is also useful for displaying several resources with the same name that are found in multiple networks, if you also specify the MAX operand on the command.
- 8. If the name is a generic resource name, the output lists all the members known by that generic resource name.
- 9. If the name is a TN3270 client IP address in dotted decimal format (for example, ID=192.5.48.122) or in colon-hexadecimal format for IPv6 addresses and there is an associated z/OS Communications Server Telnet server APPL, CDRSC, or LU minor node resource name, it is displayed. The saving and displaying of the IP information for TN3270 clients is controlled by the IPINFO start option. See z/OS Communications Server: SNA Resource Definition Reference for more information about the IPINFO start option.
- 10. If the name is an RTP pipe, the number of fully active sessions is displayed in the IST1855I message.

**Restriction:** When you specify an IP address, **IDTYPE=IPADDR** is also required.

#### **IDTYPE**

Specifies the type of resource that the ID operand names. If several types of resources share the same name, IDTYPE can be used to identify which resource the command acts on. IDTYPE differs from MAX in that IDTYPE displays several representations of the same resource, whereas MAX displays several different resources with the same name.

#### **IDTYPE=CDRM**

Displays information only about the SSCP (represented as a CDRM).

#### **IDTYPE=CP**

Displays information only about the host CP (represented as an application) or an adjacent CP (represented as a CDRSC).

#### **IDTYPE=DIRECTRY**

Displays information from the directory database for the specified resource. The DISPLAY ID command with IDTYPE=DIRECTRY is valid only when it is issued at a network node or an interchange node.

#### **IDTYPE=GENERIC**

Displays the names of application program network names that are also generic resources.

#### **IDTYPE=IPADDR**

Displays the IP address of the currently connected TN3270 client applications and LUs. The IP address accepts a fully qualified dotted decimal format for IPv4 type addresses, or colon-hexadecimal format for IPv6 type addresses.

## DISPLAY ID

**Note:** The saving and displaying of the IP information for TN3270 clients is controlled by the IPINFO start option. See z/OS Communications Server: SNA Resource Definition Reference for more information.

### **IDTYPE=LUALIAS**

Displays information only about the CDRSC whose name is associated with the LUALIAS. If a network-qualified name is specified, VTAM does not search for an LUALIAS with that resource name. For more information about CDRSCs that are defined with an LUALIAS, see z/OS Communications Server: SNA Resource Definition Reference.

### **IDTYPE=RESOURCE**

Displays information about the resource named on the ID operand. VTAM searches for the resource in the following order:

1. VTAM searches for an SSCP (CDRM), a host CP (application), or an adjacent CP (CDRSC) by the name specified on the ID operand and displays information for any or all these resources it finds. If the resource is found and it is not the host CP, and you are issuing this command at a network node or interchange node, the display includes information from the directory database.
2. If VTAM does not find an SSCP, a host CP, or an adjacent CP, it searches for a resource with the name specified on the ID operand and displays information for the resource, if it finds it. If the resource is a CDRSC, and you are issuing this command at a network node or interchange node, the display includes information from the directory database.
3. If VTAM does not find a resource by that name, it searches for a USERVAR with the name specified on the ID operand and displays information for the resource, if it finds it.
4. If VTAM does not find a USERVAR by that name, or a USERVAR is found but the resource defined as the value of the USERVAR is not found, it searches for an LUALIAS with the name specified on the ID operand and displays information for the CDRSC, if it finds it.
5. If no resource is found with the name specified on the ID operand, and you are issuing this command at a network node or interchange node, VTAM displays information about the resource from the directory database, if it finds it.
6. If no resource is found and no entry exists in the directory database with the specified name, the command fails.

### **IDTYPE=SHADOW**

Displays information only about a shadow resource, if it exists. Included in the information displayed is the real resource that caused the displayed resource to become a shadow resource.

For more information about shadow resources, see the z/OS Communications Server: SNA Network Implementation Guide

### **IDTYPE=SSCP**

Displays information only about the SSCP (represented as a CDRM).

### **IDTYPE=USERVAR**

Displays information only about the resource whose name is associated with the USERVAR.

### **IDTYPE=XCFCP**

Displays information only about the dynamic XCF local SNA PU

representing the connection to another VTAM in the XCF group, when the ID operand specifies the CP name of the other VTAM.

#### **MAX=number\_of\_resources**

Specifies the maximum number of resources to display when the resource name on the ID operand is specified as being in “any network”. That is, the network ID portion of the network-qualified resource name is specified as \* (or \*NETWORK). For example, ID=\*.a01n can be specified. MAX is valid only when the following conditions are both true:

1. An “any network” resource name is specified on the ID operand
2. IDTYPE=RESOURCE or IDTYPE=DIRECTRY is used

The value for MAX can be any integer from 1 to 200. The default is 1.

The resource name might exist in more networks than the number you specify on the MAX operand. However, VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer resources are found than you have specified on MAX, VTAM displays only the resources that are found.

The display might show the same resource more than once if both subarea information and APPN directory information are available for a particular resource. The value specified for MAX does not consider this duplication of information for a particular resource, so you could specify a value such as MAX=3 and receive a display of up to six resources.

#### **NETID=netid**

Valid only for CDRSC major nodes and limits the scope of the display to CDRSCs within the indicated network and CDRSCs defined without a network identifier (not associated with any particular network). If you specify the NETID operand, but do not identify a specific network (that is, a value for *netid* is not entered), all CDRSCs in the major node are displayed. CDRSCs are displayed in the order in which they were defined or added within the major node.

To display minor nodes and independent LUs, specify a network-qualified name on the ID operand, and do not use the NETID operand.

#### **SCOPE**

Specifies the wanted scope of the display.

**Note:** If you specify the SCOPE operand without specifying a value SCOPE=ALL is assumed.

The SCOPE operand is ignored for frame relay PUs or FRSESETs. Nor does SCOPE have any effect when you display resources in the directory database.

These values specify whether information is to be provided about the specified node's subordinate resources in addition to the information about the node itself. They are meaningful only for resources that have subordinate resources.

#### **SCOPE=ACT**

Specifies that, in addition to the resource specified on the ID operand, the name, and status of all its active, pending, and connectable subordinate resources, if any, are to be displayed. If this display is undesirably large, you can use SCOPE=ACTONLY or SCOPE=CONCT to further limit the display.



## DISPLAY ID

### **SCOPE=ACTONLY**

Specifies that, in addition to the resource specified on the ID operand, the name, and status of all its active subordinate resources, if any, are to be displayed. The display does not include resources in pending or connectable states. If no resources are found in an active state, you can use SCOPE=ACT to broaden the scope of the display to active, connectable, and pending resources.

### **SCOPE=ACTSESS**

Specifies that, in addition to the resource specified on the ID operand, the name of all its subordinate resources that are active with sessions, if any, are to be displayed.

### **SCOPE=ALL**

Specifies that, in addition to the resource specified on the ID operand, the name, and status of all its subordinate resources, if any, are to be displayed (regardless of their status).

### **SCOPE=CONCT**

Specifies that, in addition to the resource specified on the ID operand, the name, and status of all its subordinate resources in a CONCT (connectable) state, if any, are to be displayed. If no resources are found in a connectable state, you can use SCOPE=ACT to broaden the scope of the display to active, connectable, and pending resources.

### **SCOPE=INACT**

Specifies that, in addition to the resource specified on the ID operand, the name, and status of all its inactive subordinate resources, if any, are to be displayed. If this display is undesirably large, you can use SCOPE=INACTONLY or SCOPE=RESET to further limit the display.

### **SCOPE=INACTONLY**

Specifies that, in addition to the resource specified on the ID operand, the name, and status of all its inactive subordinate resources, if any, are to be displayed. Resources in a RESET state are not included in the SCOPE=INACTONLY display.

### **SCOPE=ONLY**

Tells VTAM not to display the name and status of any subordinate resources.

### **SCOPE=PENDING**

Specifies that, in addition to the resource specified on the ID operand, the name, and status of all its pending subordinate resources, if any, are to be displayed. A pending state is a transient state to or from the fully active state.

### **SCOPE=RELSD**

Specifies that the information is to be displayed about all PUs in a RELSD state within the specified major nodes.

### **SCOPE=RESET**

Specifies that, in addition to the resource specified on the ID operand, the name, and status of all its subordinate resources in a RESET state, if any, are to be displayed.



## Resulting display

The resources that are displayed depend on their relationship within the hierarchy that is specified on the ID operand. The following lists show what resources are displayed for each major node or minor node.

**Note:** Independent LUs that are defined under a PU do not always appear in this output. Only independent LUs that are currently using the PU as a boundary function for multiple concurrent sessions are displayed.

A DISPLAY ID command issued at an APPN node might show a resource name appearing in several networks even though the resource actually exists in only one network. This can happen if intermediate SSCPs are pre-V4R1 and they pass only the 8-character resource name. The real network ID is therefore lost and other network IDs might be subsequently assumed.

For a DISPLAY ID command with IDTYPE=RESOURCE or IDTYPE=DIRECTRY, if the resource type that is displayed is EN, the node might actually be a network node, end node, or SSCP. This is because in a mixed APPN and subarea network, CPs, and SSCPs that are found in or through a subarea network are represented in this host (the host where you are issuing this command) as end nodes which are served by the interchange node through which the resource was found.

**Note:** If model application program definitions are included in the display, any dynamic application programs built from those models that have been deactivated are not displayed. This is because dynamic application programs cannot exist in an inactive state. When a dynamic application program is deactivated and CLOSE macro processing is complete for the dynamic application program, the definition of the dynamic application program is deleted. The dynamic application program is no longer known by VTAM and will not appear in the output of any DISPLAY commands.

- Major nodes:
  - For ID=ADJCP major node, its subordinate nodes
  - For ID=application program major node, its subordinate applications:
    - Conventionally defined application programs
    - Model application programs
    - Dynamic application programs built from model application program definitions
  - For ID=CDRM major node, its subordinate CDRMs
  - For ID=CDRSC major node, its subordinate CDRSCs:
    - Conventionally defined CDRSCs
    - Model CDRSCs
    - Clone CDRSCs built from model CDRSC definitions
  - For ID=channel-attachment major node, its subordinate links
  - For ID=external communications adapter (XCA) major node, its subordinate links
  - For ID=hostpu, its subordinate cross-subarea links
  - For ID=local non-SNA 3270 major node, its subordinate logical units
  - For ID=local\_sna\_major\_node:
    - Each PU providing local SNA connectivity and its subordinate logical units
    - Each PU providing APPN host-to-host connectivity
  - For ID=lugroup major node, its model LU groups, and their model LUs

## DISPLAY ID

- For ID=*model major node*, its subordinate logical units and the physical units to which the logical units are subordinate
- For ID=*NCP major node*, its subordinate links
- For ID=*rapid transport protocol major node (ISTRTPMN)*, its dynamic physical units
- For ID=*switched major node*, its subordinate logical units and the physical units to which the logical units are subordinate
- For ID=*transport resource list major node*, its subordinate transport resource list entries (TRLEs).
- Minor nodes:
  - For ID=*conventionally defined application program* or *ACB name*:
    - For SCOPE=ACT, the established sessions with the application program
    - For SCOPE=INACT, the names of logical units waiting for sessions with the application program
    - For SCOPE=ALL, the information provided for both ACT and INACT, as described above
    - An indication if the application is a VCNS user
  - For ID=*model application program*
    - An indication that the application program is a model
    - A list of dynamic application programs that have been built from this model, or an indication that no dynamic application programs have been built from this model
    - An indication if the model application program definition specifies that any dynamic application programs built from the model are to be VCNS users
  - For ID=*dynamic application program*
    - An indication that the application program is a dynamic application program
    - The name of the model application program definition used to build the dynamic application program
    - For SCOPE=ACT, the established sessions with the dynamic application program
    - For SCOPE=ALL, the established sessions with the dynamic application program
    - An indication if the dynamic application program is a VCNS user
  - For ID=*CDRSC minor node* (conventionally defined and dynamic):
    - For SCOPE=ACT, the established sessions with the cross-domain resource
    - For SCOPE=INACT, the names of logical units waiting for sessions with the cross-domain resource
    - For SCOPE=ALL, the information provided for both ACT and INACT, as described in the preceding information
  - For ID=*model CDRSC minor node*:
    - An indication that the CDRSC is a model
    - An indication of the current value of the DELETE parameter of the model CDRSC
    - For SCOPE=ONLY, an indication if no clone CDRSCs currently exist that were built from this model

- For other values of SCOPE, a list of clone CDRSCs that have been built from this model that meet the SCOPE criteria, or an indication if no clone CDRSCs currently exist that were built from this model that meet the SCOPE criteria
- For ID=*clone CDRSC minor node*:
  - An indication that the CDRSC is a clone
  - The name of the model CDRSC used to build the clone CDRSC
  - An indication of the current value of the DELETE parameter from the model CDRSC used to build this clone CDRSC
  - For SCOPE=ACT, the established sessions with the cross-domain resource
  - For SCOPE=INACT, the names of logical units waiting for sessions with the cross-domain resource
  - For SCOPE=ALL, the information provided for both ACT and INACT, as described previously
- For ID=*host CDRM name*, the host's network ID (where applicable), subarea and element addresses, and only the external CDRM session partner and session status for established sessions with the host CDRM
- For ID=*same-network external CDRM name*:
  - HPR capability, if the same-network external CDRM is active
  - For SCOPE=ACT, active cross-domain resources owned by the external CDRM
  - For SCOPE=INACT, inactive cross-domain resources owned by the external CDRM
  - For SCOPE=ALL, all active or inactive cross-domain resources owned by the external CDRM
- For ID=*cross-network external CDRM name*:
  - For SCOPE=ACT, active cross-network resources owned by the external CDRM
  - For SCOPE=INACT, inactive cross-network resources owned by the external CDRM
  - For SCOPE=ALL, all active or inactive cross-network resources owned by the external CDRM
- For ID=*line group*:
  - For SCOPE=ALL, lines and PUs
  - For SCOPE=ACT, all active lines and all active PUs
  - For SCOPE=INACT, all inactive lines, all inactive PUs, and all active lines that have inactive PUs
  - For SCOPE=ONLY, only line group
- For ID=*link*:
  - Its subordinate link stations, or
  - Its subordinate physical units and dependent logical units
- For ID=*physical\_unit*:
  - Its subordinate logical units
  - For a PU providing APPN host-to-host connectivity, the name, status, and line control as specified by the TRLE operand on the PU definition statement
  - For a PU supported by a DLUR, the name of the DLUR and the switched major node that defines the PU

## DISPLAY ID

- For a dynamic rapid transport protocol (RTP) PU, the data flow rate and the end-to-end route
- For an HPR-capable PU in a type 2.1 node, the HPR capability.
- For ID=*transport\_resource\_list\_entry*:
  - Names of the Communications Server z/OS upper-layer protocols (ULPs) using this TRLE
  - For a dynamic TCP TRLE or an exclusively owned TRLE, only one message with a ULP ID is issued because only one ULP can use each of these TRLEs. For an OSA-Express adapter, one message with a ULP ID is issued for each datapath channel address that a ULP uses. For other TRLEs, more than one ULP ID message can be issued, depending on how many ULPs are using the TRLE.

**Rule:** Only one message with a ULP ID is generated for a 10GbE RoCE Express feature that operates in a shared RoCE environment.

- The ULP ID will be the jobname for TCP/IP ULPs, the SNA PU name for ANNC ULPs, and the XCA Major Node name for ATM or EE ULPs.
- Resources in the directory database:
  - The name of the resource
  - The entry type, such as dynamic
  - The resource type, such as network node
  - The owning CP
  - The network node server
  - For an LU resource:
    - The subarea number
    - The required locate message size to retrieve routing information
    - The locate message size used when this LU was last searched
- Generic resource names:
  - Member name
  - Owning CP name
  - Whether the resource is currently available to be selected during resolution. NO indicates that the generic resource is on an end node that does not have a CP-CP session with its network node server, and is therefore not selectable. YES indicates that the resource is selectable. DEL indicates that the resource has deleted itself as a generic resource and is not selectable. If you need to fully delete the generic resource from VTAM and the generic resource coupling facility structure, the application's ACB must be closed and the MODIFY GR DELETE command must be issued at every host in the sysplex. See the z/OS Communications Server: SNA Network Implementation Guide for a full description of generic resource deletion procedures.
  - APPC value

## Examples

Displaying an adjacent CP major node:

```
d net,id=istadjcp,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = ISTDJCP, TYPE = ADJCP MAJOR NODE
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST1100I ADJACENT CONTROL POINTS FROM MAJOR NODE ISTDJCP
IST1102I NODENAME          NODETYPE CONNECTIONS CP CONNECTIONS NATIVE
IST1103I NETB.VN1         VN          0          0          *NA*
```

```
IST2157I ALIASRCH = *NA
IST1103I NETA.VN1      VN      1      0      *NA*
IST2157I ALIASRCH = *NA
IST314I  END
```

Displaying an application program major node, including model application programs and dynamic application programs built from those models:

```
d net,id=a01app1s,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A01APPLS, TYPE = APPL SEGMENT
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST360I APPLICATIONS:
IST080I APPL01  CONCT      APPL0102 CONCT      A01MVSNO CONCT
IST080I APPL1   CONCT      APPLA*   CONCT      APPL2   CONCT
IST080I APPLQ? CONCT      APPL3    CONCT      APPLQ1  ACTIV
IST314I  END
```

Displaying a CDRM major node:

```
d net,id=cdm1a,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = CDRM1A, TYPE = CDRM SEGMENT
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST477I CDRMS:
IST1546I CDRM      STATUS      SUBAREA ELEMENT NETID      SSCPID
IST1547I SSCP1A    ACTIV        1      1  NETA          1
IST1547I SSCPAA    NEVAC        10     1  NETA          N/A
IST1547I SSCP2A    NEVAC        2      1  NETA          N/A
IST1547I SSCPBA    NEVAC        11     1  NETA          N/A
IST1547I SSCPCA    NEVAC        12     1  NETA          N/A
IST1547I SSCP7B    ACTIV        5      1  NETB          7
IST1547I SSCP9C    ACTIV        8      3  NETC          9
IST1500I STATE TRACE = OFF
IST314I  END
```

Displaying a CDRSC major node:

```
d net,id=istcdrdy,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = ISTDGRDY, TYPE = CDRSC SEGMENT
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST478I CDRSCS:
IST483I C25NVLUC  ACTIV----Y, CDRM = ***NA***, NETID = NETA
IST483I B01NVLUC  ACTIV----Y, CDRM = ***NA***, NETID = NETA
IST483I A81NVLUC  ACTIV----Y, CDRM = ***NA***, NETID = NETA
IST483I A03D207F  ACT/S----Y, CDRM = A01N      , NETID = NETA
IST483I A02NVLUC  ACT/S----Y, CDRM = A01N      , NETID = NETA
IST483I ECH002A   ACT/S----Y, CDRM = A01N      , NETID = NETA
IST483I A50NVLUC  ACT/S----Y, CDRM = A01N      , NETID = NETA
IST483I A500N     ACT/S----Y, CDRM = A01N      , NETID = NETA
IST483I A02N      ACT/S----Y, CDRM = A01N      , NETID = NETA
IST314I  END
```

Displaying a CDRSC major node for a specific network:

```
d net,id=a99cdrsc,netid=netc,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A99CDRSC, TYPE = CDRSC SEGMENT
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST478I CDRSCS:
IST483I CECH*     ACTIV      , CDRM = C01M      , NETID = NETC
IST483I CECH001   ACTIV      , CDRM = C01M      , NETID = NETC
IST483I TPNSC01   ACTIV      , CDRM = C01M      , NETID = NETC
IST483I C01NVLUC  ACTIV      , CDRM = C01M      , NETID = NETC
IST483I TS011     ACTIV      , CDRM = ***NA***, NETID = NETC
IST483I ECH011    ACTIV      , CDRM = C11M      , NETID = NETC
IST483I C11NVLUC  ACTIV      , CDRM = C11M      , NETID = NETC
```

## DISPLAY ID

```
IST483I TS0255  ACTIV      , CDRM = ***NA***, NETID = NETC
IST483I ECH0255  ACTIV      , CDRM = C255M   , NETID = NETC
IST483I C255NLUC ACTIV      , CDRM = C255M   , NETID = NETC
IST314I END
```

Displaying a local SNA major node:

```
d net,id=a50lsna,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A50LSNA, TYPE = LCL SNA MAJ NODE
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST084I NETWORK NODES:
IST089I PUA      TYPE = PU_T2          , ACTIV      ,CUA=0770
IST089I LSNALU1 TYPE = LOGICAL UNIT    , ACTIV
IST089I LSNALU2 TYPE = LOGICAL UNIT    , ACTIV
IST089I LSNALU3 TYPE = LOGICAL UNIT    , ACTIV
IST089I LSNALU4 TYPE = LOGICAL UNIT    , ACTIV
IST314I END
```

Displaying a local SNA major node for each PU providing APPN host-to-host connectivity:

```
d net,id=lsna1a,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = LSNA1A, TYPE = LCL SNA MAJ NODE
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST084I NETWORK NODES:
IST1316I PU NAME = AHHCPU1  STATUS = NEVAC      TRLE = ML1A2A2
IST1316I PU NAME = AHHCPU2  STATUS = NEVAC      TRLE = ML1A2A3
IST1316I PU NAME = AHHCPU3  STATUS = NEVAC      TRLE = ML1A2A4
IST314I END
```

Displaying the dynamic XCF local SNA major node:

```
d net,id=istlsxcf,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = ISTLSXCF, TYPE = LCL SNA MAJ NODE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST084I NETWORK RESOURCES:
IST1316I PU NAME = ISTEP001  STATUS = ACTIV--LX- TRLE = ISTT0001
IST1500I STATE TRACE = OFF
IST314I END
```

Displaying a transport resource list major node:

```
d net,id=trl1a,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = TRL1A, TYPE = TRL MAJOR NODE
IST1314I TRLE = TRLE1A  STATUS = NEVAC      CONTROL = MPC
IST1314I TRLE = TRLE1B  STATUS = NEVAC      CONTROL = MPC
IST1314I TRLE = TRLE1C  STATUS = NEVAC      CONTROL = MPC
IST1314I TRLE = TRLE1D  STATUS = NEVAC      CONTROL = MPC
IST314I END
```

Displaying an active TRL entry:

```
d net,id=trle1a
IST097I DISPLAY ACCEPTED
IST075I NAME = TRLE1A, TYPE = TRLE
IST486I STATUS= ACTIV----E, DESIRED STATE= ACTIV
IST087I TYPE = LEASED      , CONTROL = MPC , HPDT = NO
IST1954I TRL MAJOR NODE = TRL1
IST1715I MPCLEVEL = HPDT      MPCUSAGE = SHARE
IST1221I WRITE DEV = 0508 STATUS = RESET      STATE = ONLINE
IST1221I READ  DEV = 0408 STATUS = RESET      STATE = ONLINE
IST1500I STATE TRACE = OFF
IST314I END
```

Displaying a local non-SNA 3270 major node:

```

d net,id=a011local,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A01LOCAL, TYPE = LCL 3270 MAJ NODE
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST355I LOGICAL UNITS:
IST089I A01A741 TYPE = LOGICAL UNIT      , NEVAC      ,CUA=0741
IST089I A01A742 TYPE = LOGICAL UNIT      , NEVAC      ,CUA=0742
IST089I A01A743 TYPE = LOGICAL UNIT      , NEVAC      ,CUA=0743
IST089I A01A744 TYPE = LOGICAL UNIT      , NEVAC      ,CUA=0744
IST089I A01A745 TYPE = LOGICAL UNIT      , NEVAC      ,CUA=0745
IST089I A01A746 TYPE = LOGICAL UNIT      , NEVAC      ,CUA=0746
IST089I A01A747 TYPE = LOGICAL UNIT      , NEVAC      ,CUA=0747
IST089I A01A748 TYPE = LOGICAL UNIT      , NEVAC      ,CUA=0748
IST089I A01A721 TYPE = LOGICAL UNIT      , ACT/S      ,CUA=0721
IST089I A01A722 TYPE = LOGICAL UNIT      , ACTIV      ,CUA=0722
IST089I A01A723 TYPE = LOGICAL UNIT      , ACTIV      ,CUA=0723
IST089I A01A724 TYPE = LOGICAL UNIT      , ACTIV      ,CUA=0724
IST089I A01A725 TYPE = LOGICAL UNIT      , ACTIV      ,CUA=0725
IST089I A01A726 TYPE = LOGICAL UNIT      , NEVAC      ,CUA=0726
IST314I END

```

Displaying an NCP major node:

```

d net,id=a0462zc,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A0462ZC, TYPE = PU T4/5
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST247I LOAD/DUMP PROCEDURE STATUS = RESET
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST484I SUBAREA = 4
IST391I ADJ LINK STATION = 0017-S, LINE = 0017-L, NODE = ISTPUS
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST077I SIO = 50078 CUA = 0017
IST675I VR = 0, TP = 2
IST170I LINES:
IST080I A04B00 NEVAC      A04B01 NEVAC      A04B03 NEVAC
IST080I A04B32 NEVAC      A04B33 NEVAC      A04B35 NEVAC
IST080I A04VXX NEVAC----T A04S02 NEVAC      A04S34 NEVAC
IST080I A04S04 NEVAC      A04S16 NEVAC      A04S20 NEVAC
IST080I A04S36 NEVAC      A04S48 NEVAC      A04S52 NEVAC
IST080I A04S128 NEVAC     A04S136 NEVAC     A04PT88 ACTIV
IST080I A04C00 NEVAC      A04C02 NEVAC
IST314I END

```

Displaying the host physical unit:

```

d net,id=istpus,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = ISTPUS, TYPE = PU T4/5
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST596I IRN TRACE = OFF
IST1656I VTAMTOPO = INCLUDE, NODE REPORTED - YES
IST484I SUBAREA = 1
IST925I DYNAMIC PATH DEFINITION PATH1A STATUS = ACTIV
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST170I LINES:
IST080I 091C-L  ACTIV----I
IST314I END

```

Displaying the rapid transport protocol (RTP) major node:

```

d net,id=istrtpmn,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = ISTRTPMN, TYPE = RTP MAJOR NODE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV

```



## DISPLAY ID

```
IST1486I RTP NAME STATE DESTINATION CP MNPS TYPE
IST1487I CNR00004 CONNECTED NETA.SSCP2A NO LULU
IST1487I CNR00003 CONNECTED NETA.SSCP2A NO RSTP
IST1487I CNR00002 CONNECTED NETA.SSCP2A NO CPCP
IST1487I CNR00001 CONNECTED NETA.SSCP2A NO CPCP
IST314I END
```

Displaying a switched major node:

```
d net,id=a04smnc,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A04SMNC, TYPE = SW SNA MAJ NODE
IST486I STATUS= ACTIV , DESIRED STATE= ACTIV
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST084I NETWORK NODES:
IST089I A04P882 TYPE = PU_T2 , ACTIV--L--
IST089I A04P883 TYPE = PU_T2 , ACTIV--L--
IST089I A04D8831 TYPE = LOGICAL UNIT , ACTIV
IST089I A04D8832 TYPE = LOGICAL UNIT , ACTIV
IST089I A04D8833 TYPE = LOGICAL UNIT , ACT/S
IST089I A04D8834 TYPE = LOGICAL UNIT , ACTIV
IST089I A04D8835 TYPE = LOGICAL UNIT , ACTIV
IST089I A04D8836 TYPE = LOGICAL UNIT , ACT/S
IST089I A04D8837 TYPE = LOGICAL UNIT , ACT/S
IST089I A04P885 TYPE = PU_T2 , ACTIV--L--
IST089I A04P886 TYPE = PU_T2 , ACTIV--L--
IST089I A04D8861 TYPE = LOGICAL UNIT , ACT/S
IST089I A04D8862 TYPE = LOGICAL UNIT , ACT/S
IST089I A04D8863 TYPE = LOGICAL UNIT , ACTIV
IST089I A04D8864 TYPE = LOGICAL UNIT , ACTIV
IST314I END
```

Displaying a channel-attachment major node:

```
d net,id=ctcbc0t3,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = CTCBC0T3 , TYPE = CA MAJOR NODE
IST486I STATUS= ACTIV , DESIRED STATE= ACTIV
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST170I LINES:
IST232I CTCLBC03, ACTIV----E, CUA = BC0
IST314I END
```

Displaying an XCA major node with its subordinate resources:

```
d net,id=xca1a,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = XCA1A, TYPE = XCA MAJOR NODE
IST486I STATUS= ACTIV , DESIRED STATE= ACTIV
IST1021I MEDIUM=RING,ADAPNO= 1,CUA=0500,SNA SAP= 8
IST1885I SIO = 1234 SLOWDOWN = YES
IST1324I VNNAME = NETA.CN1 VNGROUP = GP1A2A
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I XCA1A AC/R 21 NO 902D000000000000000017100808080
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST170I LINES:
IST232I LN1A2A , ACTIV
IST232I LN1A7B , NEVAC
IST232I LN1A9C , NEVAC
IST232I LN1AAA , NEVAC
IST232I LN1ABA , NEVAC
IST232I LN1ACA , NEVAC
IST232I LN1ADA , NEVAC
IST232I LN1AEA , NEVAC
IST314I END
```



Displaying an XCA major node without its subordinate resources:

```
d net,id=x50rbf4a
IST097I DISPLAY ACCEPTED
IST075I NAME = X50RBF4A, TYPE = XCA MAJOR NODE
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST1021I MEDIUM=RING,ADAPNO= 0,CUA=0BF4,SNA SAP= 4
IST1885I SIO = 1234 SLOWDOWN = YES
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST314I END
```

Displaying an XCA major node that defines a native ATM port:

```
d net,id=xcaosa1a,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = XCAOSA1A, TYPE = XCA MAJOR NODE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1557I MEDIUM = ATM, PORT NAME = OSA11
IST1559I ATM ADDRESS                                TYPE      FORMAT
IST1553I 11111111111111111111111111111111111100 LOCAL    NSAP
IST1324I VNNAME = NETA.SSCPVN      VNGROUP = GP1A2AC
IST1559I ATM ADDRESS                                TYPE      FORMAT
IST1553I 2111111111111111111111111111111111110 GATEWAY  NSAP
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I XCAOSA1A AC/R   21 NO   107500000000000000000014C00808080
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST170I LINES:
IST232I LN1A2A  ACTIV
IST232I LNP1A2A1 ACTIV
IST232I LN1A2AC1 ACTIV
IST314I END
```

Displaying an XCA major node group that defines a transmission group (TG) to a native ATM connection network:

```
d net,id=gp1a2ac,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = GP1A2AC, TYPE = LINE GROUP
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST231I XCA MAJOR NODE = XCAOSA1A
IST1485I DLCADDR SUBFIELDS FOR GP1A2AC
IST1318I 1,C'ATMSVCNETA.SSCPVNEXCLUSIVE'
IST1318I 7,BCD'03000000 40000000 40000000 536000'
IST1318I 8,X'0003'
IST1318I 21,X'00022111 11111111 11111111 11111111 11111111 1110'
IST084I NETWORK RESOURCES:
IST089I LN1A2AC1 TYPE = LINE      , ACTIV
IST314I END
```

Displaying an XCA major node that defines Enterprise Extender:

```
d net,id=xcaip,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = XCAIP, TYPE = XCA MAJOR NODE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1679I MEDIUM = HPRIP
IST1685I TCP/IP JOB NAME = ***NA***
IST924I-----
IST1324I VNNAME = IP.VNA      VNGROUP = GPVNA      (LOCAL)
IST1910I LOCAL HOSTNAME NODENAME.NETID.DOMAIN
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I XCAIP  NEV      0 NO   10750000000000000000000014C00808080
IST924I-----
IST1324I VNNAME = IP.VNB      VNGROUP = GPVNB      (GLOBAL)
IST1680I LOCAL IP ADDRESS 223.254.254.252
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
```

## DISPLAY ID

```
IST1106I XCAIP    NEV      0 NO    12750000000000000000000014C00808080
IST924I -----
IST1324I VNNAME = IP.VNC          VNGROUP = GPVNC    (GLOBAL)
IST1910I LOCAL HOSTNAME NODENAME.NETID.REALLYREALLYLONGDOMAIN.COM
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I XCAIP    NEV      0 NO    12B40000000000000000000017100808080
IST924I -----
IST1902I GROUP = GPIPI1
IST1680I LOCAL IP ADDRESS 223.254.254.254
IST924I -----
IST1902I GROUP = GPIPI2
IST1680I LOCAL IP ADDRESS 223.254.254.255
IST924I -----
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST170I LINES:
IST1901I LINES UNDER GROUP: GPVNC
IST232I LNIPC1    NEVAC
IST232I LNIPC2    NEVAC
IST1901I LINES UNDER GROUP: GPVNA
IST232I LNIPA1    NEVAC
IST232I LNIPA2    NEVAC
IST1901I LINES UNDER GROUP: GPVNB
IST232I LNIPB1    NEVAC
IST232I LNIPB2    NEVAC
IST232I LNIPB3    NEVAC
IST1901I LINES UNDER GROUP: GPIPI1
IST232I LNIP1     NEVAC
IST232I LNIP2     NEVAC
IST1901I LINES UNDER GROUP: GPIPI2
IST232I LNIP21    NEVAC
IST232I LNIP22    NEVAC
IST232I LNIP23    NEVAC
IST314I END
```

Displaying a GROUP associated with an XCA major node that defines Enterprise Extender, where the GROUP definition uses only IPADDR to define the IPv4 connection:

```
d net,id=gpip,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = GPIPI, TYPE = LINE GROUP
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST231I XCA MAJOR NODE = XCAIP
IST1680I LOCAL IP ADDRESS 223.254.254.252
IST084I NETWORK RESOURCES:
IST089I LNIP1     TYPE = LINE           , NEVAC
IST089I LNIP2     TYPE = LINE           , NEVAC
IST314I END
```

Displaying a GROUP associated with an XCA major node that defines Enterprise Extender, where the GROUP definition uses HOSTNAME to define the IPv6 connection:

```
d net,id=gpip6v,e
IST097I DISPLAY ACCEPTED
IST075I NAME = GPIPI6V, TYPE = LINE GROUP
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST231I XCA MAJOR NODE = XCAIP1
IST1680I LOCAL IP ADDRESS 9::67:1:1
IST1910I LOCAL HOSTNAME VIPA26.SSCP1A.RALEIGH.IBM.COM
IST084I NETWORK RESOURCES:
IST089I LNGV6000 TYPE = LINE           , NEVAC
IST089I LNGV6001 TYPE = LINE           , NEVAC
IST314I END
```

Displaying an adjacent CP (CDRSC minor node):

```

d net,id=neta.sscp2a,idtype=cp,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.SSCP2A, TYPE = ADJACENT CP
IST1046I SSCP NETA.SSCP2A ALSO EXISTS
IST486I STATUS= ACT/S---Y, DESIRED STATE= ACTIV - TRACE= OFF
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTDGRDY
IST479I CDRM NAME = SSCP1A, VERIFY OWNER = NO
IST1184I CPNAME = NETA.SSCP2A - NETSRVR = ***NA***
IST1044I ALSLIST = ISTAPNPU
IST082I DEVTYPE = INDEPENDENT LU / CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000002
IST206I SESSIONS:
IST1081I ADJACENT LINK STATION = P3A21
IST634I NAME      STATUS      SID          SEND RECV VR TP NETID
IST635I SSCP1A    ACTIV/CP-S  F6ABEEC38077021A 0002 0001 0 0 NETA
IST635I SSCP1A    ACTIV/CP-P  EAABEEC37D76FABF 0001 0002 0 0 NETA
IST314I END

```

Displaying a dependent LU requester:

```

d net,id=nncpa1,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.NNCPA1, TYPE = ADJACENT CP
IST486I STATUS= ACT/S---Y, DESIRED STATE= ACTIV
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=CPSVCMG USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTDGRDY
IST1044I ALSLIST = ISTAPNPU
IST1131 DEVICE = ILU/CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST228I ENCRYPTION = OPT, TYPE = TDES24
IST1563I CKEYNAME = NNCPA1 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000004, SESSION REQUESTS = 0000000004
IST206I SESSIONS:
IST1081I ADJACENT LINK STATION = P3A4956K
IST634I NAME      STATUS      SID          SEND RECV VR TP NETID
IST635I SSCP1A    ACTIV/DL-S  E2C5E2E2D6D5000B 001C 0000 0 0 NETA
IST635I SSCP1A    ACTIV/CP-S  E2C5E2E2D6D50005 0004 0001 0 0 NETA
IST635I SSCP1A    ACTIV/DL-P  EAABEEC3361D945A 0000 0012 0 0 NETA
IST635I SSCP1A    ACTIV/CP-P  EAABEEC3361D945B 0001 0005 0 0 NETA
IST1355I PHYSICAL UNITS SUPPORTED BY DLUR NETA.NNCPA1
IST089I AA1PUA   TYPE = PU_T2          , ACTIV
IST089I AA1PUB   TYPE = PU_T2          , ACTIV
IST924I -----
IST075I NAME = NETA.NNCPA1, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = DYNAMIC NN
IST1184I CPNAME = NETA.NNCPA1 - NETSRVR = ***NA***
IST314I END

```

Displaying an SSCP (CDRM minor node) with virtual-route-based transmission group support:

```

d net,id=neta.sscp2a,idtype=sscp,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.SSCP2A, TYPE = CDRM
IST1046I CP NETA.SSCP2A ALSO EXISTS

```

## DISPLAY ID

```
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST815I AUTOMATIC RECOVERY IS SUPPORTED
IST231I CDRM MAJOR NODE = CDRM1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST476I CDRM TYPE = EXTERNAL
IST637I SUBAREA= 2  ELEMENT= 1 SSCPID = 2
IST675I VR = 0, TP = 0
IST389I PREDEFINITION OF CDRSC = OPT
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I SSCP2A  AC/R  255 YES  982D0000000000000000000017100808080
IST636I CDRSCS OWNED BY SSCP2A  -
IST080I L4A3278A ACTIV      L4A3279A ACTIV      L4A3767D ACTIV
IST080I L4A3278B ACTIV      L4A3279B ACTIV      L4A3287B ACTIV
IST080I L4A3767E ACTIV      L4A4956D ACTIV      L4A4956E ACTIV
IST080I L4A4956F ACTIV      NETAPPL1 ACTIV      NETAPPL2 ACTIV
IST080I NETAPPL3 ACTIV      NETAPPL4 ACTIV      APLMDSSEC ACTIV
IST080I TS02      ACTIV
IST314I END
```

Displaying an SSCP (CDRM) and adjacent CP (CDRSC) with the same name from a network node:

```
d net,id=sscp2a,scope=all
```

```
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.SSCP2A, TYPE = CDRM
IST1046I CP NETA.SSCP2A ALSO EXISTS
IST486I STATUS= NEVAC, DESIRED STATE= INACT - TRACE= OFF
IST815I AUTOMATIC RECOVERY IS SUPPORTED
IST231I CDRM MAJOR NODE = CDRM1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST476I CDRM TYPE = EXTERNAL
IST637I SUBAREA= 2  ELEMENT= 1 SSCPID = 2
IST389I PREDEFINITION OF CDRSC = OPT
IST636I CDRSCS OWNED BY SSCP2A  -
IST080I NETAPPL1 PNF/S
IST924I -----
IST075I NAME = NETA.SSCP2A, TYPE = ADJACENT CP
IST1046I SSCP NETA.SSCP2A ALSO EXISTS
IST486I STATUS= ACT/S----Y, DESIRED STATE= ACTIV - TRACE= OFF
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTCDRDY
IST479I CDRM NAME = SSCP1A, VERIFY OWNER = NO
IST1184I CPNAME = NETA.SSCP2A - NETSRVR = ***NA***
IST1044I ALSLIST = ISTAPNPU
IST082I DEVTYPE = INDEPENDENT LU / CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000002
IST206I SESSIONS:
IST1081I ADJACENT LINK STATION = P3A21
IST634I NAME      STATUS      SID      SEND RECV VR TP NETID
IST635I SSCP1A  ACTIV/CP-S F6ABEEC38077021A 0006 0001 0 0 NETA
IST635I SSCP1A  ACTIV/CP-P EAABEEC37D76FABF 0001 0006 0 0 NETA
IST924I -----
IST075I NAME = NETA.SSCP2A, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = DYNAMIC NN
IST1184I CPNAME = NETA.SSCP2A - NETSRVR = ***NA***
IST314I END
```

Displaying an SSCP (CDRM) and a host CP (application) with the same name:

```

d net,id=neta.sscp1a,idtype=resource,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.SSCP1A, TYPE = CDRM
IST1046I CP NETA.SSCP1A ALSO EXISTS
IST486I STATUS= ACTIV , DESIRED STATE= ACTIV
IST815I AUTOMATIC RECOVERY IS SUPPORTED
IST231I CDRM MAJOR NODE = VTAMSEG
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST476I CDRM TYPE = HOST, GATEWAY CAPABLE
IST637I SUBAREA= 2 ELEMENT= 1 SSCPID = 2
IST388I DYNAMIC CDRSC DEFINITION SUPPORT = YES
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST172I NO SESSIONS EXIST
IST924I -----
IST075I NAME = NETA.SSCP1A, TYPE = HOST CP
IST1046I SSCP NETA.SSCP1A ALSO EXISTS
IST486I STATUS= ACT/S , DESIRED STATE= ACTIV
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I APPL MAJOR NODE = VTAMSEG
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST271I JOBNAME = VTAM , STEPNAME = VTAM , DSPNAME = 0AAAIBIST
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = SSCP1A CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST171I ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST634I NAME STATUS SID SEND RECV VR TP NETID
IST635I SSCP2A ACTIV/CP-S EAABEEC3F11FF31F 0002 0001 NETA
IST635I SSCP2A ACTIV/CP-P F6ABEEC3F4203D93 0001 0002 NETA
IST314I END

```

Displaying the host (this command works for any host). This display shows an interchange node:

```

d net,id=vtam
IST097I DISPLAY ACCEPTED
IST075I NAME = VTAM, TYPE = CDRM
IST1046I CP NETA.SSCP1A ALSO EXISTS
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST599I REAL NAME = NETA.SSCP1A
IST815I AUTOMATIC RECOVERY IS SUPPORTED
IST231I CDRM MAJOR NODE = VTAMSEG
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST2159I XCF GROUP = ISTXCF11 CFS GROUP = ISTDIFS11
IST2181I GR STRUCTURE NAME IS ISTGENERIC11
IST2181I MNPS STRUCTURE NAME IS ISTMNPS11
IST476I CDRM TYPE = HOST GATEWAY CAPABLE
IST637I SUBAREA = 1 ELEMENT = 1 SSCPID = 1
IST388I DYNAMIC CDRSC DEFINITION SUPPORT = YES
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST924I -----
IST075I NAME = NETA.SSCP1A, TYPE = HOST CP
IST1046I SSCP NETA.SSCP1A ALSO EXISTS
IST486I STATUS= ACT/S, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = NO
IST1501I XCF TOKEN = 010000B7000F0001
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1632I VPACING = 63
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I APPL MAJOR NODE = VTAMSEG

```

## DISPLAY ID

```
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST271I JOBNAME = VTAM550T, STEPNAME = NET, DSPNAME = ISTEAF13
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = SSCP1A CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST1633I ASRCVLM = 1999999
IST1634I DATA SPACE USAGE: CURRENT = 0 MAXIMUM = 272
IST171I ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000000
IST314I END
```

Displaying a CDRSC (no SSCP, adjacent CP, or host CP was found with this name) from a network node:

```
d net, id=neta.netappl1, idtype=resource, scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.NETAPPL1, TYPE = CDRSC
IST486I STATUS= ACT/S, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = CDRSC1A
IST479I CDRM NAME = SSCP2A, VERIFY OWNER = NO
IST1184I CPNAME = NETA.SSCP2A - NETSRVR = ***NA***
IST1044I ALSLIST = ISTAPNPU
IST082I DEVTYPE = INDEPENDENT LU / CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = NETAPPL1 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST1081I ADJACENT LINK STATION = P3A21
IST634I NAME      STATUS      SID          SEND RECV VR TP NETID
IST635I APPL1    ACTIV-P    EAABEEC356FA371B 0000 0000 0 0 NETA
IST924I -----
IST075I NAME = NETA.NETAPPL1, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = DYNAMIC LU
IST1184I CPNAME = NETA.SSCP2A - NETSRVR = ***NA***
IST484I SUBAREA = 2
IST1703I DESIRED LOCATE SIZE = 1K LAST LOCATE SIZE = 16K
IST314I END
```

Displaying directory information for a resource (no SSCP, adjacent CP, host CP, or other resource was found with this name) and the command was issued at a network node or interchange node:

```
d net, id=neta.lu71, idtype=resource, scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.LU71, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = DYNAMIC LU
IST1184I CPNAME = NETA.NN3 - NETSRVR = ***NA***
IST484I SUBAREA = ****NA****
IST1703I DESIRED LOCATE SIZE = 1K LAST LOCATE SIZE = 16K
IST314I END
```

Displaying only directory information for a resource:

```

d net,id=sscp2a,idtype=directry,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.SSCP2A, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = DYNAMIC NN
IST1184I CPNAME = NETA.SSCP2A - NETSRVR = ***NA***
IST314I END

```

Displaying a conventionally defined application program:

```

d net,id=appl1,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.APPL1, TYPE = APPL
IST486I STATUS= ACT/S, DESIRED STATE= ACTIV - TRACE= OFF
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1632I VPACING = 7
IST1938I APPC = YES
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I APPL MAJOR NODE = APPL1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST271I JOBNAME = ECHO, STEPNAME = ECHO, DSPNAME = IST6D2D6
IST228I ENCRYPTION = OPTIONAL, TYPE = DES
IST1563I CKEYNAME = APPL1 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST1633I ASRCVLM = 2000000
IST1634I DATA SPACE USAGE: CURRENT = 0 MAXIMUM = 0
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000001
IST206I SESSIONS:
IST634I NAME STATUS SID SEND RECV VR TP NETID
IST635I NETAPPL1 ACTIV-S EAABEEC37D76FAC1 0000 0000 0 0 NETA
IST314I END

```

Displaying an application program that is multinode persistent session (MNPS) capable:

```

d net,id=mapp1,e
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.MAPPL1, TYPE = DYNAMIC APPL
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = CDSERVR
IST1550I MNPS STATE = DISABLED
IST2062I SNPS FORCED TAKEOVER REQUESTS ARE ACCEPTABLE
IST1629I MODSRCH = NEVER
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1632I VPACING = 7
IST1938I APPC = NO
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I APPL MAJOR NODE = APPLANY
IST1425I DEFINED USING MODEL MAPPL*
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST271I JOBNAME = ECHO, STEPNAME = ECHO, DSPNAME = ISTBFA93
IST228I ENCRYPTION = OPTIONAL , TYPE = DES
IST1563I CKEYNAME = MAPPL1 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST1633I ASRCVLM = 1000000
IST1634I DATA SPACE USAGE: CURRENT = 0 MAXIMUM = 0
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST172I NO SESSIONS EXIST
IST314I END

```

## DISPLAY ID

Displaying an application program that is single node persistent session (SNPS) capable:

```
d net,id=appl1,e
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.APPL1, TYPE = APPL
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = CDSERVR
IST2062I SNPS FORCED TAKEOVER REQUESTS ARE ACCEPTABLE
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1632I VPACING = 7
IST1938I APPC = NO
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I APPL MAJOR NODE = APPL1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST271I JOBNAME = ECHO, STEPNAME = ECHO, DSPNAME = IST4915A
IST228I ENCRYPTION = OPTIONAL , TYPE = DES
IST1563I CKEYNAME = APPL1 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST1633I ASRCVLM = 1000000
IST1634I DATA SPACE USAGE: CURRENT = 0 MAXIMUM = 0
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST172I NO SESSIONS EXIST
IST314I END
```

Displaying a model application program:

```
d net,id=appl*,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.APPL*, TYPE = MODEL APPL
IST486I STATUS= CONCT, DESIRED STATE= CONCT - TRACE= OFF
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1938I APPC = NO
IST597I CAPABILITY-PLU INHIBITED,SLU INHIBITED,SESSION LIMIT NON
IST231I APPL MAJOR NODE = APPL1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST271I JOBNAME = ***NA***, STEPNAME = ***NA***, DSPNAME = ***NA
IST228I ENCRYPTION = OPTIONAL, TYPE = DES
IST1563I CKEYNAME = APPL* CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST1424I APPLICATIONS DEFINED USING THIS MODEL:
IST080I APPL1 ACTIV
IST314I END
```

Displaying a multinode persistent session application program from a remote node connected to the MNPS coupling facility structure might result in any of the following output:

```
d net,id=mapplx1,e
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.MAPPLX1, TYPE = APPL
IST1549I OWNER = NETA.SSCP2A MNPS STATE = DISABLED
IST2062I MNPS FORCED TAKEOVER REQUESTS ARE ACCEPTABLE
IST924I -----
IST075I NAME = NETA.MAPPLX1, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = REGISTERED LU
IST1184I CPNAME = NETA.SSCP1A - NETSRVR = NETA.SSCPAA
IST314I END
```



```

d net,id=maplx1,e
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.MAPPLX1, TYPE = CDRSC
IST486I STATUS= ACT/S----Y, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTDGRDY
IST479I CDRM NAME = SSCPAA, VERIFY OWNER = NO
IST1184I CPNAME = NETA.SSCP2A - NETSRVR = ***NA***
IST082I DEVTYPE = INDEPENDENT LU / CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = MAPPLX1 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST1081I ADJACENT LINK STATION = CNR00005
IST634I NAME STATUS SID SEND RECV VR TP NETID
IST635I APPLA1 ACTIV-P EAABEE185A59FD67 0000 0000 0 0 NETA
IST924I -----
IST075I NAME = NETA.MAPPLX1, TYPE = APPL
IST1549I OWNER = NETA.SSCP2A MNPS STATE = ENABLED
IST2062I MNPS FORCED TAKEOVER REQUESTS ARE ACCEPTABLE
IST924I -----
IST075I NAME = NETA.MAPPLX1, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = DYNAMIC LU
IST1184I CPNAME = NETA.SSCP2A - NETSRVR = ***NA***
IST314I END

```

```

d net,id=mappl1,e
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.MAPPL1, TYPE = CDRSC
IST486I STATUS= ACT/S----Y, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTDGRDY
IST479I CDRM NAME = SSCP1A, VERIFY OWNER = NO
IST1184I CPNAME = NETA.SSCP2A - NETSRVR = ***NA***
IST082I DEVTYPE = INDEPENDENT LU / CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = MAPPL1 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST1081I ADJACENT LINK STATION = CNR00003
IST634I NAME STATUS SID SEND RECV VR TP NETID
IST635I APPL1 ACTIV-P EAABEEC30C061090 0000 0000 0 0 NETA
IST924I -----
IST075I NAME = NETA.MAPPL1, TYPE = APPL
IST1549I OWNER = NETA.SSCP2A MNPS STATE = DISABLED
IST2062I MNPS FORCED TAKEOVER REQUESTS ARE ACCEPTABLE
IST314I END

```

```

d net,id=maplx1,e
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.MAPPLX1, TYPE = APPL
IST486I STATUS= CONCT, DESIRED STATE= CONCT

```

## DISPLAY ID

```
IST1447I REGISTRATION TYPE = CDSERVR
IST1550I MNPS STATE = DEFINED
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1632I VPACING = 7
IST1938I APPC = YES
IST597I CAPABILITY-PLU INHIBITED,SLU INHIBITED,SESSION LIMIT NONE
IST231I APPL MAJOR NODE = APPLMG2
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST271I JOBNAME = ***NA***, STEPNAME = ***NA***, DSPNAME = ***NA***
IST228I ENCRYPTION = OPTIONAL, TYPE = DES
IST1563I CKEYNAME = MAPPLX1 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST1633I ASRCVLM = 1000000
IST1634I DATA SPACE USAGE: CURRENT = ***NA*** MAXIMUM = ***NA***
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST172I NO SESSIONS EXIST
IST924I -----
IST075I NAME = NETA.MAPPLX1, TYPE = APPL
IST1549I OWNER = NETA.SSCP1A MNPS STATE = DISABLED
IST2062I MNPS FORCED TAKEOVER REQUESTS ARE ACCEPTABLE
IST314I END
```

Displaying a dynamic application program:

```
d net,id=appl1,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.APPL1, TYPE = DYNAMIC APPL
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV - TRACE= OFF
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1632I VPACING = 7
IST1938I APPC = NO
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NON
IST231I APPL MAJOR NODE = APPL1A
IST1425I DEFINED USING MODEL APPL*
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST271I JOBNAME = ECHO, STEPNAME = ECHO, DSPNAME = IST75874
IST228I ENCRYPTION = OPTIONAL, TYPE = DES
IST1563I CKEYNAME = APPL1 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST1633I ASRCVLM = 2000000
IST1634I DATA SPACE USAGE: CURRENT = 0 MAXIMUM = 0
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000
IST314I END
```

Displaying the application program representing the network operator:

```
d net,id=istnop
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.ISTNOP, TYPE = APPL
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV - TRACE= OFF
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1395I FLDTAB = ISTMSFLD FILTER = ISTMGC10
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1938I APPC = NO
IST597I CAPABILITY-PLU INHIBITED,SLU INHIBITED,SESSION LIMIT NONE
IST231I APPL MAJOR NODE = VTAMSEG
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
```

```

IST271I JOBNAME = ***NA***, STEPNAME = ***NA***, DSPNAME = ***NA***
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = ISTNOP CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST314I END

```

Displaying a dynamic same-network CDRSC:

```

d net, id=applaa3, scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.APPLAA3, TYPE = CDRSC
IST486I STATUS= ACTIV---Y, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTCDRDY
IST479I CDRM NAME = ***NA***, VERIFY OWNER = NO
IST1184I CPNAME = NETA.SSCPAA - NETSRVR = ***NA***
IST082I DEVTYPE = CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = APPLAA3 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST314I END

```

Displaying a dynamic cross-network CDRSC:

```

d net, id=netb.applb11, scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETB.APPLB11, TYPE = CDRSC
IST486I STATUS= ACT/S---Y, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTCDRDY
IST479I CDRM NAME = SSCP7B, VERIFY OWNER = NO
IST1184I CPNAME = NETB.SSCP7B - NETSRVR = ***NA***
IST082I DEVTYPE = CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = APPLB11 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST634I NAME      STATUS      SID          SEND RECV VR TP NETID
IST635I APPL1    ACTIV-S    C2BB19BC74339803 0016 0016 0 0 NETA
IST635I APPL1    ACTIV-P    EAABEEC34604F7E2 0009 000A 0 0 NETA
IST314I END

```

Displaying a predefined CDRSC for a specific network:

```

d net, id=applb11, netid=netb, scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = APPLB11, TYPE = CDRSC
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***

```

## DISPLAY ID

```
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = CDRSC1A
IST479I CDRM NAME = SSCP7B, VERIFY OWNER = NO
IST082I DEVTYPE = CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = APPLB11 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST314I END
```

Displaying a predefined CDRSC without network (no sessions):

**d net,id=netappl2,scope=all**

```
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.NETAPPL2, TYPE = CDRSC
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV - TRACE= OFF
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = CDRSC1A
IST479I CDRM NAME = SSCP2A, VERIFY OWNER = NO
IST082I DEVTYPE = CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST314I END
```

Displaying a model CDRSC:

**d net,id=applb\*,e**

```
IST097I DISPLAY ACCEPTED
IST075I NAME = NETB.APPLB*, TYPE = MODEL CDRSC
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = CDRSC1A
IST2095I MODEL CDRSC DELETE = YES
IST479I CDRM NAME = SSCP7B, VERIFY OWNER = NO
IST082I DEVTYPE = CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST228I ENCRYPTION = NONE , TYPE = DES
IST1563I CKEYNAME = APPLB11 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST2088I CDRSCS DEFINED USING THIS MODEL:
IST483I APPLB11 ACTIV , CDRM = SSCP7B , NETID = NETB
IST483I APPLB12 ACTIV , CDRM = SSCP7B , NETID = NETB
IST314I END
```

Displaying a clone CDRSC:

**d net,id=applb11**

```
IST097I DISPLAY ACCEPTED
IST075I NAME = NETB.APPLB11, TYPE = CLONE CDRSC
IST486I STATUS= ACT/S, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
```

```

IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = CDRSC1A
IST1425I DEFINED USING MODEL NETB.APPLB*
IST2095I MODEL CDRSC DELETE = YES
IST479I CDRM NAME = SSCP7B, VERIFY OWNER = NO
IST082I DEVTYPE = CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST228I ENCRYPTION = NONE , TYPE = DES
IST1563I CKEYNAME = APPLB11 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000000
IST314I END

```

Displaying a CDRSC for a TN3270 or TN3270E client:

```

d net,id=tcpm1011,e
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.TCPM1011, TYPE = CDRSC
IST486I STATUS= ACT/S----Y, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTCDRDY
IST479I CDRM NAME = SSCP1A, VERIFY OWNER = NO
IST1184I CPNAME = NETA.SSCP1A - NETSRVR = ***NA***
IST082I DEVTYPE = CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST228I ENCRYPTION = NONE , TYPE = DES
IST1563I CKEYNAME = TCPM1011 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1727I DNS NAME: VIC127.TCP.RALEIGH.IBM.COM
IST1669I IPADDR..PORT 9.67.113.83..1027
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST634I NAME STATUS SID SEND RECV VR TP NETID
IST635I TS020001 ACTIV-P F6ABEEC39DE3E239 0008 0010 0 0 NETA
IST314I END

```

Displaying a CDRSC that is associated with an IPv6 TN3270 client:

```

d net,id=tcpm2012,e
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.TCPM2012, TYPE = CDRSC
IST486I STATUS= ACT/S----Y, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTCDRDY
IST479I CDRM NAME = SSCP1A, VERIFY OWNER = NO
IST1184I CPNAME = NETA.SSCP1A - NETSRVR = ***NA***
IST1131I DEVICE = CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST228I ENCRYPTION = NONE , TYPE = DES
IST1563I CKEYNAME = TCPM2012 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1669I IPADDR..PORT 2001:0DB8::9:67:115:17..1026
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000000

```

## DISPLAY ID

```
IST206I SESSIONS:
IST634I NAME      STATUS      SID          SEND RECVR TP NET
IST635I TS020002  ACTIV-P    F6ABEEC34C26E9F3 0003 000D  0  0 NET
IST314I END
```

Displaying an independent logical unit:

```
d net,id=13270a,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = L3270A, TYPE = CDRSC
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST599I REAL NAME = ****NA***
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=****NA*** ASLTAB=****NA***
IST1333I ADJLIST = ****NA***
IST861I MODETAB=****NA*** USSTAB=****NA*** LOGTAB=****NA***
IST934I DLOGMOD=****NA*** USS LANGTAB=****NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTPDILU
IST1044I ALSLIST = AHHCPU1
IST082I DEVTYPE = INDEPENDENT LU / CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = L3270A CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST172I NO SESSIONS EXIST
IST924I -----
IST075I NAME = NETA.L3270A, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = REGISTERED LU
IST1184I CPNAME = NETA.SSCP2A - NETSRVR = NETA.SSCP1A
IST484I SUBAREA = ****NA****
IST1703I DESIRED LOCATE SIZE = 1K LAST LOCATE SIZE = 1K
IST314I END
```

Displaying the host CDRM:

```
d net,id=a01n,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.A01N, TYPE = CDRM
IST1046I CP NETA.A01N ALSO EXISTS
IST486I STATUS= ACTIV , DESIRED STATE= ACTIV
IST815I AUTOMATIC RECOVERY IS SUPPORTED
IST231I CDRM MAJOR NODE = VTAMSEG
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST476I CDRM TYPE = HOST, GATEWAY CAPABLE
IST637I SUBAREA= 2 ELEMENT= 1 SSCPID = 2
IST388I DYNAMIC CDRSC DEFINITION SUPPORT = YES
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST172I NO SESSIONS EXIST
IST924I -----
IST075I NAME = NETA.A01N, TYPE = HOST CP
IST1046I SSCP NETA.A01N ALSO EXISTS
IST486I STATUS= ACT/S , DESIRED STATE= ACTIV
IST977I MDLTAB=****NA*** ASLTAB=****NA***
IST861I MODETAB=****NA*** USSTAB=****NA*** LOGTAB=****NA***
IST934I DLOGMOD=****NA*** USS LANGTAB=****NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I APPL MAJOR NODE = VTAMSEG
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST271I JOBNAME = NET41B , STEPNAME = NET , DSPNAME = 00000IST
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST171I ACTIVE SESSIONS = 0000000014, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST634I NAME      STATUS      SID          SEND RECVR TP NETID
IST635I A04P882A  ACTIV/CP-S E7F3895623BE5C86 000D 0001  0  0 NETY
IST635I A04P888A  ACTIV/CP-S E7F3895623BE5C85 053E 0001  0  0 NETA
```

```

IST635I A04P886A ACTIV/CP-S E7F3895623BE5C84 0721 0001 0 0 NETA
IST635I A04P885A ACTIV/CP-S E7F3895623BE5C83 03AE 0001 0 0 NETA
IST635I A04P889A ACTIV/CP-S E7F3895623BE5C82 0727 0001 0 0 NETA
IST635I A04P883A ACTIV/CP-S E7F3895623BE5C81 01C5 0001 0 0 NETZ
IST635I A02N ACTIV/CP-S E7F3895623BE56A5 1055 0001 0 0 NETA
IST635I A02N ACTIV/CP-P E7E3F9563F1747D7 0001 1047 0 0 NETA
IST635I A04P882A ACTIV/CP-P F3342BAB9019C2B2 0001 000E 0 0 NETY
IST635I A04P883A ACTIV/CP-P E36D478882B602AB 0001 01C6 0 0 NETZ
IST635I A04P885A ACTIV/CP-P EF0E04F6C768DD2E 0001 03AF 0 0 NETA
IST635I A04P886A ACTIV/CP-P EF0E07F6C768E02F 0001 0722 0 0 NETA
IST635I A04P888A ACTIV/CP-P EF0E09F6C768E230 0001 053F 0 0 NETA
IST635I A04P889A ACTIV/CP-P EF0E08F6C768E131 0001 0728 0 0 NETA
IST314I END

```

Displaying an active, same-network, external CDRM:

```

d net, id=A02n, scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.A02N, TYPE = CDRM
IST1046I CP NETA.A02N ALSO EXISTS
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST815I AUTOMATIC RECOVERY IS SUPPORTED
IST231I CDRM MAJOR NODE = A01CDRMC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST476I CDRM TYPE = EXTERNAL
IST637I SUBAREA= 2 ELEMENT= 1 SSCPID = 2
IST675I VR=0, TP=0
IST389I PREDEFINITION OF CDRSC = OPT
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I A02N AC/R 255 YES 982D0000000000000000000017100808080
IST1482I HPR= NO - OVERRIDE = YES - CONNECTION = YES
IST636I CDRSCS OWNED BY A02N -
IST172I NO CDRSCS EXIST
IST924I -----
IST075I NAME = NETA.A02N, TYPE = ADJACENT CP
IST1046I SSCP NETA.A02N ALSO EXISTS
IST486I STATUS= ACT/S----Y, DESIRED STATE= ACTIV
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTCDRDY
IST479I CDRM NAME = A01N , VERIFY OWNER = NO
IST1044I ALSLIST = ISTAPNPU
IST082I DEVTYPE = INDEPENDENT LU / CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST1081I ADJACENT LINK STATION = A02NETNA
IST634I NAME STATUS SID SEND RECV VR TP NETID
IST635I A01N ACTIV/CP-S E7E3F9563F1747D7 1055 0001 0 0 NETA
IST635I A01N ACTIV/CP-P E7F3895623BE56A5 0001 105F 0 0 NETA
IST924I -----
IST075I NAME = NETA.A02N, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = DYNAMIC NN
IST1184I CPNAME = NETA.A02N - NETSRVR = ***NA***
IST314I END

```

Displaying a cross-network external CDRM:

```

d net, id=c01n, scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETC.C01N, TYPE = CDRM
IST486I STATUS= ACTIV , DESIRED STATE= ACTIV
IST815I AUTOMATIC RECOVERY IS SUPPORTED
IST231I CDRM MAJOR NODE = A50CDRMC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF

```

## DISPLAY ID

```
IST476I CDRM TYPE = EXTERNAL
IST637I SUBAREA= 2 ELEMENT= 1 SSCPID = 2
IST675I VR = 0, TP = 2
IST638I ADJNETSA = 1, ADJNETEL = 1
IST675I VR = 0, TP = 2
IST639I GWN = A0362ZC , ADJNET = NETC
IST640I A500N ADDR IN ADJNET - SA = 31, EL = 11
IST641I GATEWAY PATH SELECTION LIST -
IST642I ADJNET GWN SUBAREA ELEM ADJNETSA ADJNETEL
IST643I NETC A0362ZC 3 1 1 1
IST643I NETC 255 3 1 1
IST898I GWSELECT = YES
IST389I PREDEFINITION OF CDRSC = OPT
IST636I CDRSCS OWNED BY C01N -
IST080I C01NVLUC ACT/S----Y
IST924I -----
IST075I NAME = NETC.C01N, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = DYNAMIC EN
IST1184I CPNAME = NETC.C01N - NETSRVR = NETA.A01N
IST314I END
```

Displaying a peripheral BSC line group:

```
d net, id=a031bnnb, scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A03LBNNB , TYPE = LINE GROUP
IST486I STATUS= ACTIV , DESIRED STATE= ACTIV
IST354I PU T4/5 MAJOR NODE = A0362ZC
IST084I NETWORK NODES:
IST089I A03B00 TYPE = LINE , NEVAC
IST089I A03C001 TYPE = PU_T2 , NEVAC
IST089I A03C002 TYPE = PU_T2 , NEVAC
IST089I A03B01 TYPE = LINE , NEVAC
IST089I A03C011 TYPE = PU_T2 , NEVAC
IST089I A03C012 TYPE = PU_T2 , NEVAC
IST089I A03B32 TYPE = LINE , NEVAC
IST089I A03C321 TYPE = PU_T2 , NEVAC
IST089I A03C322 TYPE = PU_T2 , NEVAC
IST089I A03B33 TYPE = LINE , NEVAC
IST089I A03C331 TYPE = PU_T2 , NEVAC
IST089I A03C332 TYPE = PU_T2 , NEVAC
IST314I END
```

Displaying a peripheral SDLC line group:

```
d net, id=a031bnns, scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A03LBNNS , TYPE = LINE GROUP
IST486I STATUS= ACTIV , DESIRED STATE= ACTIV
IST354I PU T4/5 MAJOR NODE = A0362ZC
IST084I NETWORK NODES:
IST089I A03S16 TYPE = LINE , ACTIV
IST089I A03P161 TYPE = PU_T2 , PREQC
IST089I A03P162 TYPE = PU_T2 , PREQC
IST089I A03P163 TYPE = PU_T2 , PREQC
IST089I A03P164 TYPE = PU_T2 , PREQC
IST089I A03S20 TYPE = LINE , ACTIV
IST075I NAME = A03LBNNS , TYPE = LINE GROUP
IST089I A03P201 TYPE = PU_T2 , PREQC
IST089I A03P202 TYPE = PU_T2 , PREQC
IST089I A03P203 TYPE = PU_T2 , PREQC
IST089I A03P204 TYPE = PU_T2 , PREQC
IST089I A03P205 TYPE = PU_T2 , PREQC
IST089I A03P206 TYPE = PU_T2 , PREQC
IST314I END
```

Displaying a peripheral SDLC switched line group:



```

d net,id=grp3a9,scope=a11
IST097I DISPLAY ACCEPTED
IST075I NAME = GRP3A9, TYPE = LINE GROUP
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST354I PU T4/5 MAJOR NODE = NCP3AB5
IST084I NETWORK NODES:
IST089I LN3A9      TYPE = LINE           , ACTIV
IST089I P3A4956K TYPE = PU_T2          , ACTIV--L--
IST089I L3A4956A TYPE = LOGICAL UNIT   , ACT/S
IST089I LN3A10    TYPE = LINE           , ACTIV
IST089I P3A4956L TYPE = PU_T2          , ACTIV--L--
IST089I L3A4956A TYPE = LOGICAL UNIT   , ACT/S
IST089I LN3A11    TYPE = LINE           , ACTIV
IST089I P3A4956M TYPE = PU_T2          , NEVAC
IST314I END

```

**Note:** Independent LU L3A4956A is shown under two PUs because it has active sessions through these PUs.

Displaying a peripheral BSC link:

```

d net,id=a03b00,scope=a11
IST097I DISPLAY ACCEPTED
IST075I NAME = A03B00      , TYPE = LINE
IST486I STATUS= NEVAC     , DESIRED STATE= INACT
IST087I TYPE = LEASED     , CONTROL = BSC , HPDT = *NA*
IST134I GROUP = A03LBNNB, MAJOR NODE = A0362ZC
IST650I POLL = 000, NEGPOLL = 010, SESSION(S) = 032
IST084I NETWORK NODES:
IST089I A03C001  TYPE = PU_T2          , NEVAC
IST089I A03T0011 TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T0012 TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T0013 TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T0014 TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T0015 TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T0016 TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T0017 TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T0018 TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T0019 TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T001A TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T001B TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T001C TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T001D TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T001E TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T001F TYPE = LOGICAL UNIT   , NEVAC
IST089I A03C002  TYPE = PU_T2          , NEVAC
IST089I A03T0021 TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T0022 TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T0023 TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T0024 TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T0025 TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T0026 TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T0027 TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T0028 TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T0029 TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T002A TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T002B TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T002C TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T002D TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T002E TYPE = LOGICAL UNIT   , NEVAC
IST089I A03T002F TYPE = LOGICAL UNIT   , NEVAC
IST314I END

```

Displaying an SDLC link (multidrop INN):

## DISPLAY ID

```
d net,id=a04in01,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A04IN01, TYPE = LINE
IST486I STATUS= ACTIV----E , DESIRED STATE = ACTIV
IST087I TYPE = LEASED , CONTROL = SDLC, HPDT = *NA*
IST134I GROUP = A04MPRI, MAJOR NODE = A04N43A
IST084I NETWORK NODES:
IST089I A04P013 TYPE = PU_T2 , NEVAC
IST089I A04L013A TYPE = LOGICAL UNIT , NEVAC
IST089I A04L013B TYPE = LOGICAL UNIT , NEVAC
IST089I A04L013C TYPE = LOGICAL UNIT , NEVAC
IST089I A04L013D TYPE = LOGICAL UNIT , NEVAC
IST089I A04L013E TYPE = LOGICAL UNIT , NEVAC
IST089I A04L013F TYPE = LOGICAL UNIT , NEVAC
IST089I A04L013G TYPE = LOGICAL UNIT , NEVAC
IST089I A04L013H TYPE = LOGICAL UNIT , NEVAC
IST089I A04L013I TYPE = LOGICAL UNIT , NEVAC
IST089I A04L013J TYPE = LOGICAL UNIT , NEVAC
IST089I A04L013K TYPE = LOGICAL UNIT , NEVAC
IST089I A04L013L TYPE = LOGICAL UNIT , NEVAC
IST089I A04L013M TYPE = LOGICAL UNIT , NEVAC
IST089I A04L013N TYPE = LOGICAL UNIT , NEVAC
IST089I A04L013O TYPE = LOGICAL UNIT , NEVAC
IST089I A04I013A TYPE = LOGICAL UNIT , NEVAC
IST089I A04I013B TYPE = LOGICAL UNIT , NEVAC
IST089I A04I013C TYPE = LOGICAL UNIT , NEVAC
IST089I A04I013D TYPE = LOGICAL UNIT , NEVAC
IST089I A04I013E TYPE = LOGICAL UNIT , NEVAC
IST396I LNKSTA STATUS CTG GTG ADJNODE ADJSA NETID ADJLS
IST397I A04P014 NEVAC 2 2 0
IST397I A04P015 NEVAC 2 2 0
IST397I A04P016 NEVAC 2 2 0
IST397I A04P017 ACTIV----E 2 2 A31N52B 31
IST397I A04P018 ACTIV----E 2 2 A71N43A 71
IST397I A04P019 NEVAC 2 2 0
IST397I A04P01A NEVAC 2 2 0
IST397I A04P01B NEVAC 2 2 0
IST397I A04P01C NEVAC 2 2 0
IST314I END
```

Displaying a peripheral SDLC link:

```
d net,id=ln3atr10,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = LN3ATR10, TYPE = LINE
IST486I STATUS= ACTIV , DESIRED STATE= ACTIV
IST087I TYPE = LEASED , CONTROL = SDLC, HPDT = *NA*
IST1440I USE = NCP, SPARE RESOURCE, CAN BE REDEFINED
IST134I GROUP = GP3ATRP1, MAJOR NODE = NCP3AB7
IST1324I VNNAME = NETA.VN1 VNGROUP = GP3ATR10
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I LN3ATR10 AC/R 21 NO 9075000000000000000017100808080
IST084I NETWORK NODES:
IST089I P3ATR10 TYPE = PU_T2 , ACTIV
IST314I END
```

Displaying a cross-subarea SDLC switched link:

```
d net,id=a04hdx00,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A04HDX00, TYPE = LINE
IST486I STATUS= ACTIV , DESIRED STATE = ACTIV
IST087I TYPE = SWITCHED DIAL-INOUT, CONTROL = SDLC, HPDT = *NA*
IST936I ANSWER MODE = ENABLED
IST134I GROUP = A04SADG1, MAJOR NODE = A04S43A
IST084I NETWORK NODES:
IST089I A31A TYPE = LINK STATION , ACTIV
IST314I END
```

Displaying a peripheral SDLC switched link:

```
d net,id=j0004001,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME =J00004001, TYPE = LINE
IST486I STATUS= ACTIV      , DESIRED STATE = ACTIV
IST087I TYPE = SWITCHED DIAL-INOUT, CONTROL = SDLC, HPDT = *NA*
IST936I ANSWER MODE = ENABLED
IST134I GROUP = A04TRLG1, MAJOR NODE = A04S43A
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST172I NO NETWORK NODES EXIST
IST314I END
```

Displaying an NTRI line in an NCP:

```
d net,id=ln3atr11
IST097I DISPLAY ACCEPTED
IST075I NAME = LN3ATR11, TYPE = LINE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = SWITCHED DIAL-INOUT, CONTROL = SDLC, HPDT = *NA*
IST936I ANSWER MODE = ENABLED
IST1440I USE = NCP, DEFINED RESOURCE, CANNOT BE REDEFINED
IST134I GROUP = GP3ATR10, MAJOR NODE = NCP3AB8
IST1500I STATE TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - NO
IST1657I MAJOR NODE VTAMTOPO = IGNORE
IST314I END
```

Displaying a logical line in an XCA major node:

```
d net,id=ln1a2a
IST097I DISPLAY ACCEPTED
IST075I NAME = LN1A2A, TYPE = LINE
IST486I STATUS= NEVAC, DESIRED STATE= INACT
IST087I TYPE = SWITCHED DIAL-INOUT, CONTROL = SDLC, HPDT = *NA*
IST936I ANSWER MODE = RESET
IST134I GROUP = GP1A2A, MAJOR NODE = XCA1A
IST1500I STATE TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST1657I MAJOR NODE VTAMTOPO = REPORT
IST314I END
```

Displaying XCF TRLE:

```
d net,id=istt1q2q,e
IST097I DISPLAY ACCEPTED
IST075I NAME = ISTT1Q2Q, TYPE = TRLE
IST1954I TRL MAJOR NODE = ISTTRL
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = LEASED      , CONTROL = XCF , HPDT = *NA*
IST1715I MPCLEVEL = HPDT      MPCUSAGE = SHARE
IST1717I ULPID = ISTEP1Q2Q ULP INTERFACE = *NA*
IST1503I XCF TOKEN = 0200001900120002      STATUS = ACTIVE
IST1502I ADJACENT CP = NETA.SSCP2A
IST1500I STATE TRACE = OFF
IST314I END
```

Displaying TCP TRLE:

```
d net,id=iutx0aa0
IST097I DISPLAY ACCEPTED
IST075I NAME = IUTX0AA0, TYPE = TRLE
IST1954I TRL MAJOR NODE = ISTTRL
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = LEASED      , CONTROL = TCP , HPDT = *NA*
IST1717I ULPID = TCPCS ULP INTERFACE = *NA*
```

## DISPLAY ID

```
IST1221I READ DEV = 0AA0 STATUS = ACTIVE STATE = N/A
IST1221I WRITE DEV = 0AA1 STATUS = ACTIVE STATE = N/A
IST1500I STATE TRACE = OFF
IST314I END
```

Displaying a 10GbE RoCE Express TRLE in a dedicated RoCE environment:

```
d net,id=iut10005
IST097I DISPLAY ACCEPTED
IST075I NAME = IUT10005, TYPE = TRLE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = *NA* , CONTROL = ROCE, HPDT = *NA*
IST1954I TRL MAJOR NODE = ISTTRL
IST2361I SMCR PFID = 0005 PCHID = 0500 PNETID = NETWORK3
IST2362I PORTNUM = 1 RNIC CODE LEVEL = 2.10.4750
IST2389I PFIP = 01000300
IST924I -----
IST1717I ULPID = TCPIP1 ULP INTERFACE = EZARIUT10005
IST1724I I/O TRACE = OFF TRACE LENGTH = *NA*
IST1500I STATE TRACE = OFF
IST1866I TRLE = IUT10005 INOPDUMP = ON
IST924I -----
IST1717I ULPID = TCPIP2 ULP INTERFACE = EZARIUT10005
IST1724I I/O TRACE = OFF TRACE LENGTH = *NA*
IST1500I STATE TRACE = OFF
IST1866I TRLE = IUT10005 INOPDUMP = ON
IST314I END
```

Displaying a 10GbE RoCE Express TRLE in a shared RoCE environment:

```
d net,id=iut10011
IST097I DISPLAY ACCEPTED
IST075I NAME = IUT10011, TYPE = TRLE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = *NA* , CONTROL = ROCE, HPDT = *NA*
IST1954I TRL MAJOR NODE = ISTTRL
IST2361I SMCR PFID = 0011 PCHID = 0140 PNETID = PNETID1
IST2362I PORTNUM = 1 RNIC CODE LEVEL = **NA**
IST2389I PFIP = 01000300
IST2417I VFN = 0001
IST924I -----
IST1717I ULPID = TCPIP2 ULP INTERFACE = EZARIUT10011
IST1724I I/O TRACE = OFF TRACE LENGTH = *NA*
IST1500I STATE TRACE = OFF
IST314I END
```

Displaying a switched major node:

```
d net,id=swxca1a,e
IST097I DISPLAY ACCEPTED
IST075I NAME = SWXCA1A, TYPE = SW SNA MAJ NODE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST084I NETWORK RESOURCES:
IST089I SW1A2A TYPE = PU_T2 , CONCT
IST089I SW1A7B TYPE = PU_T2 , CONCT
IST089I SW1A9C TYPE = PU_T2 , CONCT
IST089I SW1AAA TYPE = PU_T2 , CONCT
IST089I SW1ABA TYPE = PU_T2 , CONCT
IST089I SW1ACA TYPE = PU_T2 , CONCT
IST089I SW1ADA TYPE = PU_T2 , CONCT
IST089I SW1AEA TYPE = PU_T2 , CONCT
IST1500I STATE TRACE = OFF
IST314I END
```

Displaying a switched PU in this switched major node:

```

d net,id=sw1a2a
IST097I DISPLAY ACCEPTED
IST075I NAME = SW1A2A, TYPE = PU_T2
IST486I STATUS= CONCT, DESIRED STATE= CONCT
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = YES - FINAL USE = NOT FINAL
IST136I SWITCHED SNA MAJOR NODE = SWXCA1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST1656I VTAMTOPO = NOREPORT, NODE REPORTED - YES
IST1657I MAJOR NODE VTAMTOPO = INCLUDE
IST314I END

```

Displaying a cross-subarea SDLC link:

```

d net,id=a04c08,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A04C08, TYPE = LINE
IST486I STATUS= NEVAC , DESIRED STATE= INACT
IST087I TYPE = LEASED , CONTROL = SDLC, HPDT = *NA*
IST134I GROUP = A04XCA0, MAJOR NODE = A0462ZC
IST396I LNKSTA STATUS CTG GTG ADJNODE ADJSA NETID ADJLS
IST397I A04P08A NEVAC 1 1 0
IST314I END

```

Displaying a cross-subarea channel link:

```

d net,id=012-1,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = 012-L, TYPE = LINE
IST486I STATUS= ACTIV----I , DESIRED STATE = ACTIV
IST087I TYPE = LEASED , CONTROL = NCP , HPDT = *NA*
IST134I GROUP = ISTGROUP, MAJOR NODE = A99MPU
IST396I LNKSTA STATUS CTG GTG ADJNODE ADJSA NETID ADJLS
IST397I 012-S ACTIV----I 1 1 A03N43A 3
IST314I END

```

Displaying a cross-subarea channel link station:

```

d net,id=012-s,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = 012-S, TYPE = LINK STATION
IST486I STATUS= ACTIV----I , DESIRED STATE = ACTIV
IST081I LINE NAME = 012-L, LINE GROUP = ISTGROUP, MAJNOD = A99MPU
IST396I LNKSTA STATUS CTG GTG ADJNODE ADJSA NETID ADJLS
IST397I 012-S ACTIV----I 1 1 A03N43A 3
IST610I LINE 012-L - STATUS ACTIV----I
IST314I END

```

Displaying a cross-subarea SDLC link station:

```

d net,id=a03p644,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A03P644, TYPE = LINK STATION
IST486I STATUS= NEVAC , DESIRED STATE = INACT
IST081I LINE NAME = A03IN64, LINE GROUP = A03MPRI, MAJNOD = A03N43A
IST396I LNKSTA STATUS CTG GTG ADJNODE ADJSA NETID ADJLS
IST397I A03P644 NEVAC 2 2 0
IST610I LINE A03IN64 - STATUS NEVAC
IST314I END

```

Displaying a cross-subarea XCA link station with ALLOWACT=YES coded:

```

d net,id=pu1a12,e
IST097I DISPLAY ACCEPTED
IST075I NAME = PU1A12, TYPE = LINK STATION
IST486I STATUS= ACTIV--W-E, DESIRED STATE= ACTIV

```

## DISPLAY ID

```
IST081I LINE NAME = LN1A12, LINE GROUP = GP1AS, MAJNOD = XCA1A
IST1500I STATE TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST1657I MAJOR NODE VTAMTOPO = REPORT
IST396I LNKSTA STATUS CTG GTG ADJNODE ADJSA NETID ADJLS
IST397I PU1A12 ACTIV--W-E 1 1 NCP12 12 NETA PU121A
IST610I LINE LN1A12 - STATUS ACTIV----E
IST314I END
```

Displaying a physical unit:

```
d net, id=a03p011, scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A03P011, TYPE = PU_T2.1
IST486I STATUS= ACTIV, DESIRED STATE = ACTIV
IST2238I DISCNT = NO - FINAL USE = *NA*
IST081I LINE NAME = A03IN01, LINE GROUP = A03MPRI, MAJNOD = A03N43A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST355I LOGICAL UNITS:
IST080I A03L011A NEVAC A03L011B NEVAC A03L011C NEVAC
IST080I A03L011D NEVAC A03L011E NEVAC A03L011F NEVAC
IST080I A03L011G NEVAC A03L011H NEVAC A03L011I NEVAC
IST080I A03L011J NEVAC A03L011K NEVAC A03L011L NEVAC
IST080I A03L011M NEVAC A03L011N NEVAC A03L011O NEVAC
IST314I END
```

Displaying a physical unit with APPN host-to-host connectivity:

```
d net, id=ahhcpu1
IST097I DISPLAY ACCEPTED
IST075I NAME = AHHCPU1, TYPE = PU_T2.1
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = YES - FINAL USE = FINAL
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I AHHCPU1 AC/R 21 YES 988D0000000000000000000014C00808080
IST1482I HPR = RTP - OVERRIDE = N/A - CONNECTION = YES
IST1510I LLERP = REQUIRED - RECEIVED = REQUIRED
IST136I LOCAL SNA MAJOR NODE = LSAHHC1
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST1314I TRLE = TRLE1A STATUS = ACTIV CONTROL = MPC
IST314I END
```

Displaying a physical unit with DLUR support:

```
d net, id=aa1pua, scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = AA1PUA, TYPE = PU_T2
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1043I CP NAME = ***NA***, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = NO
IST2238I DISCNT = YES - FINAL USE = NOT FINAL
IST1354I DLUR NAME = NNCPA1 MAJNOD = SWDLR1A
IST136I SWITCHED SNA MAJOR NODE = SWDLR1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST355I LOGICAL UNITS:
IST080I AA1LUA1 ACT/S AA1LUA2 ACTIV AA1LUA3 ACTIV
IST080I AA1LUA4 ACTIV
IST314I END
```

Displaying a Rapid Transport Protocol (RTP) physical unit:

```
d net, id=cnr00004
IST097I DISPLAY ACCEPTED
IST075I NAME = CNR00004, TYPE = PU_T2.1
IST486I STATUS= ACTIV--LX-, DESIRED STATE= ACTIV
```

```

IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = DELAY - FINAL USE = FINAL
IST1392I DISCNTIM = 00010 DEFINED AT PU FOR DISCONNECT
IST2178I RPNCB ADDRESS = 126FCA18
IST1963I APPNCOS = #INTER - PRIORITY = HIGH
IST1476I TCID X'1239C4D900000014' - REMOTE TCID X'1239D9D700000016'
IST1481I DESTINATION CP NETA.SSCP2A - NCE X'D000000000000000'
IST1587I ORIGIN NCE X'D000000000000000'
IST1966I ACTIVATED AS ACTIVE ON 05/30/03 AT 09:40:30
IST2237I CNR00004 CURRENTLY REPRESENTS A LIMITED RESOURCE
IST1477I ALLOWED DATA FLOW RATE = 355 KBITS/SEC
IST1516I INITIAL DATA FLOW RATE = 1600 KBITS/SEC
IST1841I ACTUAL DATA FLOW RATE = 85 KBITS/SEC
IST1511I MAXIMUM NETWORK LAYER PACKET SIZE = 16410 BYTES
IST1478I NUMBER OF UNACKNOWLEDGED BUFFERS = 0
IST1479I RTP CONNECTION STATE = CONNECTED - MNPS = NO
IST1959I DATA FLOW STATE: NORMAL
IST1855I NUMBER OF SESSIONS USING RTP = 372
IST1697I RTP PACING ALGORITHM = ARB RESPONSIVE MODE
IST1480I RTP END TO END ROUTE - RSCV PATH
IST1460I TGN  CPNAME          TG TYPE      HPR
IST1461I 21  NETA.SSCP2A      APPN        RTP
IST875I ALSNAME TOWARDS RTP = AHHCPU1
IST1738I ANR LABEL          TP          ER NUMBER
IST1739I 8001000A00000000  *NA*      *NA*
IST231I RTP MAJOR NODE = ISTRTPMN
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = ON, OPTION = PU
IST314I END

```

**Tip:** The REMOTE TCID shown on message IST1476I can be used to correlate a local RTP PU name to the RTP PU name used by the remote (VTAM) partner RTP node (shown on the IST1481I message) to represent the same RTP connection. To determine the RTP PU name used by the remote (VTAM) partner RTP node, first issue the above command on the local node and remember the REMOTE TCID value from the IST1476I message. Then issue the DISPLAY RTPS,TCID=tcid command on the remote (VTAM) partner RTP node using the REMOTE TCID value from the prior display.

Displaying a Rapid Transport Protocol (RTP) physical unit with additional diagnostic information:

```

D NET, ID=CNR00004, HPRDIAG=YES
IST097I DISPLAY ACCEPTED
IST075I NAME = CNR00004, TYPE = PU T2.1
IST486I STATUS= ACTIV--LX-, DESIRED STATE= ACTIV
IST2244I HPRDIAG DISPLAY ISSUED ON 10/14/08 AT 09:42:17
IST1043I CP NAME = SSCP2A - CP NETID = NETA - DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = DELAY - FINAL USE = FINAL
IST1392I DISCNTIM = 00010 DEFINED AT PU FOR DISCONNECT
IST231I RTP MAJOR NODE = ISTRTPMN
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST2178I RPNCB ADDRESS 06639018
IST1963I APPNCOS = #INTER - PRIORITY = HIGH
IST1476I TCID X'246F137A0001000E' - REMOTE TCID X'246F178B0001000E'
IST1481I DESTINATION CP NETA.SSCP2A - NCE X'D000000000000000'
IST1587I ORIGIN NCE X'D000000000000000'
IST1966I ACTIVATED AS ACTIVE ON 10/14/08 AT 09:34:22
IST1479I RTP CONNECTION STATE = CONNECTED - MNPS = NO
IST1959I DATA FLOW STATE = NORMAL
IST1855I NUMBER OF SESSIONS USING RTP = 10
IST1480I RTP END TO END ROUTE - RSCV PATH

```

# DISPLAY ID

```
IST1460I TGN CPNAME          TG TYPE      HPR
IST1461I 21 NETA.SSCP2A      APPN        RTP
IST875I ALSNAME TOWARDS RTP = AHHCPU1
IST1738I ANR LABEL          TP            ER NUMBER
IST1739I 8001000A00000000  *NA*       *NA*
IST924I -----
IST1968I ARB INFORMATION:
IST1844I ARB MODE = GREEN
IST1697I RTP PACING ALGORITHM = ARB RESPONSIVE MODE
IST1477I ALLOWED DATA FLOW RATE = 1600 KBITS/SEC
IST1516I INITIAL DATA FLOW RATE = 1600 KBITS/SEC
IST1841I ACTUAL DATA FLOW RATE = 146 KBITS/SEC
IST1969I MAXIMUM ACTUAL DATA FLOW RATE = 164 KBITS/SEC
IST1862I ARB MAXIMUM SEND RATE = 32 MBITS/SEC
IST1846I CURRENT RECEIVER THRESHOLD = 36850 MICROSECONDS
IST1846I MAXIMUM RECEIVER THRESHOLD = 37000 MICROSECONDS
IST1846I MINIMUM RECEIVER THRESHOLD = 17000 MICROSECONDS
IST1970I RATE REDUCTIONS DUE TO RETRANSMISSIONS = 0
IST924I -----
IST1971I TIMER INFORMATION:
IST1852I LIVENESS TIMER = 180 SECONDS
IST1851I SMOOTHED ROUND TRIP TIME = 9 MILLISECONDS
IST1972I SHORT REQUEST TIMER = 250 MILLISECONDS
IST2229I REFIFO TIMER = 68 MILLISECONDS
IST924I -----
IST1973I OUTBOUND TRANSMISSION INFORMATION:
IST1974I NUMBER OF NLPS SENT = 173104 ( 173K )
IST1975I TOTAL BYTES SENT = 16055969 ( 16M )
IST1849I LARGEST NLP SENT = 140 BYTES
IST1980I SEQUENCE NUMBER = 8265162 (X'007E1DCA')
IST1842I NUMBER OF NLPS RETRANSMITTED = 0
IST2249I NLP RETRANSMIT RATE = 0.0000%
IST1976I BYTES RETRANSMITTED = 0 ( 0K )
IST1478I NUMBER OF UNACKNOWLEDGED BUFFERS = 1
IST1958I NUMBER OF ORPHANED BUFFERS = 0
IST1843I NUMBER OF NLPS ON WAITING-TO-SEND QUEUE = 0
IST1847I NUMBER OF NLPS ON WAITING-FOR-ACKNOWLEDGEMENT QUEUE = 1
IST2268I NUMBER OF BYTES ON WAITING-FOR-ACK QUEUE = 15
IST1977I MAXIMUM NUMBER OF NLPS ON WAITING-FOR-ACK QUEUE = 19
IST2269I MAXIMUM NUMBER OF BYTES ON WAITING-FOR-ACK QUEUE = 879
IST1978I WAITING-FOR-ACK QUEUE MAX REACHED ON 10/14/08 AT 09:34:22
IST2085I NUMBER OF NLPS ON OUTBOUND WORK QUEUE = 0
IST2086I MAXIMUM NUMBER OF NLPS ON OUTBOUND WORK QUEUE = 20
IST2087I OUTBOUND WORK QUEUE MAX REACHED ON 10/14/08 AT 09:34:22
IST1511I MAXIMUM NETWORK LAYER PACKET SIZE = 16410 BYTES
IST924I -----
IST1979I INBOUND TRANSMISSION INFORMATION:
IST2059I NUMBER OF NLPS RECEIVED = 184391 ( 184K )
IST1981I TOTAL BYTES RECEIVED = 16696275 ( 16M )
IST1850I LARGEST NLP RECEIVED = 104 BYTES
IST1980I SEQUENCE NUMBER = 8480224 (X'008165E0')
IST1853I NUMBER OF NLPS ON OUT-OF-SEQUENCE QUEUE = 0
IST2230I MAXIMUM NUMBER OF NLPS ON OUT-OF-SEQUENCE QUEUE = 0
IST1854I NUMBER OF NLPS ON INBOUND SEGMENTS QUEUE = 0
IST1982I NUMBER OF NLPS ON INBOUND WORK QUEUE = 0
IST1983I MAXIMUM NUMBER OF NLPS ON INBOUND WORK QUEUE = 27
IST924I -----
IST1984I PATH SWITCH INFORMATION:
IST2271I PATH SWITCH DELAY = 0
IST1856I LAST PATH SWITCH OCCURRENCE WAS ON 10/14/08 AT 09:34:59
IST1937I PATH SWITCH REASON: INITIATED BY REMOTE PARTNER
IST1985I PATH SWITCHES INITIATED FROM REMOTE RTP = 1
IST1986I PATH SWITCHES INITIATED FROM LOCAL RTP = 0
IST1987I PATH SWITCHES DUE TO LOCAL FAILURE = 0
IST1988I PATH SWITCHES DUE TO LOCAL PSRETRY = 0
IST924I -----
IST1857I BACKPRESSURE REASON COUNTS:
```



```

IST1858I PATHSWITCH SEND QUEUE MAX STORAGE FAILURE STALLED PIPE
IST2205I -----
IST1859I 0 0 0 0
IST2211I ACK QUEUE MAX
IST2205I -----
IST2212I 0
IST924I -----
IST2250I ALL DIAGNOSTIC COUNTERS CLEARED ON 10/14/08 AT 09:34:22
IST314I END

```

Displaying a Rapid Transport Protocol (RTP) physical unit with the diagnostic information and clearing the diagnostic counters:

```

D NET, ID=CNR00004, HPRDIAG=YES, CLEAR=ALL
IST097I DISPLAY ACCEPTED
IST075I NAME = CNR00004, TYPE = PU T2.1
IST486I STATUS= ACTIV--LX-, DESIRED STATE= ACTIV
IST2244I HPRDIAG DISPLAY ISSUED ON 10/14/08 AT 09:43:53
IST1043I CP NAME = SSCP2A - CP NETID = NETA - DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = DELAY - FINAL USE = FINAL
IST1392I DISCNTIM = 00010 DEFINED AT PU FOR DISCONNECT
IST231I RTP MAJOR NODE = ISTRTPMN
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST2178I RPNCB ADDRESS 06639018
IST1963I APPNCOS = #INTER - PRIORITY = HIGH
IST1476I TCID X'246F137A0001000E' - REMOTE TCID X'246F178B0001000E'
IST1481I DESTINATION CP NETA.SSCP2A - NCE X'D000000000000000'
IST1587I ORIGIN NCE X'D0000000000000000'
IST1966I ACTIVATED AS ACTIVE ON 10/14/08 AT 09:34:21
IST1479I RTP CONNECTION STATE = CONNECTED - MNPS = NO
IST1959I DATA FLOW STATE = NORMAL
IST1855I NUMBER OF SESSIONS USING RTP = 10
IST1480I RTP END TO END ROUTE - RSCV PATH
IST1460I TGN CPNAME TG TYPE HPR
IST1461I 21 NETA.SSCP2A APPN RTP
IST875I ALSNAME TOWARDS RTP = AHHCPU1
IST1738I ANR LABEL TP ER NUMBER
IST1739I 8001000A00000000 *NA* *NA*
IST924I -----
IST1968I ARB INFORMATION:
IST1844I ARB MODE = GREEN
IST1697I RTP PACING ALGORITHM = ARB RESPONSIVE MODE
IST1477I ALLOWED DATA FLOW RATE = 1600 KBITS/SEC
IST1516I INITIAL DATA FLOW RATE = 1600 KBITS/SEC
IST1841I ACTUAL DATA FLOW RATE = 148 KBITS/SEC
IST1969I MAXIMUM ACTUAL DATA FLOW RATE = 164 KBITS/SEC
IST1862I ARB MAXIMUM SEND RATE = 32 MBITS/SEC
IST1846I CURRENT RECEIVER THRESHOLD = 36850 MICROSECONDS
IST1846I MAXIMUM RECEIVER THRESHOLD = 37000 MICROSECONDS
IST1846I MINIMUM RECEIVER THRESHOLD = 17000 MICROSECONDS
IST1970I RATE REDUCTIONS DUE TO RETRANSMISSIONS = 0
IST924I -----
IST1971I TIMER INFORMATION:
IST1852I LIVENESS TIMER = 180 SECONDS
IST1851I SMOOTHED ROUND TRIP TIME = 9 MILLISECONDS
IST1972I SHORT REQUEST TIMER = 250 MILLISECONDS
IST2229I REFIFO TIMER = 68 MILLISECONDS
IST924I -----
IST1973I OUTBOUND TRANSMISSION INFORMATION:
IST1974I NUMBER OF NLPS SENT = 210394 ( 210K )
IST1975I TOTAL BYTES SENT = 19553353 ( 19M )
IST1849I LARGEST NLP SENT = 140 BYTES
IST1980I SEQUENCE NUMBER = 10044954 (X'0099461A')
IST1842I NUMBER OF NLPS RETRANSMITTED = 0
IST2249I NLP RETRANSMIT RATE = 0.0000%

```

## DISPLAY ID

```
IST1976I BYTES RETRANSMITTED = 0 ( 0K )
IST1478I NUMBER OF UNACKNOWLEDGED BUFFERS = 1
IST1958I NUMBER OF ORPHANED BUFFERS = 0
IST1843I NUMBER OF NLPS ON WAITING-TO-SEND QUEUE = 0
IST1847I NUMBER OF NLPS ON WAITING-FOR-ACKNOWLEDGEMENT QUEUE = 1
IST2268I NUMBER OF BYTES ON WAITING-FOR-ACK QUEUE = 15
IST1977I MAXIMUM NUMBER OF NLPS ON WAITING-FOR-ACK QUEUE = 19
IST2269I MAXIMUM NUMBER OF BYTES ON WAITING-FOR-ACK QUEUE = 879
IST1978I WAITING-FOR-ACK QUEUE MAX REACHED ON 10/14/08 AT 09:34:21
IST2085I NUMBER OF NLPS ON OUTBOUND WORK QUEUE = 0
IST2086I MAXIMUM NUMBER OF NLPS ON OUTBOUND WORK QUEUE = 20
IST2087I OUTBOUND WORK QUEUE MAX REACHED ON 10/14/08 AT 09:34:21
IST1511I MAXIMUM NETWORK LAYER PACKET SIZE = 16410 BYTES
IST924I -----
IST1979I INBOUND TRANSMISSION INFORMATION:
IST2059I NUMBER OF NLPS RECEIVED = 224100 ( 224K )
IST1981I TOTAL BYTES RECEIVED = 20319156 ( 20M )
IST1850I LARGEST NLP RECEIVED = 104 BYTES
IST1980I SEQUENCE NUMBER = 10306550 (X'009D43F6')
IST1853I NUMBER OF NLPS ON OUT-OF-SEQUENCE QUEUE = 0
IST2230I MAXIMUM NUMBER OF NLPS ON OUT-OF-SEQUENCE QUEUE = 0
IST1854I NUMBER OF NLPS ON INBOUND SEGMENTS QUEUE = 0
IST1982I NUMBER OF NLPS ON INBOUND WORK QUEUE = 0
IST1983I MAXIMUM NUMBER OF NLPS ON INBOUND WORK QUEUE = 27
IST924I -----
IST1984I PATH SWITCH INFORMATION:
IST2271I PATH SWITCH DELAY = 0
IST1856I LAST PATH SWITCH OCCURRENCE WAS ON 10/14/08 AT 09:34:59
IST1937I PATH SWITCH REASON: INITIATED BY REMOTE PARTNER
IST1985I PATH SWITCHES INITIATED FROM REMOTE RTP = 1
IST1986I PATH SWITCHES INITIATED FROM LOCAL RTP = 0
IST1987I PATH SWITCHES DUE TO LOCAL FAILURE = 0
IST1988I PATH SWITCHES DUE TO LOCAL PSRETRY = 0
IST924I -----
IST1857I BACKPRESSURE REASON COUNTS:
IST1858I PATHSWITCH SEND QUEUE MAX STORAGE FAILURE STALLED PIPE
IST2205I -----
IST1859I      0      0      0      0
IST2211I ACK QUEUE MAX
IST2205I -----
IST2212I      0
IST924I -----
IST2250I ALL DIAGNOSTIC COUNTERS CLEARED ON 10/14/08 AT 09:34:21
IST2248I ALL DIAGNOSTIC COUNTERS CLEARED FOR 1 RTP PIPES
IST314I END
```

Displaying an HPR-capable PU:

```
d net,id=ahhcpu1
IST097I DISPLAY ACCEPTED
IST075I NAME = AHHCPU1, TYPE = PU_T2.1
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = YES - FINAL USE = NOT FINAL
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I AHHCPU1 AC/R 21 YES 988D000000000000000014C00808080
IST1482I HPR = RTP - OVERRIDE = N/A - CONNECTION = YES
IST1510I LLERP = REQUIRED - RECEIVED = REQUIRED
IST136I LOCAL SNA MAJOR NODE = LSAHHC1
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST1314I TRLE = TRLE1A STATUS = ACTIV CONTROL = MPC
IST314I END
```

Displaying a switched link station:

```

d net,id=swpux2a1,e
IST097I DISPLAY ACCEPTED
IST075I NAME = SWPUX2A1, TYPE = PU_T2.1
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = DELAY - FINAL USE = NOT FINAL
IST1392I DISCNTIM = 00010 DEFINED AT PU FOR DISCONNECT
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I SWPUX2A1 AC/R 22 YES 982D00000000000000000017100808080
IST1482I HPR = NONE - OVERRIDE = N/A - CONNECTION = NO
IST136I SWITCHED SNA MAJOR NODE = SWND3AB8
IST081I LINE NAME = LN3AXN11, LINE GROUP = GP3AXN10, MAJNOD = NCP3AB8
IST1068I PHYSICAL RESOURCE (PHYSRSC) = P3AXN10
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST1656I VTAMTOPO = NOREPORT, NODE REPORTED - YES
IST1657I MAJOR NODE VTAMTOPO = INCLUDE
IST172I NO LOGICAL UNITS EXIST
IST314I END

```

Displaying a switched PU type 2:

```

d net,id=a04p501,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A04P501, TYPE = PU_T2
IST486I STATUS= CONCT, DESIRED STATE = CONCT
IST2238I DISCNT = YES - FINAL USE = NOT FINAL
IST136I SWITCHED SNA MAJOR NODE = A04SG1
IST1934I IDBLK = 002 IDNUM = 02345
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST1657I MAJOR NODE VTAMTOPO = INCLUDE
IST355I LOGICAL UNITS:
IST080I A04L501A CONCT A04L501B CONCT A04L501C CONCT
IST080I A04L501D CONCT A04L501E CONCT A04L501F CONCT
IST080I A04L501G CONCT A04L501H CONCT A04L501I CONCT
IST080I A04L501J CONCT A04L501K CONCT A04L501L CONCT
IST080I A04L501M CONCT A04L501N CONCT A04L501O CONCT
IST314I END

```

Displaying a switched PU type 2.1 (LAN capable):

```

D NET,ID=SOE10302,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = SOE10302, TYPE = PU_T2.1
IST486I STATUS= ACTIV--LX-, DESIRED STATE= ACTIV
IST1058I MODEL LU GROUP = LUGR, LUSEED =
IST1043I CP NAME = SOE10301, CP NETID = GBSOEL00, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = NO - FINAL USE = *NA*
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I SOE10302 AC/R 21 YES 987500000000000000000014C00808080
IST1482I HPR = NONE - OVERRIDE = N/A - CONNECTION = NO
IST956I PU SAP= 4 MAC=000524E10156 MAXDATA= 1437
IST1935I RIF = 0AB00011910100210050
IST136I SWITCHED SNA MAJOR NODE = ISTD5WMM
IST081I LINE NAME = L530217D, LINE GROUP = G5302, MAJNOD = SOE53F02
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST1657I MAJOR NODE VTAMTOPO = REPORT
IST355I LOGICAL UNITS:
IST080I SOE1030I ACTIV---X- SOE1030J ACTIV---X- SOE1030K ACTIV---X-
IST314I END

```

Displaying a switched PU type 2.1 (AS/400®):

## DISPLAY ID

```
d net,id=a04p882,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A04P882, TYPE = PU_T2.1
IST486I STATUS= ACTIV--L-- , DESIRED STATE= ACTIV
IST1043I CP NAME = A04P882A, CP NETID = NETY, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = NO - FINAL USE = *NA*
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I A04P882 AC/R 21 YES 802D000000000000000017100000000
IST136I SWITCHED SNA MAJOR NODE = A04SMNC
IST081I LINE NAME = J000401B, LINE GROUP = A04BLG1, MAJNOD = A0462ZC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST355I LOGICAL UNITS:
IST080I A04I8823 ACT/S A04I8822 ACT/S A04P882A ACT/S---Y
IST080I A04I8821 ACT/S
IST314I END
```

Displaying a local SNA physical unit:

```
d net,id=pua,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = PUA, TYPE = PU_T2
IST486I STATUS = ACTIV , DESIRED STATE= ACTIV
IST2238I DISCNT = YES - FINAL USE = FINAL
IST136I LOCAL SNA MAJOR NODE = A50LSNA
IST077I SIO = *NA* CUA = 0770
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST355I LOGICAL UNITS:
IST080I LSNALU1 ACTIV LSNALU2 ACTIV LSNALU3 ACTIV
IST080I LSNALU4 ACTIV
IST314I END
```

Displaying a dynamic XCF local SNA physical unit:

```
d net,id=istp0001,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = ISTEP0001, TYPE = PU_T2.1
IST486I STATUS= ACTIV--LX-, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = NO - FINAL USE = *NA*
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I ISTEP0001 AC/R 21 YES 988D000000000000000014C0080808
IST1482I HPR = NONE - OVERRIDE = N/A - CONNECTION = NO
IST136I LOCAL SNA MAJOR NODE = ISTLSXCF
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST1314I TRLE = ISTT0001 STATUS = ACTIV---E CONTROL = XCF
IST355I LOGICAL UNITS:
IST080I SSCP2A ACT/S---Y
IST314I END
```

Displaying a dynamic XCF local SNA physical unit, specifying the control point name:

```
d net,id=sscp2a,idtype=xcfc
IST097I DISPLAY ACCEPTED
IST075I NAME = ISTEP0001, TYPE = PU_T2.1
IST486I STATUS= ACTIV--LX-, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = YES - FINAL USE = NOT FINAL
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I ISTEP0001 AC/R 21 YES 988D000000000000000014C0080808
IST1482I HPR = NONE - OVERRIDE = N/A - CONNECTION = NO
IST136I LOCAL SNA MAJOR NODE = ISTLSXCF
```

```

IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST1314I TRLE = ISTT0001 STATUS = ACTIV----E CONTROL = XCF
IST314I END

```

Displaying a logical unit under an NCP:

```

d net,id=a04dxxx1,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.A04DXXX1, TYPE = LOGICAL UNIT
IST486I STATUS= NEVAC----T , DESIRED STATE= INACT
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU INHIBITED,SLU INHIBITED,SESSION LIMIT 00000001
IST081I LINE NAME = A04VXX, LINE GROUP = A04XNPAX, MAJNOD = A0462ZX
IST135I PHYSICAL UNIT = A04NXXX
IST082I DEVTYPE = LU
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST172I NO SESSIONS EXIST
IST314I END

```

Displaying a switched logical unit:

```

d net,id=a31d0711,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A31D0711, TYPE = LOGICAL UNIT
IST486I STATUS= NEVAC , DESIRED STATE= INACT
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=CRYPTLOG USSTAB=AUSSTAB LOGTAB=INTERP
IST934I DLOGMOD=REQENCRP USS LANGTAB=***NA***
IST597I CAPABILITY-PLU INHIBITED,SLU INHIBITED,SESSION LIMIT 00000001
IST136I SWITCHED SNA MAJOR NODE = SMNDDNN
IST135I PHYSICAL UNIT = A31P021
IST082I DEVTYPE = LU
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1936I LOCADDR = 003
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST172I NO SESSIONS EXIST
IST314I END

```

Displaying a local SNA logical unit:

```

d net,id=1sna1u1,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.LSNALU1, TYPE = LOGICAL UNIT
IST486I STATUS= ACTIV , DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=AMODETAB USSTAB=AUSSTAB LOGTAB=***NA***
IST934I DLOGMOD=D4A32782 USS LANGTAB=***NA***
IST597I CAPABILITY-PLU INHIBITED,SLU INHIBITED,SESSION LIMIT 00000001
IST136I LOCAL SNA MAJOR NODE = A50LSNA
IST135I PHYSICAL UNIT = PUA , CUA = 0770
IST082I DEVTYPE = LU
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1936I LOCADDR = 003
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST172I NO SESSIONS EXIST
IST314I END

```

Displaying a local non-SNA logical unit:

## DISPLAY ID

```
d net,id=a50a721,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.A50A721, TYPE = LOGICAL UNIT
IST486I STATUS= ACT/S      , DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=AMODETAB USSTAB=AUSSTAB LOGTAB=INTERP
IST934I DLOGMOD=M23270I USS LANGTAB=***NA***
IST597I CAPABILITY-PLU INHIBITED,SLU ENABLED ,SESSION LIMIT 00000001
IST351I LOCAL 3270 MAJOR NODE = A50LOCAL
IST077I SIO = 00010 CUA = 0721
IST1131I DEVICE = LU
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000001
IST206I SESSIONS:
IST634I NAME      STATUS      SID          SEND RECV VR TP NETID
IST635I ECHOC1C  ACTIV-P    D73BC0750F6AE8F3 0000 0001 0 0 NETC
IST635I ECH050B  PREALC-P   ECC39EEE2AA3BC6E          NETA
IST314I END
```

Displaying a native ATM permanent virtual channel (PVC):

```
d net,id=lnp1a2a1,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = LNP1A2A1, TYPE = LINE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = LEASED      , CONTROL = SDLC, HPDT = *NA*
IST1554I PVCNAME = PV11211
IST134I GROUP = GPP1A1, MAJOR NODE = XCAOSA1A
IST1500I STATE TRACE = OFF
IST084I NETWORK RESOURCES:
IST089I PP1A2A1  TYPE = PU_T2.1      , ACTIV
IST314I END
```

Displaying a remote node connected through a native ATM PVC:

```
d net,id=pp1a2a1,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = PP1A2A1, TYPE = PU_T2.1
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = NO - FINAL USE = *NA*
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I PP1A2A1 AC/R    21 YES  182D000000000000000017100808080
IST1482I HPR = RTP - OVERRIDE = N/A - CONNECTION = YES
IST1510I LLERP = REQUIRED - RECEIVED = REQUIRED
IST1555I VPCI/VCI = 010100
IST081I LINE NAME = LNP1A2A1, LINE GROUP = GPP1A1, MAJNOD = XCAOSA1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST172I NO LOGICAL UNITS EXIST
IST314I END
```

Displaying a remote node connected through a native ATM switched virtual channel (SVC):

```
d net,id=sw1a2a,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = SW1A2A, TYPE = PU_T2.1
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = NO - FINAL USE = *NA*
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I SW1A2A AC/R    22 YES  182D000000000000000017100808080
IST1482I HPR = RTP - OVERRIDE = N/A - CONNECTION = YES
IST1510I LLERP = REQUIRED - RECEIVED = REQUIRED
```

```

IST1559I ATM ADDRESS                                TYPE      FORMAT
IST1553I 11111111111111111111111111111111111100 LOCAL      NSAP
IST1553I 21111111111111111111111111111111111110 REMOTE     NSAP
IST1555I VPCI/VCI = 010200
IST136I SWITCHED SNA MAJOR NODE = SWXCA1A
IST081I LINE NAME = LN1A2A, LINE GROUP = GP1A2A, MAJNOD = XCAOSA1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST1656I VTAMTOPO = NOREPORT, NODE REPORTED - YES
IST1657I MAJOR NODE VTAMTOPO = INCLUDE
IST355I LOGICAL UNITS:
IST080I SW1A2AL NEVAC
IST314I END

```

Displaying a remote node connected through Enterprise Extender when the connection uses IPv4 addresses without host names:

```

d net,id=sw1a2a,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = SW1A2A, TYPE = PU_T2.1
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = NO - FINAL USE = *NA*
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I SW1A2A AC/R 22 YES 182D000000000000000017100808080
IST1482I HPR = RTP - OVERRIDE = N/A - CONNECTION = YES
IST1510I LLERP = REQUIRED - RECEIVED = REQUIRED
IST1680I LOCAL IP ADDRESS 9.18.100.2
IST1680I REMOTE IP ADDRESS 223.254.254.1
IST2114I LIVTIME:  INITIAL = 10  MAXIMUM = 0  CURRENT = 10
IST136I SWITCHED SNA MAJOR NODE = SWXCA1
IST081I LINE NAME = LN1A2A, LINE GROUP = GP1A2A, MAJNOD = XCAHPR1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST355I LOCAL UNITS:
IST080I SW1A2AL NEVAC
IST314I END

```

Displaying a remote node connected through Enterprise Extender when the connection uses IPv6 addresses:

```

d net,id=sw1a26a,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = SW1A26A, TYPE = PU_T2.1
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = NO - FINAL USE = *NA*
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I SW1A26A AC/R 22 YES 182D000000000000000017100808080
IST1482I HPR = RTP - OVERRIDE = N/A - CONNECTION = YES
IST1510I LLERP = REQUIRED - RECEIVED = REQUIRED
IST1680I LOCAL IP ADDRESS 3FFE::9.18.100.2
IST1910I LOCAL HOSTNAME LOCALHOST.DOMAIN.COM
IST1680I REMOTE IP ADDRESS 3FFC:1001:1002:3451:7223:2254:4254:4441
IST1909I REMOTE HOSTNAME REMOTEHOST.DOMAIN.COM
IST2114I LIVTIME:  INITIAL = 10  MAXIMUM = 0  CURRENT = 10
IST136I SWITCHED SNA MAJOR NODE = SWXCA1
IST081I LINE NAME = LN1A26A, LINE GROUP = GP1A26A,MAJNOD = XCAHPR1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST355I LOCAL UNITS:
IST080I SW1A2A6L NEVAC
IST314I END

```

## DISPLAY ID

Displaying a remote node connected through Enterprise Extender when the connection uses IPv4 addresses:

```
d net,id=sw1a26b,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = SW1A26B, TYPE = PU T2.1
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = NO - FINAL USE = *NA*
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I SW1A26B AC/R 22 YES 182D000000000000000017100808080
IST1482I HPR = RTP - OVERRIDE = N/A - CONNECTION = YES
IST1510I LLERP = REQUIRED - RECEIVED = REQUIRED
IST1680I LOCAL IP ADDRESS 9.18.100.2
IST1910I LOCAL HOSTNAME LOCALHOST2.DOMAIN.COM
IST1680I REMOTE IP ADDRESS 09.26.130.4
IST2114I LIVTIME: INITIAL = 10 MAXIMUM = 0 CURRENT = 10
IST136I SWITCHED SNA MAJOR NODE = SWXCA1
IST081I LINE NAME = LN1A26B, LINE GROUP = GP1A26B, MAJNOD = XCAHPR1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST355I LOCAL UNITS:
IST080I SW1A2B6L NEVAC
IST314I END
```

Displaying a dynamic Enterprise Extender PU:

```
d net,id=e2000018
IST097I DISPLAY ACCEPTED
IST075I NAME = E2000018, TYPE = PU T2.1
IST486I STATUS= ACTIV---X-, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A - CP NETID = NETA - DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = NO - FINAL USE = *NA*
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I E2000018 AC/R 5 YES 9875000000000000000017100808080
IST1482I HPR = RTP - OVERRIDE = N/A - CONNECTION = YES
IST1510I LLERP = NOTPREF - RECEIVED = NOTALLOW
IST1680I LOCAL IP ADDRESS 9.67.1.1
IST1910I LOCAL HOSTNAME VIPA14.SSCP1A
IST1680I REMOTE IP ADDRESS 9.67.1.2
IST2114I LIVTIME: INITIAL = 10 MAXIMUM = 0 CURRENT = 10
IST136I SWITCHED SNA MAJOR NODE = ISTD5WMN
IST081I LINE NAME = LNEE2000, LINE GROUP = GPEE2, MAJNOD = XCAEE2
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST1657I MAJOR NODE VTAMTOPO = REPORT
IST314I END
```

Displaying a resource name that is known in several networks:

```
d net,id=*.applb12,max=3
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.APPLB12, TYPE = APPL
IST486I STATUS= CONCT, DESIRED STATE= CONCT
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1938I APPC = NO
IST597I CAPABILITY-PLU INHIBITED,SLU INHIBITED,SESSION LIMIT NONE
IST231I APPL MAJOR NODE = APPL1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST271I JOBNAME = ***NA***, STEPNAME = ***NA***, DSPNAME = ***NA***
IST228I ENCRYPTION = OPTIONAL, TYPE = DES
IST1563I CKEYNAME = APPLB12 CKEY = PRIMARY CERTIFY = NO
```



```

IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST924I -----
IST075I NAME = NETB.APPLB12, TYPE = CDRSC
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1632I VPACING = 7
IST1938I APPC = NO
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = CDRSC1A
IST479I CDRM NAME = SSCP7B , VERIFY OWNER = NO
IST1131I DEVICE = CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = APPLB12 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST924I -----
IST075I NAME = NETC.APPLB12, TYPE = CDRSC
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = CDRSC1A
IST479I CDRM NAME = SSCP9C , VERIFY OWNER = NO
IST1131I DEVICE = CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = APPLB12 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST314I END

```

Displaying a generic resource:

```

d net, id=GRAPPL, idtype=generic
IST097I DISPLAY ACCEPTED
IST075I NAME = GRAPPL, TYPE = GENERIC RESOURCE
IST1359I MEMBER NAME      OWNING CP  SELECTABLE  APPC
IST1360I NETA.NETAPPL1    SSCP2A    YES         NO
IST1360I NETA.APPL1      SSCP1A    NO          NO
IST1360I NETA.APPLAA1    SSCPAA    DEL         NO
IST2210I GR PREFERENCE TABLE ENTRY = **NAMELESS**
IST2202I GREXIT  = YES    WLM      = YES    LOCLU  = YES
IST2204I LOCAPPL = YES    PASSOLU  = YES
IST1393I GENERIC RESOURCE NAME RESOLUTION EXIT IS ISTEMXGR
IST314I END

```

Displaying an IP address in dotted decimal format when there is only one TN3270 client connected at this IP address:

```

d net, idtype=ipaddr, ID=9.67.113.58
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.TCPM1001, TYPE = APPL
IST486I STATUS= ACT/S, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = CDSERVR
IST599I REAL NAME = NETA.TCPM1001
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=ISTINCLM USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1632I VPACING = 7

```

## DISPLAY ID

```
IST1938 APPC = YES
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT 00000001
IST231I APPL MAJOR NODE = TCPAPPLS
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST271I JOBNAME = TCPCS, STEPNAME = TCPCS, DSPNAME = ISTD629B
IST228I ENCRYPTION = OPTIONAL, TYPE = DES
IST1563I CKEYNAME = TCPM1001 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST1633I ASRCVLM = 1000000
IST1634I DATA SPACE USAGE: CURRENT = 0 MAXIMUM = 0
IST1669I IPADDR..PORT 9.67.113.58..1029
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000000
IST314I END
```

Displaying an IP address in colon-hexadecimal format when there is only one TN3270 client connected at this IPv6 address.

```
d net,id=2001:0DB8::9:67:115:17,idtype=ipaddr
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.TCPM2013, TYPE = DYNAMIC APPL
IST486I STATUS= ACT/S, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = CDSERVR
IST599I REAL NAME = NETA.TCPM2013
IST1629I MODSRCH = NEVER
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=ISTINCLM USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1632I VPACING = 7
IST1938I APPC = YES
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT 00000001
IST231I APPL MAJOR NODE = TCPAPPLS
IST1425I DEFINED USING MODEL TCPM*
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST271I JOBNAME = TCPCS, STEPNAME = TCPCS, DSPNAME = ISTF27CE
IST228I ENCRYPTION = OPTIONAL , TYPE = DES
IST1563I CKEYNAME = TCPM2013 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST1633I ASRCVLM = 1000000
IST1634I DATA SPACE USAGE: CURRENT = 0 MAXIMUM = 0
IST1669I IPADDR..PORT 2001:0DB8::9:67:115:17..1027
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000000
IST314I END
```

Displaying a resource with TN3270 characteristics.

```
d net,id=tcpm2013
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.TCPM2013, TYPE = DYNAMIC APPL
IST486I STATUS= ACT/S, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = CDSERVR
IST1629I MODSRCH = NEVER
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=ISTINCLM USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1632I VPACING = 7
IST1938I APPC = YES
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT 00000001
IST231I APPL MAJOR NODE = TCPAPPLS
IST1425I DEFINED USING MODEL TCPM*
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST271I JOBNAME = TCPCS, STEPNAME = TCPCS, DSPNAME = ISTF27CE
IST228I ENCRYPTION = OPTIONAL , TYPE = DES
```

```

IST1563I CKEYNAME = TCPM2013 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST1633I ASRCVLM = 1000000
IST1634I DATA SPACE USAGE: CURRENT = 0 MAXIMUM = 0
IST1669I IPADDR..PORT 2001:0DB8::9:67:115:17..1027
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000000
IST314I END

```

Displaying an IP address with multiple TN3270 client connections.

**d net,id=2001:0DB8::9:67:115:17,idtype=ipaddr**

```

IST097I DISPLAY ACCEPTED
IST1912I IP ADDRESS 2001:0DB8::9:67:115:17 102
IST1913I LUNAME          PORT
IST1914I NETA.TCPM2013  1027
IST1914I NETA.TCPM2012  1026
IST314I END

```

Displaying a TSO user ID when the SLU is a Telnet client:

**d net,tsouser,id=user1**

```

IST097I DISPLAY ACCEPTED
IST075I NAME = USER1, TYPE = TSO USERID
IST486I STATUS= ACTIV, DESIRED STATE= N/A
IST576I TSO TRACE = OFF
IST262I ACBNAME = TS00003, STATUS = ACT/S
IST262I LUNAME = TCPM1002, STATUS = ACT/S
IST1669I IPADDR..PORT 2001:0DB8::9:67:115:17..1026
IST2203I CHARACTER SET 0065 CODE PAGE 0025
IST314I END

```

Displaying a DLUR CDRSC:

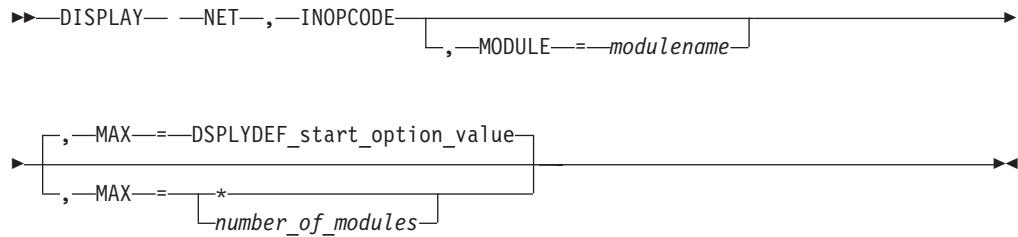
**d net,id=NNP7**

```

IST075I NAME = D7NET.NNP7          , TYPE = ADJACENT CP
IST486I STATUS= ACT/S---Y, DESIRED STATE= ACTIV
IST1402I          SRTIMER = 30          SRCOUNT = 100
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=CPSVCMG USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED ,SLU ENABLED ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTCDRDY
IST1184I CPNAME = D7NET.NNP7          - NETSRVR = ***NA***
IST1044I ALSLIST = ISTAPNPU
IST1131I DEVICE = ILU/CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST171I ACTIVE SESSIONS = 0000000003, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST1081I ADJACENT LINK STATION = PBB7N10
IST634I NAME          STATUS          SID          SEND RECV VR TP NETID
IST635I CDRMD730 ACTIV/CP-P F8B7DBABF0AB700C 0001 015D 0 0 D7NET
IST1355I PHYSICAL UNITS SUPPORTED BY DLUR D7NET.NNP7
IST089I D779AP1 TYPE = PU_T2          , PAPU2
IST924I -----
IST075I          NAME=D7NET.NNP7          ,TYPE=DIRECTORY ENTRY
IST1186I          DIRECTORY ENTRY = DYNAMIC NN
IST1184I          CPNAME = D7NET.NNP7          -NETSRVR = ***NNA***
IST1402I          SRTIMER = 30          SRCOUNT = 100
IST134I          END

```

## DISPLAY INOPCODE command



### Abbreviations

Operand	Abbreviation
DISPLAY	D
MODULE	MOD

### Purpose

The DISPLAY INOPCODE command is used to determine the attributes for every INOPCODE defined to VTAM or for every INOPCODE defined within a single VTAM module.

### Operands

**MODULE=modulename**

Specifies the name of the VTAM module for which the attributes are to be displayed.

**MAX**

Specifies the maximum number of modules that VTAM displays for this command.

**MAX=\***

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

**MAX=number\_of\_modules**

Specifies the number of modules to display for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer modules are found than you have specified on MAX, VTAM displays only the modules that are found.

### Resulting display

The resulting display lists the VTAM module name and two groups, those codes for which the dump attribute is enabled, and those for which the dump attribute is disabled.

## Examples

Displaying INOPCODE for a single module:

```
d net,inopcode,module=isttsc8e,max=*
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = INOPCODE
IST1919I INOPCODE FOR MODULE ISTTSC8E:
IST1920I DUMP ENABLED:
IST1921I 002 003 004 005 006 007 008 009 010 011 012 013 100 101
IST1921I 102 103 200 201 202 205 206 207 208
IST1922I DUMP DISABLED:
IST1921I 001 203 204
IST314I END
```

Displaying INOPCODE for all modules:

```
d net,inopcode,max=*
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = INOPCODE
.
.
IST1919I INOPCODE FOR MODULE ISTACCF:
IST1920I DUMP ENABLED:
IST1921I 200
IST1919I INOPCODE FOR MODULE ISTAUCOA:
IST1920I DUMP ENABLED:
IST1921I 100
.
.
IST1919I INOPCODE FOR MODULE IUTLLCTP:
IST1920I DUMP ENABLED:
IST1921I 200
IST314I END
```

---

## DISPLAY INOPDUMP command

►►—DISPLAY— —NET—,—INOPDUMP—◄◄

### Purpose

The DISPLAY INOPDUMP command is used to determine:

- The global status for INOPDUMP. The global status controls the INOPDUMP function for resources that are not defined within a transport resource list entry (TRLE). When a TRLE is activated, the global status is propagated to the newly activated TRLE if the TRLE InOpDump status has not been explicitly set.
- Whether TRLE controlled resources are subject to INOPDUMP and, if so, the TRLE names.
- Whether TRLEs subsequently activated, whose InOpDump status has not been explicitly set, will be subject to INOPDUMP.

### Resulting display

The resulting display shows:

- The global status for INOPDUMP
- The names of all TRL major nodes having at least one TRLE currently having INOPDUMP set to ON.

## DISPLAY INOPDUMP

- TRLEs that currently have INOPDUMP set to ON (TRLEs that currently have INOPDUMP=OFF are not displayed)

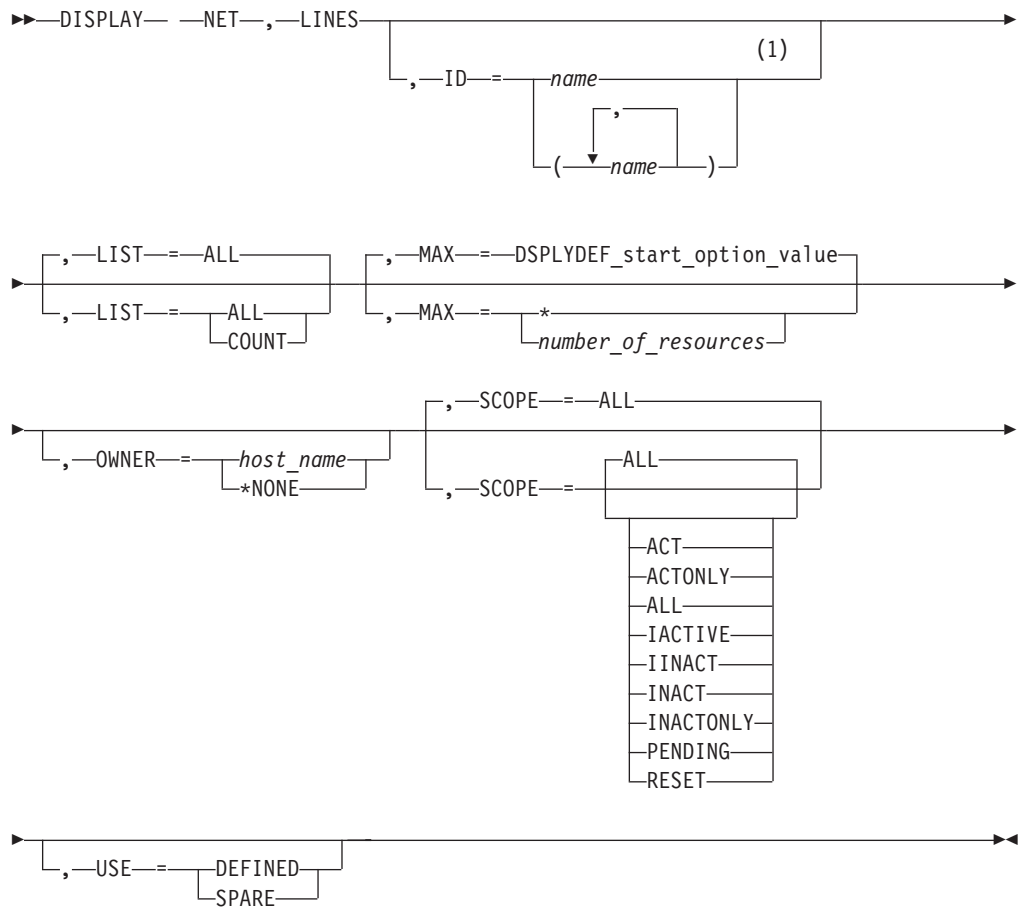
### Examples

Displaying INOPDUMP information:

```

d net,inopdump
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = INOPDUMP
IST1865I GLOBAL INOPDUMP = OFF
IST924I -----
IST1954I TRL MAJOR NODE = TRL1A
IST1866I TRLE = TRLE1A   INOPDUMP = ON
IST1866I TRLE = TRLE1B   INOPDUMP = ON
IST924I -----
IST1954I TRL MAJOR NODE = TRL1B
IST1866I TRLE = TRLE1F   INOPDUMP = ON
IST314I END
  
```

## DISPLAY LINES command



### Notes:

- 1 Depending on the value of the `DSPLYWLD` start option, wildcard values can be used for this operand.

## Abbreviations

Operand	Abbreviation
DISPLAY	D
SCOPE=ACT	ACT or A
SCOPE=ACTONLY	ACTONLY
SCOPE=ALL	EVERY or E
SCOPE=INACT	INACT or I
USE=DEFINED	DEFINED
USE=SPARE	SPARE
SCOPE=INACTONLY	INACTONL
SCOPE=PENDING	PEND
SCOPE=RESET	RESET

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for SCOPE=ALL, code only EVERY or E. Do not code SCOPE=E.

## Purpose

The DISPLAY LINES command displays the status of lines and channel links in the domain.

**Note:** To display lines and channel links independently of the major nodes that contain them, use the DISPLAY RSCLIST command with IDTYPE=LINES.

## Operands

### ID=name

Specifies the name of one or more active NCP, channel-attachment, or XCA major nodes whose subordinate lines and channel links are to be displayed.

If OWNER is also specified on this command, the value of ID must match the name of an NCP major node.

Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand. For more information about using wildcards, see "Using wildcard names" on page 11.

**Note:** Specifying a wildcard name might degrade performance because VTAM checks every NCP, channel-attachment, and XCA major node in the network.

### LIST

Specifies the level of detail to display.

#### LIST=COUNT

Displays only the number of resources in each state, based on the filters specified in the SCOPE, OWNER, and IDTYPE keywords.

#### LIST=ALL

Displays information about all resources, based on the filters specified in the SCOPE, OWNER, and IDTYPE keywords.

## DISPLAY LINES

### MAX

Specifies the maximum number of resources that VTAM displays for this command. This operand is valid only with LIST=ALL.

#### MAX=\*

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

#### MAX=number\_of\_resources

Specifies the number of lines and channel links that VTAM displays for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer lines or channel links are found than you have specified on MAX, VTAM displays only the lines and channel links that are found.

### OWNER

Specifies whether lines and channel links defined with the OWNER operand are to be displayed. This operand is valid only when the name or the wildcard value specified on the ID operand matches the name of an NCP major node.

#### OWNER=host\_name

Specifies that only lines and channel links whose owning SSCP (as determined by the OWNER operand on the GROUP or LINE definition statements) matches the *host\_name* specified are to be displayed.

#### OWNER=\*NONE

Specifies that only lines and channel links **without** an OWNER operand on the GROUP or LINE definition statements are to be displayed.

### SCOPE

Specifies the required scope of the display.

**Note:** If you specify the SCOPE operand without specifying a value SCOPE=ALL is assumed

#### SCOPE=ACT

Specifies that information is to be displayed about all active, pending, and connectable lines and channel links within the specified major nodes (or within all NCP, channel-attachment, and XCA major nodes if the ID operand is omitted). If this display is undesirably large, you can use SCOPE=ACTONLY to further limit the display.

#### SCOPE=ACTONLY

Specifies that information is to be displayed about all lines and channel links in an active state within the specified major nodes (or within all NCP, channel-attachment, and XCA major nodes if the ID operand is omitted). The display does **not** include lines and channel links in pending or connectable states. If no lines or channel links are found in an active state, you can use SCOPE=ACT to broaden the scope of the display to include those in active, connectable, and pending states.

#### SCOPE=ALL

Specifies that information is to be displayed about all lines and channel



links (regardless of their status) within the specified major nodes (or within all NCP, channel-attachment, and XCA major nodes if the ID operand is omitted).

**SCOPE=IACTIVE**

Specifies that information is to be displayed about all lines and channel links within the specified major nodes (or within all NCP, channel-attachment, and XCA major nodes if the ID operand is omitted) which are ISTATUS=ACTIVE.

**SCOPE=IINACT**

Specifies that information is to be displayed about all lines and channel links within the specified major nodes (or within all NCP, channel-attachment, and XCA major nodes if the ID operand is omitted) which are STATUS=INACTIVE.

**SCOPE=INACT**

Specifies that information is to be displayed about all inactive lines and channel links within the specified major nodes (or within all NCP, channel-attachment, and XCA major nodes if the ID operand is omitted). If this display is undesirably large, you can use SCOPE=INACTONLY or SCOPE=RESET to further limit the display.

**SCOPE=INACTONLY**

Specifies that information is to be displayed about all inactive lines and channel links within the specified major nodes (or within all major nodes if the ID operand is omitted). Resources in a RESET state are not included in the SCOPE=INACTONLY display.

**SCOPE=PENDING**

Specifies that information is to be displayed about all pending lines and channel links within the specified major nodes (or within all NCP, channel-attachment, and XCA major nodes if the ID operand is omitted). A pending state is a transient state to or from the fully active state.

**SCOPE=RESET**

Specifies that information is to be displayed about all lines and channel links in a RESET state within the specified major nodes (or within all NCP, channel-attachment, and XCA major nodes if the ID operand is omitted).

**USE**

Specifies whether information is to be displayed about lines that are currently designated as DEFINED or SPARE. If you do not specify USE, information about both spare and defined lines is displayed.

**USE=DEFINED**

Specifies that information is to be displayed only about lines that are currently usable.

**USE=SPARE**

Specifies that information is to be displayed only about spare lines.

**Resulting display**

VTAM displays the name and status of each line within the specified major node (or within all major nodes containing lines if ID is omitted). The display is limited to active, inactive, or pending minor nodes if specified on the SCOPE operand.

## DISPLAY LINES

### Examples

Displaying all lines:

```
d net,lines
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = LINES
IST354I PU T4/5 MAJOR NODE = ISTEPUS
IST170I LINES:
IST080I 0016-L  ACTIV----I 0017-L  ACTIV----I
IST354I PU T4/5 MAJOR NODE = A0462ZC
IST170I LINES:
IST080I A04B00  NEVAC      A04B01  NEVAC      A04B03  NEVAC
IST080I A04B32  NEVAC      A04B33  NEVAC      A04B35  NEVAC
IST080I A04VXX  NEVAC----T A04S02  NEVAC      A04S34  NEVAC
IST080I A04S04  NEVAC      A04S16  NEVAC      A04S20  NEVAC
IST080I A04S36  NEVAC      A04S48  NEVAC      A04S52  NEVAC
IST080I A04S128 NEVAC      A04S136 NEVAC      A04PT88 ACTIV
IST080I A04PT89 NEVAC      A04PT92 NEVAC      J0004001 ACTIV
IST080I J0004003 ACTIV      J0004005 ACTIV      J0004007 ACTIV
IST080I J0004009 ACTIV      J000400B ACTIV      J000400D ACTIV
IST080I J000400F ACTIV      J0004011 ACTIV      J0004013 ACTIV
IST080I A04C00  NEVAC      A04C02  NEVAC
IST1454I 32 RESOURCE(S) DISPLAYED
IST314I END
```

Displaying all lines within a specific major node:

```
d net,lines,id=a0362zc
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = LINES
IST354I PU T4/5 MAJOR NODE = A0362ZC
IST170I LINES:
IST080I A03B00  NEVAC      A03B01  NEVAC      A03B32  NEVAC
IST080I A03B33  NEVAC      A03VXX  NEVAC----T A03S02  NEVAC
IST080I A03S16  ACTIV      A03S20  ACTIV      A03S128 NEVAC
IST080I A03PT88 ACTIV      A03PT89 ACTIV      J0003001 ACTIV
IST080I J0003003 ACTIV      J0003005 ACTIV      J0003007 ACTIV
IST080I J0003009 ACTIV      J000300B ACTIV      J000300D ACTIV
IST080I J000300F ACTIV      J0003011 ACTIV      J0003013 ACTIV
IST080I J0003015 ACTIV      J0003017 ACTIV      J0003019 ACTIV
IST080I J000301B ACTIV      J000301D ACTIV      J000301F NEVAC
IST080I J0003021 NEVAC      J0003023 NEVAC      J0003025 NEVAC
IST080I J0003027 NEVAC      J0003029 NEVAC      J000302B NEVAC
IST080I J000302D NEVAC      J000302F NEVAC      J0003031 ACTIV
IST080I J0003033 ACTIV      J0003035 ACTIV      J0003037 ACTIV
IST080I J0003039 ACTIV      J000303B ACTIV      J000303D ACTIV
IST080I J000303F ACTIV      J0003041 ACTIV      J0003043 ACTIV
IST080I J0003045 ACTIV      J0003047 ACTIV      J0003049 ACTIV
IST080I J000304B ACTIV      J000304D ACTIV      J000304F NEVAC
IST080I A03C08  NEVAC      A03C10  NEVAC      A03C00  NEVAC
IST080I A03C02  NEVAC
IST1454I 55 RESOURCE(S) DISPLAYED FOR ID=A0362ZC
IST314I END
```

Displaying all lines owned by a specific SSCP:

```
d net,lines,owner=sscp1a
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = LINES
IST354I PU T4/5 MAJOR NODE = NCP3AA1
IST170I LINES:
IST080I LN3A1  NEVAC      LN3A7  NEVAC      LN3A4  NEVAC
IST080I LN3A4A1 NEVAC      LN3A4A2 NEVAC      LN3A4A3 NEVAC
IST080I LN3A4A4 NEVAC      LN3A4AM NEVAC      LN3A5A1 NEVAC
IST080I LN3A5A2 NEVAC      LN3A8A1 NEVAC
IST1454I 11 RESOURCE(S) DISPLAYED
IST314I END
```

Displaying lines, limiting output to three resources:

```
d net,lines,max=3
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = LINES
IST354I PU T4/5 MAJOR NODE = NCP3AA1
IST170I LINES:
IST080I LN3A1   NEVAC   LN3A6   NEVAC   LN3A7   NEVAC
IST1315I DISPLAY TRUNCATED AT MAX = 3
IST1454I 3 RESOURCE(S) DISPLAYED
IST314I END
```

Displaying LIST=COUNT:

```
d net,lines,id=ncp3ab8,list=count
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = LINES
IST354I PU T4/5 MAJOR NODE = NCP3AB8
IST1747I SUMMARY OF STATE INFORMATION:
IST1748I RESET =          1  INACT =          67  ACTIV =          1
IST1454I 69 RESOURCE(S) DISPLAYED FOR ID=NCP3AB8
IST314I END
```

## DISPLAY LMTBL command

Display partner LUs in LU-mode table:

►► DISPLAY — NET —, —LMTBL —, —ID —=— *appl\_name* —, —TYPE —=— LUNAME —►►



Display logon mode names in LU-mode table:

►► DISPLAY — NET —, —LMTBL —, —ID —=— *appl\_name* —, —LUNAME —=— *lu\_name* —►►

►, —TYPE —=— LOGMODE —►►

### Abbreviations

Operand	Abbreviation
DISPLAY	D
LUNAME	LU
SCOPE=ALL	EVERY or E
SCOPE=ONLY	NONE or N

### Purpose

The DISPLAY LMTBL (LU-mode table) command displays information contained in the LU-mode table. It shows either all logon mode names defined for an

application program and its partner LU or the names of all partner LUs for the specified application program.

### Operands

#### **ID=appl\_name**

Specifies the name of the LU 6.2 application program to which the requested information applies. *appl\_name* cannot be a network-qualified name.

#### **LUNAME=lun\_name**

Specifies the name of the partner LU to which the requested logon mode information applies. LUNAME is required for TYPE=LOGMODE. The name can be a network-qualified name in the form of *netid.lunname*.

If PARM=(NQNAMES=NO) is coded on the ACB macro of the resource named on the ID operand, and a network-qualified name is specified, the network identifier is ignored.

If PARM=(NQNAMES=YES) is coded on the ACB macro, *lunname* can be either a non-network-qualified name or a network-qualified name. If *lunname* is a non-network-qualified name, the command is processed against all LUs with that non-network-qualified name across all networks. If *lunname* is a network-qualified name, the command is processed against the LU in the specified network.

#### **SCOPE**

Specifies the required scope of the display. SCOPE is valid only when TYPE=LUNAME is specified.

**Note:** If you specify the SCOPE operand without specifying a value SCOPE=ALL is assumed.

#### **SCOPE=ALL**

Specifies that additional information is to be displayed about the partner LUs stored in the LU-mode table.

#### **SCOPE=ONLY**

Specifies that additional information is not to be displayed.

#### **TYPE**

Specifies the type of information you want to display.

#### **TYPE=LUNAME**

Displays the names of all partner LUs that are defined in the LU-mode table for the LU 6.2 application program specified.

#### **TYPE=LOGMODE**

Displays the logon mode names defined in the LU-mode table for the application program and partner LU specified.

### Resulting display

The resulting VTAM display shows:

- For TYPE=LUNAME:
  - SCOPE=ONLY
    - The name of the specified application program
    - The name of each partner LU associated with the specified application program
  - SCOPE=ALL

- The type of LU entry which contains the partner LU definitions
- The other name, if any, the partner LU is known by
- For TYPE=LOGMODE:
  - The name of the specified application program and partner LU
  - The name of logon modes associated with the partner LUs of the specified application program

**Examples**

Displaying logon mode names in LU-mode table:

```
d net,lmtbl,type=logmode,id=echo50b,luname=netc.echoc1a
IST097I DISPLAY ACCEPTED
IST1006I LOGMODE NAMES DEFINED IN LU NETC.ECHOC1A FOR ECH050B
IST988I SNASVCMG BATCH
IST314I END
```

Displaying partner LUs in LU-mode table:

```
d net,lmtbl,type=luname,id=echo50b
IST097I DISPLAY ACCEPTED
IST1006I LU NAMES DEFINED FOR ECH050B
IST1154I NETC.ECHOC1A
IST314I END
```

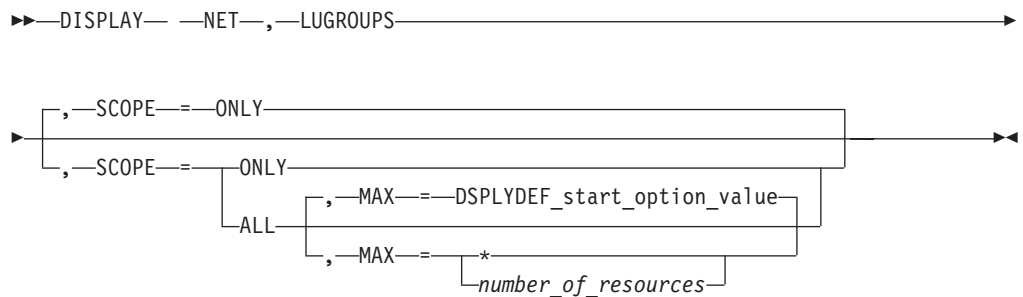
Displaying partner LUs in LU-mode table with LU entry types and associated names:

```
d net,lmtbl,type=luname,id=appcap06,scope=all
IST097I DISPLAY ACCEPTED
IST1006I LU NAMES DEFINED FOR APPCAP06 397 00003
IST1409I NETA.APPCAP05 ASSOC = NETA.TOM ETYPE = SUPPLIED
IST1409I NETA.TOM ASSOC = NETA.APPCAP05 ETYPE = VARIANT
IST314I END
```

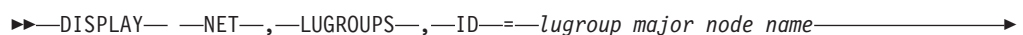
---

**DISPLAY LUGROUPS command**

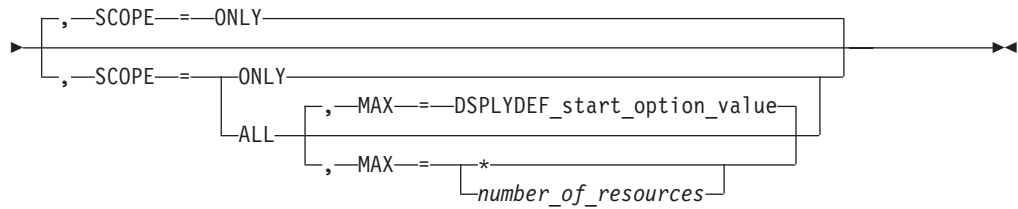
**Display all LUGROUP major nodes:**



**Display a specific LUGROUP major node:**



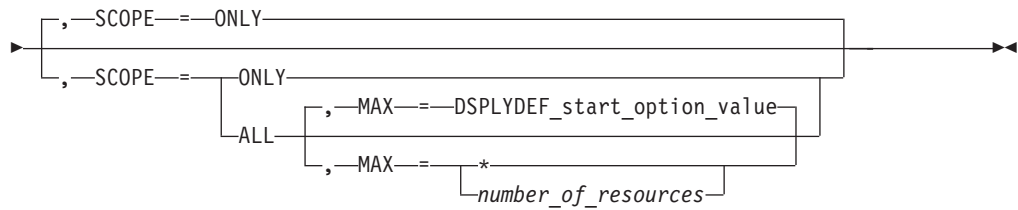
## DISPLAY LUGROUPS



### Display a model LU group:

```

  ►► DISPLAY NET,LUGROUPS,ID=model_lu_group
  
```



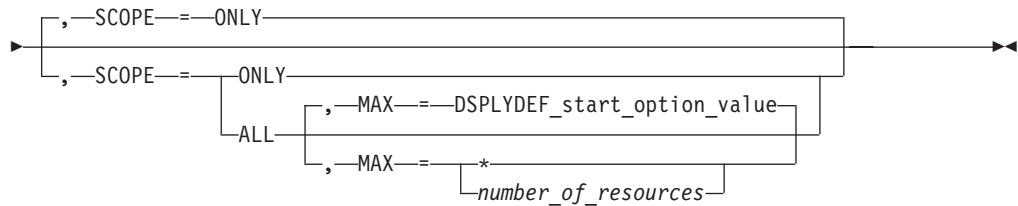
### Display a model LU:

```

  ►► DISPLAY NET,LUGROUPS,ID=model_lu_name
  
```

```

  ►,GROUP=model_lu_group
  
```



## Abbreviations

Operand	Abbreviation
DISPLAY	D
SCOPE=ALL	EVERY or E
SCOPE=ONLY	NONE or N

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for SCOPE=ALL, code only EVERY or E. Do not code SCOPE=E.

## Purpose

The DISPLAY LUGROUPS (logical unit groups) command provides information about LUGROUP major nodes, model LU groups, and specific model LUs within an LU group.

## Operands

### **GROUP=model\_lu\_group**

Specifies the name of a model LU group. This operand is valid only if the ID operand specifies a model LU. It is required if the ID operand specifies a model LU to indicate which model LU group to search. Because two different model LU groups can contain model LUs with the same name, this specification of which model LU group to search is necessary.

### **ID=name**

Specifies one of the following names:

- LUGROUP major node name
- Model LU group name
- Model LU name

### **MAX**

Specifies the maximum number of resources that VTAM displays for this command.

The MAX operand is valid only when SCOPE=ALL is specified.

### **MAX=\***

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

### **MAX=number\_of\_resources**

Specifies the number of resources to display for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer resources are found than you have specified on MAX, VTAM displays only the resources that are found.

### **SCOPE**

Specifies what LUGROUP resources are displayed. The results depend on whether an ID is specified and whether SCOPE is specified as ONLY or ALL.

#### **SCOPE=ALL**

Specifies that the requested node and all its subordinate nodes be displayed.

#### **SCOPE=ONLY**

Specifies that only the requested nodes be displayed.

## Resulting display

The resulting VTAM display shows:

- If ID is not specified:
  - For SCOPE=ONLY, all LUGROUP major nodes
  - For SCOPE=ALL, all LUGROUP major nodes, their model LU groups, and their model LUs
- If ID specifies an LUGROUP major node:
  - For SCOPE=ONLY, each of the LU groups within the specified LUGROUP major node

## DISPLAY LUGROUPS

- For SCOPE=ALL, the specified LUGROUP major node, its model LU groups, and their model LUs
- If ID specifies a model LU group:
  - For SCOPE=ONLY, the specified model LU group, verifying that it is active
  - For SCOPE=ALL, the specified model LU group and its model LUs
- If ID specifies a model LU and GROUP specifies a model LU group:
  - For SCOPE=ONLY, the specified model LU, verifying that it exists within the specified model LU group
  - For SCOPE=ALL, the characteristics of the specified model LU

### Examples

Displaying all LU groups:

```
d net,lugroups,scope=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = LUGROUP MAJOR NODES
IST1060I LUGROUP MAJOR NODE = LUGRP50
IST075I NAME = LARRY, TYPE = MODEL LU GROUP
IST355I LOGICAL UNITS:
IST080I 3194@00          3194000          @@90001
IST080I 329000@         327@@01          9373@
IST080I 9375@           3270@           @
IST075I NAME = CURLY, TYPE = MODEL LU GROUP
IST355I LOGICAL UNITS:
IST080I 3194@           3290@           3270001
IST080I 3270@           @
IST075I NAME = MOE, TYPE = MODEL LU GROUP
IST355I LOGICAL UNITS:
IST080I 3194@           3290@           3270001
IST080I 3270@           @
IST1454I 19 RESOURCE(S) DISPLAYED
IST314I END
```

Displaying a specific LUGROUP major node:

```
d net,lugroups,id=lugrp50
IST097I DISPLAY ACCEPTED
IST1060I LUGROUP MAJOR NODE = LUGRP50
IST075I NAME = LARRY, TYPE = MODEL LU GROUP
IST075I NAME = CURLY, TYPE = MODEL LU GROUP
IST075I NAME = MOE, TYPE = MODEL LU GROUP
IST314I END
```

Displaying a model LU group:

```
d net,lugroups,id=larry,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = LARRY, TYPE = MODEL LU GROUP
IST355I LOGICAL UNITS:
IST080I 3194@00          3194000          @@90001
IST080I 329000@         327@@01          9373@
IST080I 9375@           3270@           @
IST1454I 9 RESOURCE(S) DISPLAYED
IST314I END
```

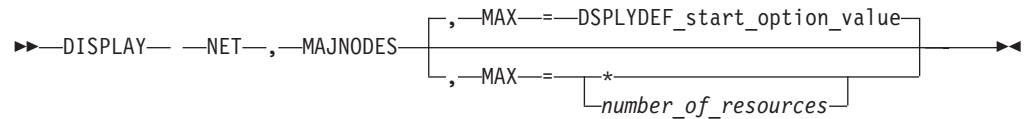
Displaying a specific LU in a lugroup major node:

```
d net,lugroups,id=3194@00,group=larry,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.3194@00, TYPE = MODEL LU
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
```



```
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = 3194@00 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST314I END
```

## DISPLAY MAJNODES command



### Abbreviations

Operand	Abbreviation
DISPLAY	D

### Purpose

The DISPLAY MAJNODES (major nodes) command displays the status of all active major nodes in the domain.

This command displays the status of all **active** major nodes, which include the following major node types:

- Adjacent CP
- Application program
- Cross-domain resource manager (CDRM); in a multiple-domain network
- Channel-attachment
- Cross-domain resource (CDRSC); in a multiple-domain network (including independent logical units)
- Dynamic XCF local SNA major node (ISTLSXCF)
- External communication adapter (XCA)
- Local SNA
- Local non-SNA
- LUGROUP
- Model
- NCP
- Rapid transport protocol (ISTRTPMN)
- Switched
- Transport resource list

**Note:** NCP major nodes, which are type 4 physical units, are listed in the display as PU T4/5 major nodes. The VTAM host physical unit, which is a type 5 physical unit, is listed in the display as a PU T4/5 major node. Channel-attachment major nodes are listed in the display as CA major nodes.

### Operands

#### MAX

Specifies the maximum number of active major nodes that VTAM displays for this command.

## DISPLAY MAJNODES

### MAX=\*

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

### MAX=number\_of\_resources

Specifies the number of active major nodes that VTAM displays for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer active major nodes are found than you have specified on MAX, VTAM displays only the active major nodes that are found.

## Resulting display

The resulting display gives the name, type, and status of each known major node.

## Examples

Displaying major nodes:

```
d net,majnodes
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = MAJOR NODES
IST089I VTAMSEG TYPE = APPL SEGMENT , ACTIV
IST089I VTAMSG2 TYPE = APPL SEGMENT , ACTIV
IST089I ISTOPUS TYPE = PU T4/5 , ACTIV
IST089I ISTOPDILU TYPE = CDRSC SEGMENT , ACTIV
IST089I ISTOPADJCP TYPE = ADJCP MAJOR NODE , ACTIV
IST089I ISTOPCDRDY TYPE = CDRSC SEGMENT , ACTIV
IST089I ISTOPTRL TYPE = TRL MAJOR NODE , ACTIV
IST089I ISTOPPC1A TYPE = APPL SEGMENT , ACTIV
IST089I ISTOPPL1A TYPE = APPL SEGMENT , ACTIV
IST089I ISTOPDRM1A TYPE = CDRM SEGMENT , ACTIV
IST089I ISTOPDRSC1A TYPE = CDRSC SEGMENT , ACTIV
IST089I ISTOPSIAPPL1 TYPE = APPL SEGMENT , ACTIV
IST089I ISTOPLOCAL1A TYPE = LCL 3270 MAJ NODE, ACTIV
IST089I ISTOPLSXCF TYPE = LCL SNA MAJ NODE , ACTIV
IST1454I 14 RESOURCE(S) DISPLAYED
IST314I END
```

Displaying major nodes: limiting output to two resources:

```
d net,majnodes,max=2
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = MAJOR NODES
IST089I VTAMSEG TYPE = APPL SEGMENT , ACTIV
IST089I VTAMSG2 TYPE = APPL SEGMENT , ACTIV
IST1315I DISPLAY TRUNCATED AT MAX = 2
IST1454I 2 RESOURCE(S) DISPLAYED
IST314I END
```

---

## DISPLAY MODELS command

Display model major nodes, model PUs, and model LUs:

►►—DISPLAY— —NET—,—MODELS—┐  
└,—ID—==—model\_name—┘



**Display the best, active model application definition for a given application name:**

```
►► DISPLAY — NET —, — MODELS —, — APPL — = appl_name —►►
```

### Abbreviations

Operand	Abbreviation
DISPLAY	D
SCOPE=ALL	EVERY or E
SCOPE=ONLY	NONE or N

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for SCOPE=ALL, code only EVERY or E. Do not code SCOPE=E.

### Purpose

The DISPLAY MODELS command provides information about model resources, excluding model CDRSCs.

VTAM can dynamically define switched PUs and LUs by defining a model major node with descriptions of model PUs and LUs. When a switched device that has not been defined to VTAM requests connection, VTAM copies these model descriptions to build dynamic switched PUs and LUs. The DISPLAY MODELS command allows you to view the models as defined by VTAM.

In addition, VTAM will use the Model XCF PU definition as the basis for defining dynamic XCF PUs when establishing XCF connectivity.

VTAM can dynamically define applications by using model application definitions in an APPL major node. When an OPEN application control block (ACB) is issued for an application that has not been defined to VTAM, VTAM copies these model definitions to build dynamic application definitions. Use the DISPLAY MODELS command to determine which model application definition will be used for your application.

### Operands

**APPL=appl\_name**

Specifies the application name for which you want to find the best, active model application definition.

**ID=model\_name**

Specifies the model whose definition you want to view. This includes the model major node and the individual model PU and LU devices.

## DISPLAY MODELS

### SCOPE

Specifies which model resources to display. The results depend on whether an ID is specified and whether SCOPE is specified as ONLY or ALL.

#### SCOPE=ALL

If ID is not specified, SCOPE=ALL displays all model major nodes, model PUs, and model LUs defined to VTAM.

If ID specifies a model major node name, SCOPE=ALL displays that major node and its model PUs and LUs.

If ID specifies a model PU or LU, SCOPE=ALL displays information about that model PU or LU.

#### SCOPE=ONLY

If ID is not specified, SCOPE=ONLY displays all model major nodes defined to VTAM. No model PUs or LUs are displayed.

If ID specifies a model major node name, SCOPE=ONLY displays information about that major node. Its model PUs and LUs are not displayed.

If ID specifies a model PU or LU, SCOPE=ONLY displays information about that model PU or LU.

### Resulting display

The resulting VTAM display shows the following information, depending on which operand is specified on the command.

- If ID is specified:
  - For SCOPE=ONLY, the name and type of the model node specified
  - For SCOPE=ALL, the name and type of the model node specified and, for a model major node, the name, type, and status of its subordinate nodes
- If neither ID nor APPL is specified:
  - For SCOPE=ONLY, all model major nodes
  - For SCOPE=ALL, all model major nodes and the name, type, and status of their subordinate nodes
- If APPL is specified:
  - The active model application definition that is the best match for the specified application name
  - Possibly, an indication that the application name is already in use

### Examples

Displaying all model major nodes:

```
d net,models
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = MODELS
IST1018I MODEL MAJOR NODE = A03MMNC
IST314I END
```

Displaying all model major nodes and their subordinate resources:

```
d net,models,scope=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = MODELS
IST1018I MODEL MAJOR NODE = A03MMNC
```

```
IST1017I MODELS:
IST089I A03MMNPU TYPE = PU_T2          , RESET
IST089I A03MMNLU TYPE = LOGICAL UNIT   , RESET
IST314I END
```

Displaying a specific model major node and its subordinate resources:

```
d net,models,id=a03mmnc,scope=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = MODELS
IST075I NAME = A03MMNC, TYPE = MODEL MAJOR NODE
IST1656I VTAMTOP0 = REPORT, NODE REPORTED - YES
IST1017I MODELS:
IST089I A03MMNPU TYPE = PU_T2          , RESET
IST089I A03MMNLU TYPE = LOGICAL UNIT   , RESET
IST314I END
```

Displaying a specific PU in a model major node:

```
d net,models,id=a03mmnpu
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = MODELS
IST075I NAME = A03MMNPU, TYPE = PHYSICAL UNIT
IST1018I MODEL MAJOR NODE = A03MMNC
IST314I END
```

Displaying a specific LU in a model major node:

```
d net,models,id=a03mmnlu
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = MODELS
IST075I NAME = A03MMNLU, TYPE = LOGICAL UNIT
IST1018I MODEL MAJOR NODE = A03MMNC
IST977I MDLTAB=MDLTAB1 ASLTAB=ASLTAB1
IST861I MODETAB=AMODETAB USSTAB=AUSSTAB LOGTAB=INTERP
IST934I DLOGMOD=M23278I USS LANGTAB=***NA***
IST1131I DEVICE = LU
IST228I ENCRYPTION = REQD, TYPE = TDES24
IST1563I CKEYNAME = A03MMNLU CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST314I END
```

Displaying the model application definition that will be used by a specific application:

```
d net,models,appl=applany
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = MODELS
IST2302I MODEL APPL* IS THE BEST ACTIVE MATCH FOR APPLANY
IST314I END
```

Displaying the model application definition that will be used by a specific application, even when the application name is already in use:

```
d net,models,appl=applany
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = MODELS
IST2302I MODEL APPL* IS THE BEST ACTIVE MATCH FOR APPLANY
IST2304I APPLANY ALREADY EXISTS, TYPE=APPL SEGMENT
IST314I END
```

Displaying the model application definition that will be used by a specific application, when no model can be found:

## DISPLAY MODELS

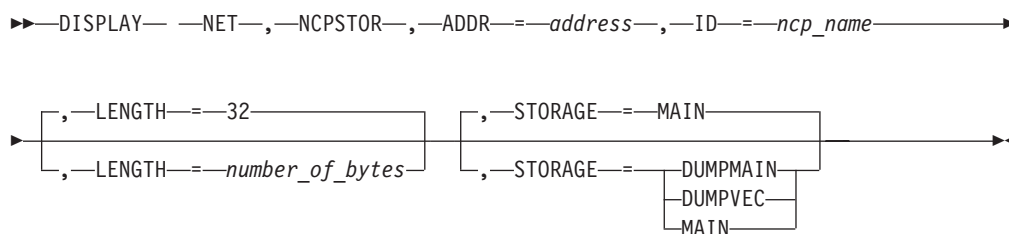
```
d net,models,appl=applany
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = MODELS
IST2303I THERE IS NO ACTIVE MODEL MATCH FOR APPLANY
IST314I END
```

Displaying the model application definition that will be used by a specific application when no model can be found but when the application name is in use:

```
d net,models,appl=applany
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = MODELS
IST2303I THERE IS NO ACTIVE MODEL MATCH FOR APPLANY
IST2304I APPLANY ALREADY EXISTS, TYPE=APPL SEGMENT
IST314I END
```

---

## DISPLAY NCPSTOR command



### Abbreviations

Operand	Abbreviation
DISPLAY	D

### Purpose

The DISPLAY NCPSTOR (NCP storage) command displays either the storage contents of a communication controller running an NCP, or an NCP dump stored in an IBM 3720 or 3745 Communication Controller. This command displays up to 256 (decimal) bytes from any address within the communication controller or the dump stored in the IBM 3720 or 3745 Communication Controller.

### Operands

#### ADDR=address

Specifies the address (in hexadecimal) of the first byte of data to be displayed.

#### ID=ncp\_name

Specifies the name of the NCP whose storage is to be displayed.

#### LENGTH=number\_of\_bytes

Specifies the number of bytes of NCP storage to be displayed. Any decimal integer 1–256 can be specified. If LENGTH is omitted, VTAM displays 32 bytes (the default).

#### STORAGE

Specifies the type of storage to be displayed.

##### STORAGE=MAIN

Displays the storage contents of an IBM 3720 or 3745 Communication Controller running an NCP.

**STORAGE=DUMPVEC**

Displays the state vector (also called the dump header) of the NCP stored in the IBM 3720 or 3745 Communication Controller. The state vector contains items such as the NCP registers, storage keys, program state, and instruction addresses. The state vector is storage that is linearly addressable in the range 0–511, depending on the communication controller unit model. If the sum of the *number\_of\_bytes* specified for LENGTH and the *address* specified for ADDR is greater than 511, then LENGTH is modified to display the state vector from the *address* specified for ADDR to 511.

**STORAGE=DUMPMAIN**

Displays the main part of an NCP dump stored on the IBM 3270 or 3745 Communication Controller. This dump portion is mapped byte for byte to the main storage of the communication controller. The displayable address range starts at main storage address 0 and ends at the address 1 byte lower than the maximum storage installed on the communication controller external storage.

**Resulting display**

The resulting display shows:

- The type of storage
- The name of the NCP
- The contents of storage, in hexadecimal, with addresses

**Examples**

Displaying the NCP storage executing in the controller:

```
d net,ncpstor,id=a0362zc,addr=0,storage=main
IST097I DISPLAY ACCEPTED
IST244I NCP MAIN STORAGE          FOR ID = A0362ZC
IST245I 000000    714C01AA 719C09A8 B900000D B806B568
IST245I 000010    00000000 00000000 00000000 00000000
IST314I END
IST241I D NCPSTOR COMMAND COMPLETE FOR A0362ZC
```

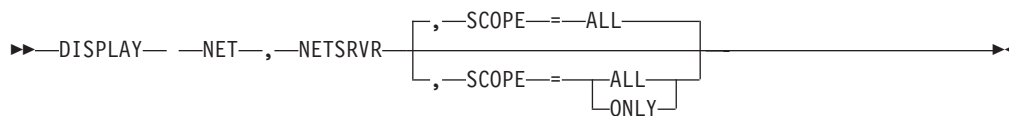
Displaying the state vector of a dump stored on the controller:

```
d net,ncpstor,id=a0362zc,storage=dumpvec,addr=0
IST097I DISPLAY ACCEPTED
IST244I NCP DUMP VECTOR STORAGE FOR ID = A0362ZC
IST245I 000000    00800C02 011257AE 0001E088 00155994
IST245I 000010    00156648 001257A8 00155D40 0004D5E0
IST314I END
IST241I D NCPSTOR COMMAND COMPLETE FOR A0362ZC
```

Displaying the main portion of a dump stored on the controller:

```
d net,ncpstor,id=a0362zc,storage=dumpmain,addr=512,length=64
IST097I DISPLAY ACCEPTED
IST244I NCP DUMP MAIN STORAGE    FOR ID = A0362ZC
IST245I 000512    2742 68140910 17180728 27BE9001
IST245I 000520    28D02539 CD0435D0 A8022458 BF40047A
IST245I 000530    A80E2539 D440E3E1 35D025B9 BF40047A
IST245I 000540    00700070 6513E47F 21390458 5180F560
IST245I 000550    8846
IST314I END
IST241I D NCPSTOR COMMAND COMPLETE FOR A0362ZC
```

## DISPLAY NETSRVR command



### Abbreviations

Operand	Abbreviation
DISPLAY	D
SCOPE=ALL	EVERY or E
SCOPE=ONLY	NONE or N

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for SCOPE=ALL, code only EVERY or E. Do not code SCOPE=E.

### Purpose

The DISPLAY NETSRVR (network node server) command displays information about network node servers. Enter this command at the end node whose server information you want to display. This command is valid only when it is issued at an end node or migration data host.

### Operands

#### SCOPE

Specifies the required scope of the display.

#### SCOPE=ONLY

Displays the network node server list that is currently active and displays the current network node server.

#### SCOPE=ALL

Displays, in addition to the information shown for SCOPE=ONLY, other network nodes known to the end node that can act as network node servers. Other network nodes are allowed as servers only if the current network node server list contains a nameless entry.

### Resulting display

The resulting display shows:

- The contents of the active network node server list.
- For each network node in the list, an indication of whether support for SLU-initiated sessions is required or optional in order to establish a CP-CP session with this end node.
- If the list contains explicit entries, the order in which the entries are used (FIRST or NEXT).
- If SCOPE=ALL is specified, other network nodes known to this end node that are allowed as network node servers. Other network nodes are allowed as servers only if the current list contains a nameless entry.



- The name of the current network node server. The name displayed here is the name of an adjacent network node that this end node has most recently determined to be a suitable network node server and with which this end node has either established CP-CP sessions or is in the process of establishing CP-CP sessions. At the time the DISPLAY NETSRVR command displays this name, CP-CP sessions with this network node may or may not be fully active yet.
- The name of the preferred network node server if one has been specified.

For more information about how to code a network node server list, see the z/OS Communications Server: SNA Resource Definition Reference.

### Examples

Displaying a network node server list with one nameless entry and no explicit entries using SCOPE=ALL (no preferred network node server has been defined):

```
d net,netsrvr,scope=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = NETWORK NODE SERVER LIST
IST1252I DEFINED NETWORK NODE SERVER LIST, NAME = NNSL2J
IST1253I ****NAMELESS****          SLUINIT = OPT          ENBCAST = NO
IST924I -----
IST1255I OTHER NETWORK NODES ALLOWED AS SERVERS
IST1253I NETA.SSCP1A                SLUINIT = OPT          ENBCAST = NO
IST924I -----
IST1256I CURRENT NETWORK NODE SERVER
IST1253I NETA.SSCP1A                SLUINIT = OPT          ENBCAST = NO
IST924I -----
IST1677I PREFERRED NETWORK NODE SERVER
IST1253I NONE
IST314I END
```

Displaying a network node server list with one nameless entry and no explicit entries using SCOPE=ONLY (no preferred network node server has been defined):

```
d net,netsrvr,scope=only
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = NETWORK NODE SERVER LIST
IST1252I DEFINED NETWORK NODE SERVER LIST, NAME = NNSL2J
IST1253I ****NAMELESS****          SLUINIT = OPT          ENBCAST = NO
IST924I -----
IST1256I CURRENT NETWORK NODE SERVER
IST1253I NETA.SSCP1A                SLUINIT = OPT          ENBCAST = NO
IST924I -----
IST1677I PREFERRED NETWORK NODE SERVER
IST1253I NONE
IST314I END
```

Displaying a network node server list with one explicit entry and no nameless entry using SCOPE=ALL (no preferred network node server has been defined):

```
d net,netsrvr,scope=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = NETWORK NODE SERVER LIST
IST1252I DEFINED NETWORK NODE SERVER LIST, NAME = NNSL2B
IST1253I NETA.SSCP1A                SLUINIT = OPT          ENBCAST = NO
IST924I -----
IST1254I SERVER LIST PROCESSED ORDER = FIRST
IST924I -----
IST1255I OTHER NETWORK NODES ALLOWED AS SERVERS
IST1253I NONE
IST924I -----
IST1256I CURRENT NETWORK NODE SERVER
IST1253I NETA.SSCP1A                SLUINIT = OPT          ENBCAST = NO
```

## DISPLAY NETSRVR

```
IST924I -----  
IST1677I PREFERRED NETWORK NODE SERVER  
IST1253I NONE  
IST314I END
```

Displaying a network node server list with one explicit entry and no nameless entry using SCOPE=ONLY (no preferred network node server has been defined):

```
d net,netsrvr,scope=only  
IST097I DISPLAY ACCEPTED  
IST350I DISPLAY TYPE = NETWORK NODE SERVER LIST  
IST1252I DEFINED NETWORK NODE SERVER LIST, NAME = NNSL2B  
IST1253I NETA.SSCP1A          SLUINIT = OPT      ENBCAST = NO  
IST924I -----  
IST1254I SERVER LIST PROCESSED ORDER = FIRST  
IST924I -----  
IST1256I CURRENT NETWORK NODE SERVER  
IST1253I NETA.SSCP1A          SLUINIT = OPT      ENBCAST = NO  
IST924I -----  
IST1677I PREFERRED NETWORK NODE SERVER  
IST1253I NONE  
IST314I END
```

Displaying the preferred network node server using SCOPE=ALL. A network node server list has not been activated.

```
d net,netsrvr,scope=all  
IST097I DISPLAY ACCEPTED  
IST350I DISPLAY TYPE = NETWORK NODE SERVER LIST  
IST1252I DEFINED NETWORK NODE SERVER LIST, NAME = NONE  
IST1253I NONE  
IST924I -----  
IST1255I OTHER NETWORK NODES ALLOWED AS SERVERS  
IST1253I NETA.SSCP1A          SLUINIT = REQ      ENBCAST = NO  
IST924I -----  
IST1256I CURRENT NETWORK NODE SERVER  
IST1253I NETA.SSCP1A          SLUINIT = REQ      ENBCAST = NO  
IST924I -----  
IST1677I PREFERRED NETWORK NODE SERVER  
IST1253I NETA.SSCP1A          SLUINIT = REQ      ENBCAST = NO  
IST314I END
```

Displaying the preferred network node server using SCOPE=ONLY. A network node server list has not been activated.

```
d net,netsrvr,scope=only  
IST097I DISPLAY ACCEPTED  
IST350I DISPLAY TYPE = NETWORK NODE SERVER LIST  
IST1252I DEFINED NETWORK NODE SERVER LIST, NAME = NONE  
IST1253I NONE  
IST924I -----  
IST1256I CURRENT NETWORK NODE SERVER  
IST1253I NETA.SSCP1A          SLUINIT = REQ      ENBCAST = NO  
IST924I -----  
IST1677I PREFERRED NETWORK NODE SERVER  
IST1253I NETA.SSCP1A          SLUINIT = REQ      ENBCAST = NO  
IST314I END
```

Displaying a network node server list with four explicit entries and one nameless entry using SCOPE=ALL. A preferred network node server has been defined.

```
d net,netsrvr,scope=all  
IST097I DISPLAY ACCEPTED  
IST350I DISPLAY TYPE = NETWORK NODE SERVER LIST  
IST1252I DEFINED NETWORK NODE SERVER LIST, NAME = NNSL2A  
IST1253I NETA.SSCPBA          SLUINIT = OPT      ENBCAST = NO  
IST1253I NETA.SSCP1A          SLUINIT = REQ      ENBCAST = NO  
IST1253I NETA.SSCP2A          SLUINIT = REQ      ENBCAST = NO  
IST1253I NETA.SSCP3A          SLUINIT = REQ      ENBCAST = NO
```

```

IST1253I NETA.SSCPDA          SLUINIT = OPT      ENBCAST = NO
IST1253I NETA.SSCPEA          SLUINIT = REQ      ENBCAST = NO
IST1253I ****NAMELESS****    SLUINIT = REQ      ENBCAST = NO
IST924I -----
IST1254I SERVER LIST PROCESSED ORDER = FIRST
IST1255I OTHER NETWORK NODES ALLOWED AS SERVERS
IST1253I NETA.SSCP1A          SLUINIT = REQ      ENBCAST = NO
IST924I -----
IST1256I CURRENT NETWORK NODE SERVER
IST1253I NETA.SSCP1A          SLUINIT = REQ      ENBCAST = NO
IST924I -----
IST1677I PREFERRED NETWORK NODE SERVER
IST1253I NETA.SSCP1A          SLUINIT = REQ      ENBCAST = NO
IST314I END

```

Displaying a network node server list with seven explicit entries and no nameless entry using SCOPE=ALL. A preferred network node server has been defined.

**d net,netsrvr,scope=all**

```

IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = NETWORK NODE SERVER LIST
IST1252I DEFINED NETWORK NODE SERVER LIST, NAME = NNSL2B
IST1253I NETA.SSCPXX          SLUINIT = REQ      ENBCAST = NO
IST1253I NETA.SSCPAA          SLUINIT = REQ      ENBCAST = NO
IST1253I NETA.SSCP9C          SLUINIT = REQ      ENBCAST = NO
IST1253I NETA.SSCPBA          SLUINIT = OPT      ENBCAST = NO
IST1253I NETA.SSCP1A          SLUINIT = REQ      ENBCAST = NO
IST1253I NETA.SSCPDA          SLUINIT = OPT      ENBCAST = NO
IST1253I NETA.SSCPEA          SLUINIT = REQ      ENBCAST = NO
IST924I -----
IST1254I SERVER LIST PROCESSED ORDER = FIRST
IST924I -----
IST1255I OTHER NETWORK NODES ALLOWED AS SERVERS
IST1253I NETA.SSCP1A          SLUINIT = REQ      ENBCAST = NO
IST924I -----
IST1256I CURRENT NETWORK NODE SERVER
IST1253I NETA.SSCP1A          SLUINIT = REQ      ENBCAST = NO
IST924I -----
IST1677I PREFERRED NETWORK NODE SERVER
IST1253I NETA.SSCP1A          SLUINIT = REQ      ENBCAST = NO
IST314I END

```

Displaying a network node server list with two explicit entries and no nameless entry using SCOPE=ALL. The primary network node server has been defined with ENBCAST=NO; a backup-mode network node server (used to enable generic resources with a network node server that is not attached to the same generic resource structure) is defined with ENBCAST=YES. The primary network node server is also defined as the preferred network node server.

**d net,netsrvr,scope=all**

```

IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = NETWORK NODE SERVER LIST
IST1252I DEFINED NETWORK NODE SEVER LIST, NAME = NNSL2B
IST1253I NETA.SSCP1A          SLUINIT = REQ      ENBCAST = NO
IST1253I NETA.SSCPXX          SLUINIT = REQ      ENBCAST = YES
IST924I -----
IST1254I SERVER LIST PROCESSED ORDER = FIRST
IST924I -----
IST1255I OTHER NETWORK NODES ALLOWED AS SERVERS
IST1253I NONE
IST924I -----
IST1256I CURRENT NETWORK NODE SERVER
IST1253I NETA.SSCP1A          SLUINIT = REQ      ENBCAST = NO
IST924I -----
IST1677I PREFERRED NETWORK NODE SERVER
IST1253I NETA.SSCP1A          SLUINIT = REQ      ENBCAST = NO

```

## DISPLAY PATHS command

►►—DISPLAY— —NET—,—PATHS—,—ID—=—*switched\_pu\_name*—►►

### Abbreviations

Operand	Abbreviation
DISPLAY	D
PATHS	P

### Purpose

The DISPLAY PATHS command displays dial-out path information about a switched physical unit.

### Operands

**ID=*switched\_pu\_name***

Specifies the name of a switched physical unit.

### Resulting display

The resulting display shows the physical unit name, line groups, telephone number or line name, path identifier, group identifier, count to try again, availability of the path, and user-defined DLCADDR subfields (if any) containing additional dial information. For Enterprise Extender definitions, the remote partner's IP address and host name are also displayed.

If the DLCADDR subfields are coded in binary-coded decimal (BCD) or hexadecimal (X) and contain an odd number of digits, the display is padded on the left with zeros. If the data type is BCD or X, a blank separates every eight characters of data.

### Examples

Displaying dial-out path information:

```
d net,paths,id=pu1
IST097I DISPLAY ACCEPTED
IST148I DIAL OUT PATH INFORMATION FOR PHYSICAL UNIT PU1
IST149I LINE GRP TELEPHONE NUMBER OR LINE NAME PID GID CNT
IST168I GRP1 PATH21A-890-3333 001 001 003 AVA
IST168I GRP1 002 000 003 AVA
IST1575I DIALNO FOR PID: 002
IST1318I 1ABCDEFGHIJKLMNPOQRSTUVWXYZ1234567890
IST168I GRP1 003 001 003 AVA
IST1575I DIALNO FOR PID: 003
IST1318I 123456789012345678901234567890123456789012345678901234567345
IST1319I 678901234567890123456789012345678901234567890123456789012
IST1319I 345678901234567890123456789012345678901234561234567890123
IST1319I 456789012345678901234567890123456789012345612345678901234
IST1319I 56789012345
IST168I GRP1 004 000 003 AVA
IST168I GRP1 005 000 003 AVA
IST1317I DLCADDR SUBFIELDS FOR PID: 004
IST1318I 1,C'TR'
IST1318I 20,C'9192545056'
IST1317I DLCADDR SUBFIELDS FOR PID: 005
```

```
IST1318I 1,C'SAMPLE'
IST1318I 20,C'1234567890ABCDEFGHIJKLMN0PQRSTUVWXYZ1234567890123456789
IST1319I 012345678901234567890'
IST314I END
```

Displaying dial-out PATH information of an Enterprise Extender switched major node using IPv4 addresses:

```
d net,paths,id=swip2a1
IST097I DISPLAY ACCEPTED
IST148I DIAL OUT PATH INFORMATION FOR PHYSICAL UNIT SWIP2A1
IST149I LINE GRP TELEPHONE NUMBER OR LINE NAME PID GID CNT
IST168I GPIIP 000 000 005 AVA AUT
IST1680I REMOTE IP ADDRESS 9.42.105.148
IST1909I REMOTE HOSTNAME NODENAME.NETID.DOMAINNAME.COM
IST314I END
```

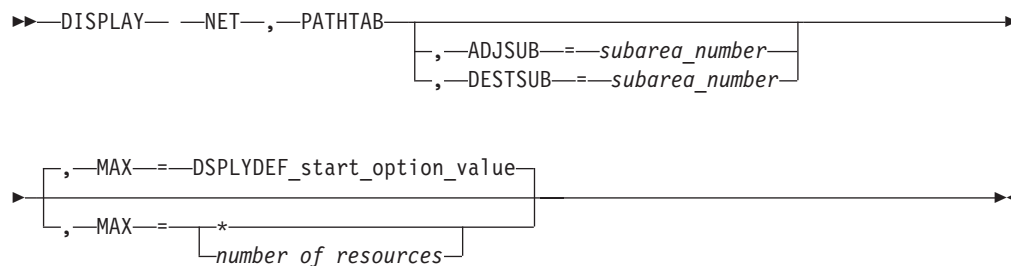
Displaying dial-out PATH information of an Enterprise Extender switched major node which specifies HOSTNAME, but which has not yet been dialed:

```
d net,paths,id=swip2a2
IST097I DISPLAY ACCEPTED
IST148I DIAL OUT PATH INFORMATION FOR PHYSICAL UNIT SWIP2A2
IST149I LINE GRP TELEPHONE NUMBER OR LINE NAME PID GID CNT
IST168I GPIIP 000 000 005 AVA AUT
IST1680I REMOTE IP ADDRESS *****
IST1909I REMOTE HOSTNAME NODENAME.NETID.DOMAINNAME.COM
IST314I END
```

Displaying dial-out PATH information of an Enterprise Extender switched major node using IPv6 addresses:

```
d net,paths,id=swip2a2
IST097I DISPLAY ACCEPTED
IST148I DIAL OUT PATH INFORMATION FOR PHYSICAL UNIT SWIP2A2
IST149I LINE GRP TELEPHONE NUMBER OR LINE NAME PID GID CNT
IST168I GPIIP 000 000 005 AVA AUT
IST1680I REMOTE IP ADDRESS 3FFE::9.42.105.148
IST1909I REMOTE HOSTNAME NODENAME.NETID.REALLYLONGDOMAINNAME.COM
IST314I END
```

## DISPLAY PATHTAB command



## Abbreviations

Operand	Abbreviation
DISPLAY	D

## DISPLAY PATHTAB

### Purpose

The DISPLAY PATHTAB (path table) command displays the status of explicit routes and their associated virtual routes for this host. You can use this command to display information about all routes, or you can limit it by specifying the ADJSUB or DESTSUB operands. The DISPLAY PATHTAB command provides information similar to the "DISPLAY ROUTE command" on page 217, but in a different format. However, the DISPLAY ROUTE command provides some additional information not provided by the DISPLAY PATHTAB command.

### Operands

#### ADJSUB=subarea\_number

Specifies that information about routes *passing through* the named adjacent subarea is the only information to be displayed.

#### DESTSUB=subarea\_number

Specifies that information about routes *going to* the named destination subarea is the only information to be displayed.

#### MAX

Specifies the maximum number of routes that VTAM displays for this command.

#### MAX=\*

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

#### MAX=number\_of\_resources

Specifies the number of routes to display for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer routes are found than you have specified on MAX, VTAM displays only the routes that are found.

### Resulting display

The resulting display shows the host path table contents. Included in the display are the destination subarea, the adjacent subarea (through which the listed explicit route flows), the explicit route number, the status (the current state of the listed explicit route as known to the host), the virtual route number, and the transmission group number.

### Examples

Displaying routes going to a destination subarea:

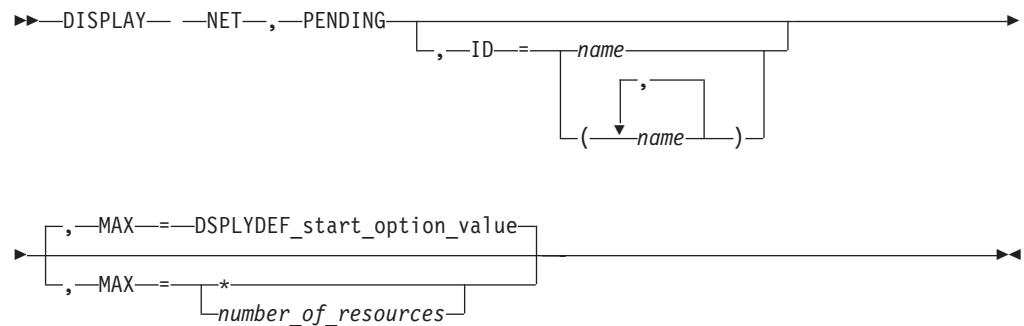
```
d net,pathtab,destsub=2
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = PATH TABLE CONTENTS
IST516I DESTSUB  ADJSUB TGN  ER  ER STATUS  VR(S)
IST517I      2      4  1  5  INOP        1
IST517I      2      4  1  2  INACT        0
IST517I      2      4  1  1  INOP        2
IST517I      2      4  1  0  INOP        3
IST517I      2      4  1  3  PDEFO
```

```
IST517I      2      4  1  4  PDEFO
IST517I      2      4  1  6  PDEFO
IST1454I 7 PATH(S) DISPLAYED
IST314I END
```

Displaying routes passing through an adjacent subarea:

```
d net,pathtab,adjsub=310
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = PATH TABLE CONTENTS
IST516I DESTSUB  ADJSUB TGN  ER  ER STATUS  VR(S)
IST517I      1      310  1  4  INOP      2
IST517I      1      310  1  3  INOP      3
IST517I      1      310  1  0  INACT     0
IST517I      1      310  1  1  PDEFO
IST517I      2      310  1  4  INOP      3
IST517I      2      310  1  3  INOP      4
IST517I      2      310  1  0  INACT     0
IST517I      2      310  1  1  PDEFO
IST517I      2      310  1  5  PDEFO
IST517I      3      310  1  5  INOP      2
IST517I      3      310  1  3  INOP      3
IST517I      3      310  1  2  INOP      1
IST517I      4      310  1  5  INOP      3
IST517I      4      310  1  3  INOP      2
IST517I      4      310  1  0  INACT     0
IST517I      4      310  1  1  PDEFO
IST517I      310    310  1 14  PDEFO
IST517I      310    310  1 15  PDEFO
IST1454I 18 PATH(S) DISPLAYED
IST314I END
```

## DISPLAY PENDING command



## Abbreviations

Operand	Abbreviation
DISPLAY	D

## Purpose

The DISPLAY PENDING command displays information about resources in the domain that are in a “pending” state. A resource can be a major node, a minor node, an application program, a PU, or an LU.

## DISPLAY PENDING

You can limit the amount of display output (and the amount of time to process this command) by specifying one or more resources on the ID operand whose pending subordinate resources are to be displayed.

**Attention:** If you leave out the ID operand, this command causes VTAM to check every resource and could have an adverse effect on VTAM performance.

A pending state is:

- A transient state to or from a fully active state
- A state of “recovery pending” or “recovery in progress” for application programs that have been retained because of the failure or takeover of an application program enabled for persistence. To observe these recovery states, enter the DISPLAY command on the system that contains the application program.

### Operands

#### ID=name

Specifies the name of one or more active major nodes, groups, lines, or PUs whose pending resources are to be displayed.

#### MAX

Specifies the maximum number of resources that VTAM displays for this command.

#### MAX=\*

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

#### MAX=number\_of\_resources

Specifies the number of resources that VTAM displays for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer resources are found than you have specified on MAX, VTAM displays only the resources that are found.

### Resulting display

The resulting display shows the name and status of each node in a pending state.

### Examples

Displaying all nodes in a pending state:

```
d net,pending
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = PENDING
IST159I THE FOLLOWING NODES ARE IN A PENDING STATE
IST080I C04T0011 PACTL      C04T0012 PACTL      C04T0013 PACTL
IST080I C04T0014 PACTL      C04T0015 PACTL      C04T0021 PACTL
IST080I C04T0025 PACTL
IST1454I 7 RESOURCE(S) DISPLAYED
IST314I END
```

Displaying all nodes under a specific resource that are in a pending state:

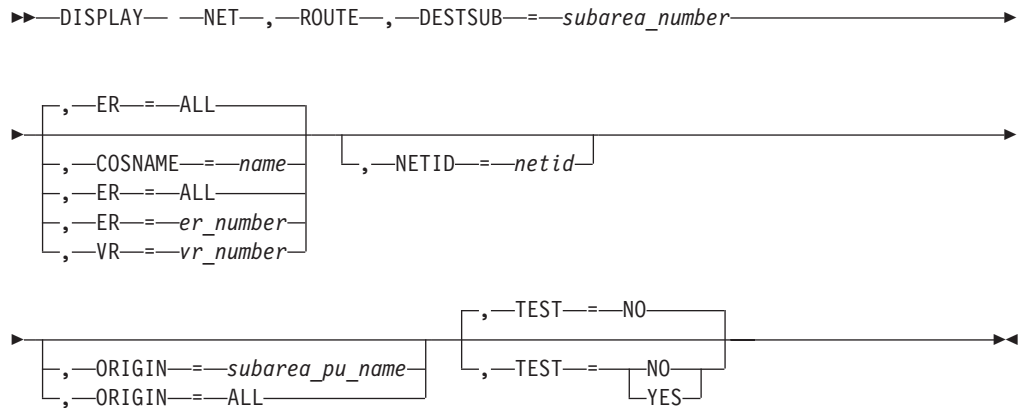


```

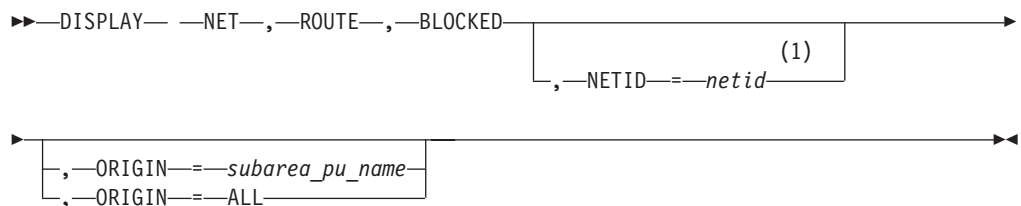
d net,pending,id=a0362zc
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = PENDING
IST089I A0362ZC TYPE = PU T4/5 , ACTIV
IST159I THE FOLLOWING NODES ARE IN A PENDING STATE
IST080I A03P161 PREQC A03P162 PREQC A03P163 PREQC
IST080I A03P164 PREQC A03P165 PREQC A03P166 PREQC
IST080I A03P167 PREQC A03P168 PREQC A03P169 PREQC
IST080I A03P16A PREQC A03P16B PREQC A03P16C PREQC
IST080I A03P201 PREQC A03P202 PREQC A03P203 PREQC
IST080I A03P204 PREQC A03P205 PREQC A03P206 PREQC
IST080I A03P207 PREQC A03P208 PREQC A03P209 PREQC
IST080I A03P20A PREQC A03P20B PREQC A03P20C PREQC
IST1454I 24 RESOURCE(S) DISPLAYED FOR ID=A0362ZC
IST314I END
    
```

## DISPLAY ROUTE command

### Displaying the status of routes:



### Displaying blocked virtual routes:



### Notes:

- 1 When the BLOCKED operand is specified, the NETID of the host where the command was entered is assumed, and specification of another NETID is not permitted.

### Displaying held virtual routes:



## Abbreviations

Operand	Abbreviation
DISPLAY	D
DESTSUB	DESTSA

## Purpose

The DISPLAY ROUTE command displays the status of explicit routes and virtual routes and tests whether a route is operational.

## Operands

### Route selection

Specifies which explicit routes or virtual routes are to be displayed. A blank COS entry is used when no COSNAME entry has been coded in the LOGMODE table for LU-LU sessions or when an ISTVTCOS entry for SSCP-type sessions cannot be found.

### BLOCKED

Displays the blocked Virtual Routes from the PU specified in ORIGIN for all destination Subarea combinations known to VTAM through its current PATH table.

### COSNAME=name

Specifies a Class of Service name. If this operand is specified, all virtual routes to the specified destination subarea within this Class of Service are displayed.

The Class of Service table associated with the origin node (where applicable) and the *netid* specified in the ORIGIN and NETID operands are used to resolve the Class of Service name to a list of virtual routes.

If COSNAME is specified, neither the BLOCKED, ER nor the VR operands can be specified.

### DESTSUB=subarea\_number

Specifies the subarea address of the destination subarea of the routes to be displayed.

The BLOCKED and DESTSUB operands are mutually exclusive.

### ER=er\_number

Specifies the explicit route number (an integer 0–15). If this operand is specified, all the explicit routes identified by this explicit route number that are defined to VTAM through activation of a path definition statement are displayed. An explicit route becomes known to VTAM either by having been defined at one time (through the activation of a path definition set defining the ER), or by having been operative at one time (through the receipt of an ER\_OP request unit from the network).

If ER is specified, neither the BLOCKED, COSNAME nor the VR operands can be specified.

### ER=ALL

Specifies that every explicit route to the specified destination subarea is to be displayed.

If ER is specified, neither the BLOCKED, COSNAME nor the VR operands can be specified.

If COSNAME, ER, or VR options are not specified, then ER=ALL is assumed.

### **VR=vr\_number**

Specifies the virtual route number (an integer 0–7). If this operand is specified, the virtual routes identified by this virtual route number to the specified destination subarea are displayed. There can be up to three virtual routes identified by the virtual route number, with one route for each of the three transmission priority levels.

If VR is specified, neither the BLOCKED, COSNAME, nor the ER operands may be specified.

### **HELD**

Displays the held virtual routes for the virtual routes that originate in VTAM. When this command is used, no other keywords are permitted. The NETID and ORIGIN of the host where the command was entered is assumed.

**Note:** Held virtual routes have a status of active.

### **NETID=netid**

Specifies the network attached to the origin node that contains the routes. VTAM sends the requested NETID to the origin node in the route test request. The request succeeds if the origin node can recognize the NETID. NETID is a required start option.

If the *netid* specified is not the network in which the command is issued, or the host is not gateway capable, the ORIGIN operand is required for the command to succeed.

If you do not specify a NETID, the default is the network identifier supplied by the NETID option at start time.

When the BLOCKED operand is specified, the NETID of the host where the command was entered is assumed and specification of another NETID is not permitted.

### **ORIGIN=ALL**

Used with the BLOCKED operand. Specifies that all PU type 4 and 5 nodes that serve as an origin of a route should be checked for blocked Virtual Routes. As in the case where the subarea\_pu\_name is specified, VTAM must have an SSCP-PU session with this node to forward a route display request to the node.

**Warning:** The use of this operand may have a significant performance impact depending on the number of NCPs and destination subareas in the network. Therefore, it is recommended that this operand be used only when the diagnostic advantage is preferred over the performance impact.

**Note:** Specifying an ORIGIN by name, instead of using ORIGIN=ALL, will greatly reduce the performance impact.

### **ORIGIN=subarea\_pu\_name**

Specifies the node where the route starts. VTAM must have an SSCP-PU session with this node to forward the route display request to the node. In addition, the node must be an NCP subarea node or the host physical unit name (as specified in the HOSTPU start option). The command fails if you specify an external host subarea node because VTAM has no SSCP-PU session with the physical unit in another host subarea.

The default for the ORIGIN operand is the host physical unit specified in the HOSTPU start option.

## DISPLAY ROUTE

### TEST

Specifies whether an explicit route test is to be performed for a route to a destination subarea. Testing is not supported for APPN routes.

If TEST is specified, the BLOCKED operand cannot be specified.

### TEST=YES

Specifies that VTAM is to perform an explicit route test for each explicit route contained in the requested display. That is, if the VR operand is specified, the explicit route defined to be used by the specified virtual route is tested; if the COSNAME operand is specified, those explicit routes defined to be used by the virtual routes within the specified Class of Service are tested. When the test results are received, these test results are sent to the operator that requested the display; however, these test results are sent separately from the initial display results. The test results include a display number that you can use to correlate the results the original status display.

For an explicit route to be tested, it must be known to VTAM, either by having been defined at one time (through the activation of a path definition set defining the ER), or by having been operative at one time (through the receipt of an ER\_OP request unit from the network).

If a node or link along a route becomes inoperative after the ER test request unit has been sent, VTAM might never receive any test results for that explicit route.

### TEST=NO

Specifies that the requested route status is to be displayed, but that no explicit route test is to be performed.

## Resulting display

The resulting display shows:

- The subarea number of the nodes
- The origin of the physical unit (PU) name (if known)
- The destination of the PU name (if known)
- The network ID (where applicable) of the network attached to the origin PU that contains the routes
- The virtual route
- The transmission priority, status, explicit route number, adjacent subarea and its status, and the transmission group number

## Examples

Displaying one virtual route to a destination subarea:

```
d net,route,destsub=01,netid=netc,origin=c04531e,vr=0
IST097I DISPLAY ACCEPTED
IST535I ROUTE DISPLAY 8 FROM SA 4 TO SA 1
IST808I ORIGIN PU = C04531E DEST PU = C01NPU NETID = NETC
IST536I VR TP STATUS ER ADJSUB TGN STATUS CUR MIN MAX
IST537I 0 0 ACTIV 5 1 1 ACTIV3
IST537I 0 1 INACT 5 1 1 ACTIV3
IST537I 0 2 INACT 5 1 1 ACTIV3
IST314I END
```

Displaying one explicit route to a destination subarea:

```

d net,route,destsub=01,netid=netc,origin=a03n43a,er=5
IST097I DISPLAY ACCEPTED
IST535I ROUTE DISPLAY 7 FROM SA 4 TO SA 1
IST808I ORIGIN PU = C0453LE DEST PU = C01NPU NETID = NETC
IST536I VR TP STATUS ER ADJSUB TGN STATUS CUR MIN MAX
IST537I 0 0 ACTIV 5 1 1 ACTIV3
IST537I 0 1 INACT 5 1 1 ACTIV3
IST537I 0 2 INACT 5 1 1 ACTIV3
IST314I END
  
```

Displaying all virtual routes in a Class of Service to a destination subarea:

```

d net,route,destsub=01,netid=netc,origin=a0362zc,cosname=ist
IST097I DISPLAY ACCEPTED
IST535I ROUTE DISPLAY 4 FROM SA 31 TO SA 1
IST808I ORIGIN PU = A0362ZC DEST PU = ***NA*** NETID = NETC
IST536I VR TP STATUS ER ADJSUB TGN STATUS CUR MIN MAX
IST537I 0 2 ACTIV 0 1 1 ACTIV3
IST537I 1 2 INACT 1 1 1 ACTIV1
IST537I 2 2 INACT 2 1 1 ACTIV1
IST537I 3 2 INACT 3 1 1 ACTIV1
IST537I 4 2 INACT 4 1 1 ACTIV1
IST537I 5 2 UNDEF
IST537I 6 2 UNDEF
IST537I 7 2 UNDEF
IST537I 0 1 INACT 0 1 1 ACTIV3
IST537I 1 1 INACT 1 1 1 ACTIV1
IST537I 2 1 INACT 2 1 1 ACTIV1
IST537I 3 1 INACT 3 1 1 ACTIV1
IST537I 4 1 INACT 4 1 1 ACTIV1
IST537I 5 1 UNDEF
IST537I 6 1 UNDEF
IST537I 7 1 UNDEF
IST537I 0 0 ACTIV 0 1 1 ACTIV3
IST537I 1 0 INACT 1 1 1 ACTIV1
IST537I 2 0 INACT 2 1 1 ACTIV1
IST537I 3 0 INACT 3 1 1 ACTIV1
IST537I 4 0 INACT 4 1 1 ACTIV1
IST537I 5 0 UNDEF
IST537I 6 0 UNDEF
IST537I 7 0 UNDEF
IST314I END
  
```

Displaying and testing all virtual routes in a Class of Service to a destination subarea:

```

d net,route,destsub=01,netid=netc,origin=a0362zc,cosname=ist,test=yes
IST097I DISPLAY ACCEPTED
IST535I ROUTE DISPLAY 6 FROM SA 31 TO SA 1
IST808I ORIGIN PU = A0362ZC DEST PU = ***NA*** NETID = NETC
IST536I VR TP STATUS ER ADJSUB TGN STATUS CUR MIN MAX
IST537I 0 2 ACTIV 0 1 1 ACTIV3
IST537I 1 2 INACT 1 1 1 ACTIV1
IST537I 2 2 INACT 2 1 1 ACTIV1
IST537I 3 2 INACT 3 1 1 ACTIV1
IST537I 4 2 INACT 4 1 1 ACTIV1
IST537I 5 2 UNDEF
IST537I 6 2 UNDEF
IST537I 7 2 UNDEF
IST537I 0 1 INACT 0 1 1 ACTIV3
IST537I 1 1 INACT 1 1 1 ACTIV1
IST537I 2 1 INACT 2 1 1 ACTIV1
IST537I 3 1 INACT 3 1 1 ACTIV1
IST537I 4 1 INACT 4 1 1 ACTIV1
IST537I 5 1 UNDEF
IST537I 6 1 UNDEF
IST537I 7 1 UNDEF
  
```

## DISPLAY ROUTE

```

IST537I 0 0 ACTIV 0 1 1 ACTIV3
IST537I 1 0 INACT 1 1 1 ACTIV1
IST537I 2 0 INACT 2 1 1 ACTIV1
IST537I 3 0 INACT 3 1 1 ACTIV1
IST537I 4 0 INACT 4 1 1 ACTIV1
IST314I END
IST538I ROUTE TEST 6 IN PROGRESS
IST533I ER 0 SUCCEEDED IN ROUTE TEST 6
IST797I FROM VIA ADJACENT DEST ER LENGTH
IST644I A0362ZC TG ***NA*** ***NA***
IST533I ER 0 SUCCEEDED IN ROUTE TEST 6
IST534I 31 1 1 1 1
IST798I NETC
IST533I ER 1 SUCCEEDED IN ROUTE TEST 6
IST797I FROM VIA ADJACENT DEST ER LENGTH
IST644I A0362ZC TG ***NA*** ***NA***
IST534I 31 1 1 1 1
IST798I NETC
IST533I ER 2 SUCCEEDED IN ROUTE TEST 6
IST797I FROM VIA ADJACENT DEST ER LENGTH
IST644I A0362ZC TG ***NA*** ***NA***
IST534I 31 1 1 1 1
IST798I NETC
IST314I END

```

Displaying and testing one explicit route to a destination subarea:

```

d net,route,destsub=01,netid=netc,origin=c0453le,er=5,test=yes
IST097I DISPLAY ACCEPTED
IST535I ROUTE DISPLAY 11 FROM SA 4 TO SA 1
IST808I ORIGIN PU = C0453LE DEST PU = C01NPU NETID = NETC
IST536I VR TP STATUS ER ADJSUB TGN STATUS CUR MIN MAX
IST537I 0 0 ACTIV 5 1 1 ACTIV3
IST537I 0 1 INACT 5 1 1 ACTIV3
IST537I 0 2 INACT 5 1 1 ACTIV3
IST314I END

```

Displaying and testing all explicit routes to a destination subarea:

```

d net,route,destsub=01,netid=netc,origin=a0362zc,test=yes
IST097I DISPLAY ACCEPTED
IST535I ROUTE DISPLAY 8 FROM SA 31 TO SA 1
IST808I ORIGIN PU = A0362ZC DEST PU = ***NA*** NETID = NETC
IST536I VR TP STATUS ER ADJSUB TGN STATUS CUR MIN MAX
IST537I 0 0 ACTIV 0 1 1 ACTIV3
IST537I 0 1 INACT 0 1 1 ACTIV3
IST537I 0 2 ACTIV 0 1 1 ACTIV3
IST537I 1 0 INACT 1 1 1 ACTIV1
IST537I 1 1 INACT 1 1 1 ACTIV1
IST537I 1 2 INACT 1 1 1 ACTIV1
IST537I 2 0 INACT 2 1 1 ACTIV1
IST537I 2 1 INACT 2 1 1 ACTIV1
IST537I 2 2 INACT 2 1 1 ACTIV1
IST537I 3 0 INACT 3 1 1 ACTIV1
IST537I 3 1 INACT 3 1 1 ACTIV1
IST537I 3 2 INACT 3 1 1 ACTIV1
IST537I 4 0 INACT 4 1 1 ACTIV1
IST537I 4 1 INACT 4 1 1 ACTIV1
IST537I 4 2 INACT 4 1 1 ACTIV1
IST314I END
IST538I ROUTE TEST 8 IN PROGRESS
IST533I ER 0 SUCCEEDED IN ROUTE TEST 8
IST797I FROM VIA ADJACENT DEST ER LENGTH
IST644I A0362ZC TG ***NA*** ***NA***
IST533I ER 0 SUCCEEDED IN ROUTE TEST 8
IST534I 31 1 1 1 1
IST798I NETC
IST533I ER 1 SUCCEEDED IN ROUTE TEST 8

```

**DISPLAY ROUTE**

```
IST797I      FROM  VIA  ADJACENT      DEST      ER LENGTH
IST644I      A0362ZC  TG  ***NA***    ***NA***
IST534I      31      1      1          1          1
IST798I      NETC
IST533I ER 2 SUCCEEDED IN ROUTE TEST 8
IST797I      FROM  VIA  ADJACENT      DEST      ER LENGTH
IST644I      A0362ZC  TG  ***NA***    ***NA***
IST534I      31      1      1          1          1
IST798I      NETC
IST314I END
```

Displaying blocked virtual routes from one origin PU:

```
d net,route,blocked,origin=ISTPUS
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = BLOCKED VIRTUAL ROUTES
IST535I ROUTE DISPLAY 1 FROM SA 1 TO SA 1
IST808I ORIGIN PU = ISTPUS DEST PU = NCP2B NETID = NETA
IST536I VR TP STATUS ER ADJSUB TGN STATUS CUR MIN
IST537I 0 0 BLCKD 0 1 1 ACTIV3
IST537I 0 1 BLCKD 0 1 1 ACTIV3
IST537I 0 2 BLCKD 0 1 1 ACTIV3
IST314I END
IST535I ROUTE DISPLAY 1 FROM SA 1 TO SA 2
IST808I ORIGIN PU = ISTPUS DEST PU = NCP4D NETID = NETA
IST536I VR TP STATUS ER ADJSUB TGN STATUS CUR MIN
IST537I 3 1 BLCKD 0 4 1 ACTIV3
IST537I 3 2 BLCKD 0 4 1 ACTIV3
IST537I 4 0 BLCKD 1 3 1 ACTIV3
IST537I 4 1 BLCKD 1 3 1 ACTIV3
IST314I END
```

Displaying blocked virtual routes from one origin with no blocked routes found:

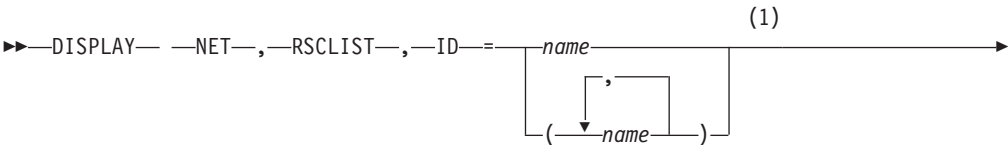
```
d net,route,blocked,origin=ISTPUS
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = BLOCKED VIRTUAL ROUTES
IST172I NO BLOCKED VIRTUAL ROUTE
IST314I END
```

Displaying held virtual routes with no held routes found:

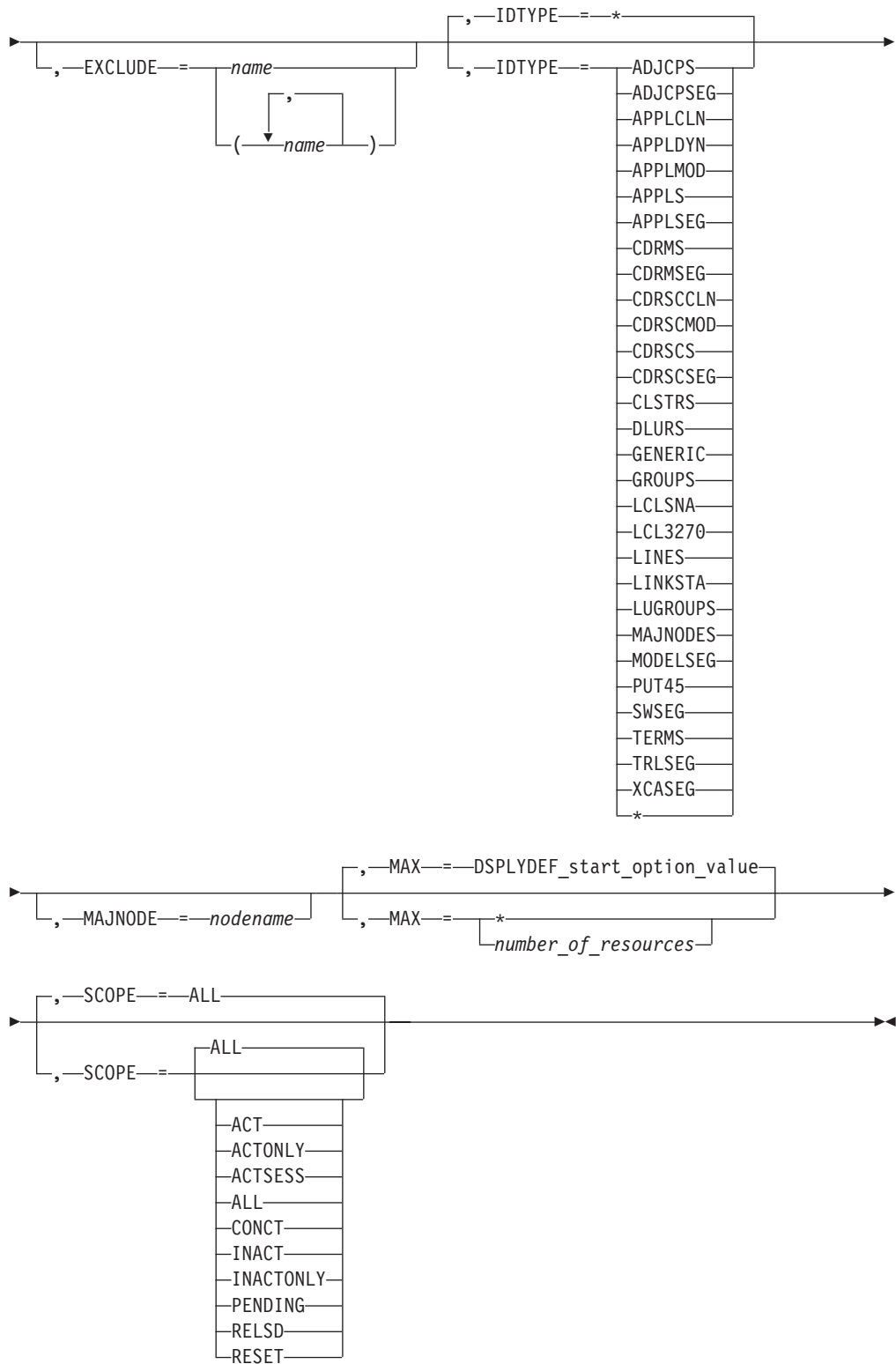
```
d net,route,held
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = HELD VIRTUAL ROUTES
IST172I NO HELD VIRTUAL ROUTE
IST314I END
```

---

**DISPLAY RSCLIST command**



# DISPLAY RSCLIST



## Notes:

- 1 Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.



## Abbreviations

Operand	Abbreviation
DISPLAY	D
SCOPE=ACT	ACT or A
SCOPE=ACTONLY	ACTONLY
SCOPE=ACTSESS	ACTSESS
SCOPE=ALL	EVERY or E
SCOPE=CONCT	CONCT
SCOPE=INACT	INACT or I
SCOPE=INACTONLY	INACTONL
SCOPE=PENDING	PEND
SCOPE=RELSD	RELSD
SCOPE=RESET	RESET

When using abbreviations in commands, code the abbreviation exactly as shown in the table. Do not use the operand name in the command unless it is shown as part of the abbreviation in the table. For example, when coding the abbreviation for SCOPE=ALL, use E or EVERY. SCOPE=E is not a valid option.

## Purpose

The DISPLAY RSCLIST command displays information about resources whose names match a particular pattern.

## Operands

### EXCLUDE=name

Specifies a maximum of five names or patterns of resources to be excluded from the display. The names or patterns can be network-qualified. If you do not specify the network identifier, VTAM uses the identifier of the host from which you are issuing the command.

You can specify wildcard values for this operand, but \* and \*.\* are not valid for the list of resources to be excluded. For more information about using wildcards, see “Using wildcard names” on page 11.

### ID=name

Specifies the name of one or more resources to be displayed. The resource name can be network qualified. If you do not specify the network identifier, VTAM uses the identifier of the host from which you are issuing the command. If the host network identifier is used, VTAM also displays resources with other network identifiers, if they are also known by the host network identifier.

You can specify \* as the network ID portion of a network-qualified name. The \* is useful for displaying information about a resource for which you do not know the network ID. The \* is also useful for displaying information about several resources with the same name that are found in multiple networks, if you also specify the MAX operand on the command.

Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand. For more information about using wildcards, see “Using wildcard names” on page 11.

## DISPLAY RSCLIST

**Guideline:** Specifying a wildcard name, IDTYPE=\*, SCOPE=ALL, or SCOPE=RESET might degrade performance because VTAM checks every network resource known to this VTAM, unless limited by the MAJNODE operand.

**Note:** If model application program definition names match the pattern you specify on the ID operand of the DISPLAY RSCLIST command when IDTYPE specifies an asterisk (\*) or APPLS, those model application program names appear in your display output. In addition, any dynamic application programs built from those model application program definitions also appear in your display output.

If model CDRSC definition names match the pattern you specify on the ID operand when IDTYPE specifies an asterisk (\*) or CDRSCS, those model CDRSCs appear in your display output. In addition, any clone CDRSCs built from those model CDRSCs also appear in your display output.

A model application program will be identified in the TYPE column of message IST1418I as MODEL APPL. A dynamic application program will be identified in the TYPE column of message IST1418I as DYNAMIC APPL. A model CDRSC will be identified in the TYPE column of message IST1418I as MODEL CDRSC. A clone CDRSC will be identified in the TYPE column of message IST1418I as CLONE CDRSC.

For example, if you issue the following command:

```
DISPLAY NET,RSCLIST,ID=APPL*,IDTYPE=*
```

and model resources (APPLs or CDRSCs) have been defined using names that match the pattern specified on the ID operand (APPL\*), you will get the following output:

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RSCLIST
IST1417I NETID   NAME      STATUS   TYPE              MAJNODE
IST1418I NETA   APPLA*  ACTIV   MODEL CDRSC      CDRSC1A
IST1418I NETA   APPLQ?  CONCT   MODEL APPL        APPL1A
IST1418I NETA   APPL1   ACT/S   APPL              APPL1A
IST1418I NETA   APPLA01 ACTIV   CLONE CDRSC      CDRSC1A
IST1418I NETA   APPLQ1  ACTIV   DYNAMIC APPL     APPL1A
IST1454I 5 RESOURCE(S) DISPLAYED FOR ID=APPL*
IST314I END
```

The wildcard character used in APPL\* on the ID operand of the DISPLAY RSCLIST command tells VTAM to display any resource whose name begins with APPL, followed by zero to four valid characters. The names APPLA\* and APPLQ?, even though they contain wildcard characters, both begin with APPL, followed by zero to four valid characters [an asterisk (\*) and a question mark (?) are valid characters in an application program minor node name and in a CDRSC minor node name]. Therefore, they are included in the display output, as are the clone CDRSC, APPLA01, which was built from APPLA\*, and the dynamic application program, APPLQ1, which was built from APPLQ?.

**Tip:** To limit the display to model application program definitions, specify IDTYPE=APPLMOD when you issue the DISPLAY RSCLIST command. To limit the display to dynamic application programs, specify IDTYPE=APPLDYN or IDTYPE=APPLCLN when you issue the DISPLAY RSCLIST command. To limit the display to model CDRSCs, specify IDTYPE=CDRSCMOD when you issue the DISPLAY RSCLIST command. To limit the display to clone CDRSCs, specify IDTYPE=CDRSCCLN when you issue the DISPLAY RSCLIST command.

**IDTYPE**

Specifies the type of resource that the ID operand names. If several types of resources share the same name, IDTYPE can be used to identify which resource the command should act on. The default is IDTYPE=\*

**IDTYPE=ADJCPS**

Displays only adjacent control points.

**IDTYPE=ADJCPSEG**

Displays only adjacent control point major nodes.

**IDTYPE=APPLCLN**

Displays only dynamic (clone) application programs. (IDTYPE=APPLCLN is synonymous with IDTYPE=APPLDYN.)

**IDTYPE=APPLDYN**

Displays only dynamic (clone) application programs. (IDTYPE=APPLDYN is synonymous with IDTYPE=APPLCLN.)

**IDTYPE=APPLMOD**

Displays only model application programs.

**IDTYPE=APPLS**

Displays only application minor nodes, including model application program definitions and dynamic application programs.

**IDTYPE=APPLSEG**

Displays only application major nodes.

**IDTYPE=CDRMS**

Displays only cross-domain resource managers known to this host processor.

**IDTYPE=CDRMSEG**

Displays only CDRM major nodes.

**IDTYPE=CDRSCCLN**

Displays only clone cross-domain resources known to this domain.

**IDTYPE=CDRSCMOD**

Displays only model cross-domain resources known to this domain.

**IDTYPE=CDRSCS**

Displays only cross-domain resources known to this domain.

**IDTYPE=CDRSCSEG**

Displays only CDRSC major nodes.

**IDTYPE=CLSTRS**

Displays only physical units in this domain.

**IDTYPE=DLURS**

Displays only dependent LU requesters (DLURs).

**IDTYPE=GENERIC**

Displays only generic resources.

GENERIC USERVAR in the TYPE column of message IST1418I indicates that a USERVAR representation of the generic resource exists locally on the host where the display was issued. You can use this information to determine whether you should issue a MODIFY GR,OPTION=DELETE command on a given host when trying to delete a generic resource from the sysplex.

## DISPLAY RSCLIST

### **IDTYPE=GROUPS**

Displays only groups in this domain.

### **IDTYPE=LCLSNA**

Displays only local SNA major nodes.

### **IDTYPE=LCL3270**

Displays only local non-SNA major nodes.

### **IDTYPE=LINES**

Displays only lines in this domain.

### **IDTYPE=LINKSTA**

Displays link stations only in this domain.

### **IDTYPE=LUGROUPS**

Displays only LU group major nodes.

### **IDTYPE=MAJNODES**

Displays only major nodes.

### **IDTYPE=MODELSEG**

Displays only model major nodes.

### **IDTYPE=PUT45**

Displays only type 4 and type 5 PUs.

### **IDTYPE=SWSEG**

Displays only switched major nodes.

### **IDTYPE=TERMS**

Displays only logical units.

### **IDTYPE=TRLSEG**

Displays only the transport resource list (TRL) major node.

### **IDTYPE=XCASEG**

Displays only external communication adapter (XCA) major nodes.

### **IDTYPE=\***

Displays all resources, including model application program definitions and dynamic application programs.

### **MAJNODE=nodename**

Specifies the name of the major node to be searched for resources matching the ID operand. The nodename cannot be a network-qualified name.

You can specify a wildcard value for the MAJNODE operand. For more information about using wildcards, see "Using wildcard names" on page 11.

### **MAX**

Specifies the maximum number of resources that VTAM displays for this command.

### **MAX=\***

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

### **MAX=number\_of\_resources**

Specifies the number of resources that VTAM displays for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found,

VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer resources are found than you have specified on MAX, VTAM displays only the resources that are found.

**SCOPE**

Specifies the required scope of the display.

**Note:** If you specify the SCOPE operand without specifying a value SCOPE=ALL is assumed.

**SCOPE=ACT**

Specifies that information is to be displayed about all active, pending, and connectable resources. If this display is undesirably large, you can use SCOPE=ACTONLY or SCOPE=CONCT to further limit the display.

**SCOPE=ACTONLY**

Specifies that information is to be displayed about all resources in an active state. The display does **not** include resources in pending or connectable states. If no resources are found in an active state, you can use SCOPE=ACT to broaden the scope of the display to active, connectable, and pending resources.

**SCOPE=ACTSESS**

Specifies that information is to be displayed about all resources that are active with sessions.

**SCOPE=ALL**

Specifies that information is to be displayed about all resources (regardless of their status).

**SCOPE=CONCT**

Specifies that information is to be displayed about all resources in a CONCT (connectable) state. If no applications are found in a connectable state, you can use SCOPE=ACT to broaden the scope of the display to active, connectable, and pending resources.

**SCOPE=INACT**

Specifies that information is to be displayed about all inactive resources. If this display is undesirably large, you can use SCOPE=INACTONLY or SCOPE=RESET to further limit the display.

**SCOPE=INACTONLY**

Specifies that information is to be displayed about all inactive resources. Resources in a RESET state are not included in the SCOPE=INACTONLY display.

**SCOPE=PENDING**

Specifies that information is to be displayed about all pending resources. A pending state is a transient state to or from the fully active state.

**SCOPE=RELSD**

Specifies that the information is to be displayed about all PUs in a RELSD state within the specified major nodes.

**SCOPE=RESET**

Specifies that information is to be displayed about all resources in a RESET state.

## DISPLAY RSCLIST

### Resulting display

The resulting VTAM display shows:

- The NETID and name of each resource that matches the pattern specified on the ID operand and the status specified on the SCOPE operand
- The current resource status
- The resource type
- The name of the major node where the resource is defined

### Results:

- If model application program definitions are included in the display, any dynamic application programs built from those models that have been deactivated are not displayed. This is because dynamic application programs cannot exist in an inactive state. When a dynamic application program is deactivated and CLOSE macro processing is complete for the dynamic application program, the definition of the dynamic application program is deleted. The dynamic application program is no longer known by VTAM and will not appear in the output of any DISPLAY commands.
- If model CDRSCs are included in the display, any clone CDRSCs that were built from those models that have been deleted are not displayed. Clone CDRSCs can exist in the inactive state, but whether they do or not is governed by the value of the DELETE operand that was on the model CDRSC at the time of the deactivation of the clone CDRSC or the value of the DELETE parameter that was on the VARY INACT operator command.

### Examples

Displaying all active resources in this network with names starting with “app”, including dynamic application programs built from model application program definitions. Model application programs do not appear in the display output because they are always in a connectable (CONCT) state.

```
d net,rsclist,id=app*,scope=actonly
```

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RSCLIST
IST1417I NETID NAME STATUS TYPE MAJNODE
IST1418I NETA APPLAA3 ACTIV CDRSC ISTDILU
IST1418I NETA APPLAA2 ACTIV CDRSC ISTDILU
IST1418I NETA APPLCA1 ACT/S----Y CDRSC ISTDILU
IST1418I NETA APPLBA1 ACT/S----Y CDRSC ISTDILU
IST1418I NETA APPLDA1 ACT/S----Y CDRSC ISTDILU
IST1418I NETA APPL1A ACTIV APPL SEGMENT APPL1A
IST1418I NETA APPL1 ACT/S APPL APPL1A
IST1418I NETA APPL8 ACTIV--S-- CDRSC CDRSC1A
IST1418I NETA APPLAA1 ACTIV CDRSC CDRSC1A
IST1418I NETA APPLA01 ACTIV DYNAMIC APPL APPL1A
IST1418I NETA APPLQ1 ACTIV DYNAMIC APPL APPL1A
IST1454I 11 RESOURCE(S) DISPLAYED FOR ID=APP*
IST314I END
```

Displaying all active, pending, and connectable resources in this network with names starting with **app**, including model application programs, model CDRSCs, and any clone resources that were built from those models:

```
d net,rsclist,id=app*,scope=act
```

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RSCLIST
IST1417I NETID NAME STATUS TYPE MAJNODE
IST1418I NETA APPLAA3 ACTIV CDRSC ISTDILU
IST1418I NETA APPLAA2 ACTIV CDRSC ISTDILU
```

```

IST1418I NETA      APPLCA1  ACT/S----Y CDRSC          ISTCDRDY
IST1418I NETA      APPLBA1  ACT/S----Y CDRSC          ISTCDRDY
IST1418I NETA      APPLDA1  ACT/S----Y CDRSC          ISTCDRDY
IST1418I NETA      APPL1A   ACTIV      APPL SEGMENT  APPL1A
IST1418I NETA      APPLA*   CONCT      MODEL APPL    APPL1A
IST1418I NETA      APPLQ?   CONCT      MODEL APPL    APPL1A
IST1418I NETA      APPL1    ACT/S      APPL          APPL1A
IST1418I NETA      APPLQ1   ACTIV      DYNAMIC APPL  APPL1A
IST1418I NETA      APPLA01  ACTIV      DYNAMIC APPL  APPL1A
IST1418I NETA      APPLAA*  ACTIV      MODEL CDRSC   CDRSC1A
IST1418I NETA      APPLAA1  ACTIV      CLONE CDRSC   CDRSC1A
IST1454I 13 RESOURCE(S) DISPLAYED FOR ID=APP*
IST314I  END

```

Displaying all model CDRSCs with names starting with **applb**:

```

d net,rsclist,id=applb*,idtype=cdrscmod
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RSCLIST
IST1417I NETID    NAME      STATUS    TYPE              MAJNODE
IST1418I NETB     APPLB*   ACTIV    MODEL CDRSC      CDRSC1A
IST1454I 1 RESOURCE(S) DISPLAYED FOR ID=APPLB*
IST314I  END

```

Displaying all clone CDRSCs with names starting with **applb**:

```

d net,rsclist,id=applb*,idtype=cdrsccln
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RSCLIST
IST1417I NETID    NAME      STATUS    TYPE              MAJNODE
IST1418I NETB     APPLB12  ACTIV    CLONE CDRSC      CDRSC1A
IST1454I 1 RESOURCE(S) DISPLAYED FOR ID=APPLB*
IST314I  END

```

Displaying all model application program definitions in this network with names starting with "app":

```

d net,rsclist,id=app*,idtype=applmod,scope=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RSCLIST
IST1418I NETA      APPLA*   CONCT      MODEL APPL    APPL1A
IST1418I NETA      APPLQ?   CONCT      MODEL APPL    APPL1A
IST1454I 2 RESOURCE(S) DISPLAYED FOR ID=APP*
IST314I  END

```

Displaying all dynamic application programs in this network built from model application program definitions whose names start with "app":

```

d net,rsclist,id=app*,idtype=apldyn,scope=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RSCLIST
IST1418I NETA      APPLQ1   ACTIV      DYNAMIC APPL  APPL1A
IST1418I NETA      APPLA01  ACTIV      DYNAMIC APPL  APPL1A
IST1454I 2 RESOURCE(S) DISPLAYED FOR ID=APP*
IST314I  END

```

Displaying resources in this network with names starting with "app", limiting output to six resources:

```

d net,rsclist,id=app*,max=6
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RSCLIST
IST1417I NETID    NAME      STATUS    TYPE              MAJNODE
IST1418I NETA      APPLAA3  ACTIV      CDRSC            ISTPDILU
IST1418I NETA      APPLAA2  ACTIV      CDRSC            ISTPDILU
IST1418I NETA      APPLCA1  ACT/S----Y CDRSC            ISTCDRDY
IST1418I NETA      APPLBA1  ACT/S----Y CDRSC            ISTCDRDY
IST1418I NETA      APPLDA1  ACT/S----Y CDRSC            ISTCDRDY

```

## DISPLAY RSCLIST

```
IST1418I NETA    APPL1A  ACTIV    APPL SEGMENT    APPL1A
IST1315I DISPLAY TRUNCATED AT MAX = 6
IST1454I 6 RESOURCE(S) DISPLAYED FOR ID=APP*
IST314I END
```

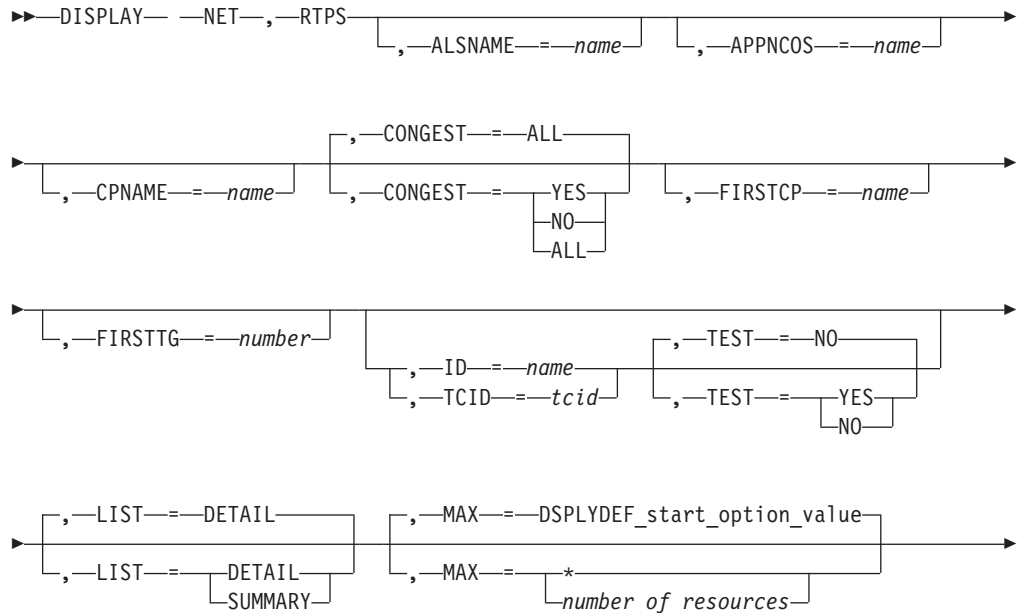
Displaying all active rapid transport protocol (RTP) connections for high performance routing (HPR):

```
d net,rsclist,id=cnr*
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RSCLIST
IST1417I NETID  NAME      STATUS   TYPE                MAJNODE
IST1418I NETA   CNR00004  ACTIV--LX-  PU_T2.1            ISTRTPMN
IST1418I NETA   CNR00003  ACTIV--LX-  PU_T2.1            ISTRTPMN
IST1418I NETA   CNR00002  ACTIV--LX-  PU_T2.1            ISTRTPMN
IST1418I NETA   CNR00001  ACTIV--LX-  PU_T2.1            ISTRTPMN
IST1454I 4 RESOURCE(S) DISPLAYED FOR ID=CNR*
IST314I END
```

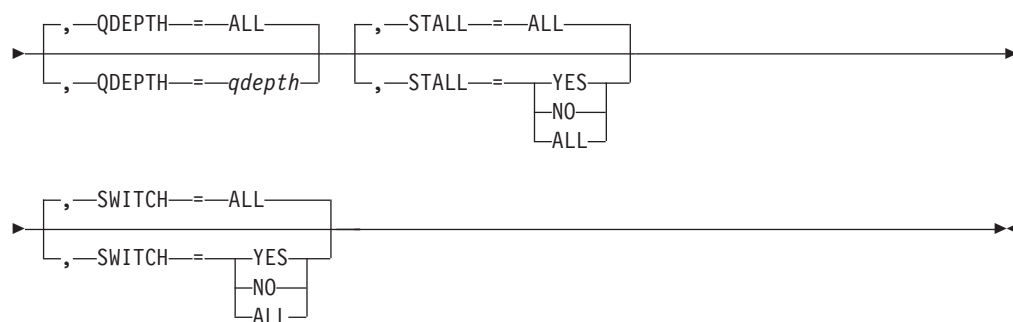
Displaying all generic resources known locally (type GENERIC USERVAR) and in the sysplex (type GENERIC RESOURCE):

```
d net,rsclist,id=*,idtype=generic
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RSCLIST
IST1417I NETID  NAME      STATUS   TYPE                MAJNODE
IST1418I NETA   GRAPPL  INACT    GENERIC RESOURCE    **NA**
IST1418I NETA   GRAPPL  *NA*    GENERIC USERVAR     **NA**
IST1418I NETA   GRCICS  ACT/S    GENERIC RESOURCE    **NA**
IST1418I NETA   GRIMS  ACTIV    GENERIC RESOURCE    **NA**
IST1454I 4 RESOURCE(S) DISPLAYED FOR ID=*
IST314I END
```

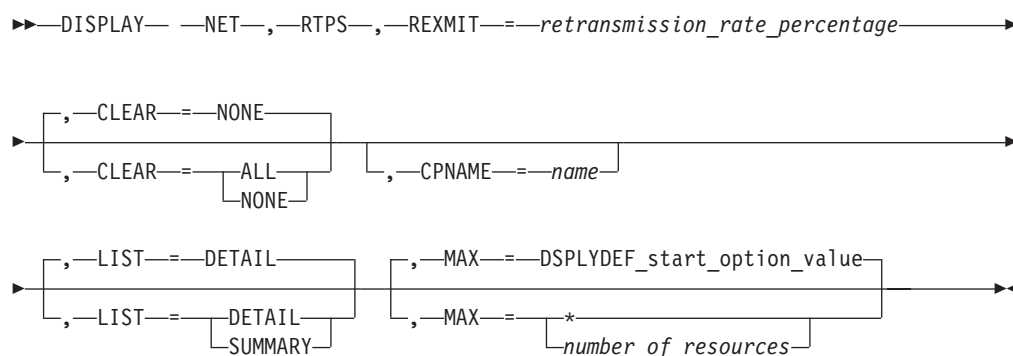
## DISPLAY RTPS command





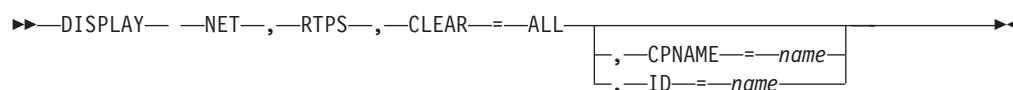


**Display RTP pipes that meet or exceed a specified retransmission threshold:**



**Tip:** Specify the CLEAR operand on this command to clear the diagnostic counters. The REXMIT information is displayed before the diagnostic counters are cleared.

**Clear the RTP pipes diagnostic counters:**



**Abbreviations**

Operand	Abbreviation
DISPLAY	D
LIST=DETAIL	DETAIL or DET
LIST=SUMMARY	SUMMARY or SUM
CLEAR=ALL	CLEAR

**Purpose**

The DISPLAY RTPS command displays information concerning HPR pipes terminating or originating in the host. The following keywords can be used to limit the display information.

**Tip:** The number of sessions displayed in the IST1960I message includes both active and pending active sessions.

### Operands

**ALSNAME=name**

Specifies the name of an Adjacent Link Station in this node that the HPR pipe goes over.

**APPNCOS=name**

Specifies the name of a Class of Service (CoS) used to establish the HPR pipe.

**CLEAR**

Specifies whether to clear diagnostic counters for RTP pipes.

**CLEAR=ALL**

Diagnostic counters for RTP pipes are cleared. If the CLEAR=ALL option is specified with the command filter CPNAME, the diagnostic counters are cleared for all pipes to the specified partner CP. If the CLEAR=ALL option is specified with the ID command filter, the diagnostic counters of the specified RTP pipe are cleared.

**CLEAR=NONE**

Diagnostic counters for RTP pipes are not cleared.

**Rule:** The REXMIT operand limits the scope of the display output, but not the scope of the CLEAR operand. The CLEAR=ALL option clears the diagnostic counters for all RTP pipes whether the REXMIT operand is specified. The CPNAME command filter or ID operand limits the scope of the CLEAR operand.

**CONGEST**

Specifies whether the display should be restricted.

**CONGEST=YES**

Displays only pipes that are congested.

**CONGEST=NO**

Displays only pipes that are not congested.

**CONGEST=ALL**

Displays all pipes. This is the default value.

**CPNAME=name**

Specifies the name of a CP that is at the other end of the HPR pipe. The name may be network qualified. If a network identifier is omitted, the host network identifier is assumed.

You can specify \* as the name portion of a network-qualified name. The \* is useful for displaying only HPR pipes whose other end is in a particular network. To use the \* for the name, you must explicitly specify the netid in the form netid.\* (for example, NETA.\*). The capability of specifying netid.\* for this value is not affected by the coding of the DSPLYWLD start option.

**FIRSTCP=name**

Specifies the name of a CP that is at the other end of the first hop of the HPR pipe. The name may be network qualified. If a network identifier is omitted, the host network identifier is assumed.

You can specify \* as the name portion of a network-qualified name. The \* is useful for displaying HPR pipes that have a first hop into a particular network. To use the \* for the name, you must explicitly specify the netid, in the form netid.\* (for example, NETA.\*). The capability of specifying netid.\* for this value is not affected by the coding of the DSPLYWLD start option.

**FIRSTTG=number**

Specifies the TG number of the first hop of the HPR pipe. When used with FIRSTTCP, a unique hop can be identified. The valid range for this keyword is 0-255.

**ID=name**

Specifies the name of an RTP PU in this node.

**LIST**

Specifies the amount of detail the output contains.

**LIST=DETAIL**

Provides detailed information for each RTP pipe that matches the scope of the display command.

**LIST=SUMMARY**

Provides a condensed format of the RTP pipe information that matches the scope of the display command.

**MAX**

Specifies the maximum number of HPR pipes that VTAM displays for this command.

**MAX=\***

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

**MAX=number\_of\_resources**

Specifies the number of HPR pipes to display for this command. The valid range of this keyword is 1–value of the DSPLYMAX start option. The default is the value specified for the DSPLYDEF start option.

Specifying the MAX operand limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer HPR pipes are found than you have specified on the MAX operand, VTAM displays only the HPR pipes that are found.

**QDEPTH**

Specifies whether the display should be restricted.

**QDEPTH=ALL**

Displays all pipes. This is the default value.

**QDEPTH=qdepth**

Display only HPR pipes that have internal queue depths that meet or exceed the specified *qdepth* value. Valid values are in the range 100 - 65535.

**REXMIT=retransmission\_rate\_percentage**

The *retransmission\_rate\_percentage* value specifies that only RTP pipes that have a retransmission rate that is equal to or exceeds the specified percentage should be displayed. The REXMIT counters are maintained from the time the RTP pipe was activated, or since the last DISPLAY RTPS command that cleared the REXMIT counters for this RTP pipe was issued. If CPNAME is specified, only RTP pipes that meet or exceed the retransmission rate for that CP are displayed. If CPNAME is not specified, all RTP pipes that meet or exceed the retransmission rate are displayed.

The valid range is 0 - 100. The *retransmission\_rate\_percentage* value can be specified up to two decimal points (for example, 0.22, 1.3, 14.5, 2.69).

## DISPLAY RTPS

### Results:

- The display is limited by the MAX operand.
- When the value 0 is specified for the REXMIT operand, all RTP pipes are displayed.

**Rule:** The REXMIT operand limits the scope of the display output but not the scope of the CLEAR operand. The CLEAR operand clears the diagnostic counters for RTP pipes whether the REXMIT operand is specified. The command filter of CPNAME operand limits the scope of the REXMIT operand and CLEAR operand.

### STALL

Specifies whether the display should be restricted.

#### STALL=YES

Displays only pipes whose data flow is stalled.

#### STALL=NO

Displays only pipes whose data flow is normal.

#### STALL=ALL

Displays all pipes. This is the default value.

### SWITCH

Specifies whether the display should be restricted.

#### SWITCH=YES

Displays only pipes in the midst of a path switch.

#### SWITCH=NO

Displays only pipes not in the midst of a path switch.

#### SWITCH=ALL

Displays all pipes. This is the default value.

### TCID=tcid

Specifies the local transport connection identifier (TCID) for an RTP PU.

**Tip:** The TCID operand can be used to correlate a local RTP PU name to the RTP PU name used by the remote (VTAM) partner RTP node to represent the same RTP connection. To determine the RTP PU name used by the remote (VTAM) partner RTP node, use the DISPLAY ID=rtp\_pu\_name command on the local node to display the local RTP PU, and remember the REMOTE TCID value that is displayed at the end of the IST1476I message. Then, from the remote (VTAM) partner RTP node (shown on the IST1481I message in the prior display), issue the DISPLAY RTPS,TCID=tcid command using the REMOTE TCID value obtained from the prior display.

### TEST

Specifies whether an HPR route test is to be performed.

TEST is valid only if the ID operand or the TCID operand is also specified and if the resource identified by the ID or TCID operand is an RTP PU in this node.

#### TEST=YES

Specifies that VTAM is to perform an HPR route test for this RTP PU in addition to displaying the RTP PU status.

The HPR route test is initiated if the RTP PU is connected and is not path switching. When the test results are received, they are provided to the operator console in a separate message group from the initial display output.

**TEST=NO**

Specifies that the RTP PU status is to be displayed but no HPR route test is to be performed.

**Examples**

Displaying RTP pipe information:

```
d net,rtps
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RTPS
IST1695I PU NAME      CP NAME      COSNAME SWITCH CONGEST STALL SESS
IST1960I CNR00004 NETA.SSCP2A    #INTER   NO    NO    NO    5
IST1960I CNR00003 NETA.SSCP2A    RSETUP   NO    NO    NO    0
IST1960I CNR00002 NETA.SSCP2A    CPSVCMG  NO    NO    NO    1
IST1960I CNR00001 NETA.SSCP2A    CPSVCMG  NO    NO    NO    1
IST2084I 4 OF 4 MATCHING RTP PIPES DISPLAYED
IST314I END
```

Find all RTP pipes whose retransmission rates meet or exceed 0.2%:

```
d net,rtps,rexmit=0.2
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RTPS
IST1695I PU NAME      CP NAME      COSNAME SWITCH CONGEST STALL SESS
IST1960I CNR00004 NETA.SSCP2A    #INTER   NO    NO    NO    5
IST2084I 1 OF 1 MATCHING RTP PIPES DISPLAYED
IST314I END
```

Find all RTP pipes whose retransmission rates meet or exceed 0.8% and clear all diagnostic counters for all RTP pipes:

```
d net,rtps,rexmit=.8,clear
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RTPS
IST1695I PU NAME      CP NAME      COSNAME SWITCH CONGEST STALL SESS
IST1960I CNR00001 NETA.SSCP2A    CPSVCMG  NO    NO    NO    1
IST2248I ALL DIAGNOSTIC COUNTERS CLEARED FOR 4 RTP PIPES
IST2084I 1 OF 1 MATCHING RTP PIPES DISPLAYED
IST314I END
```

Clear all diagnostic counters of all RTP pipes:

```
d net,rtps,clear=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RTPS
IST2248I ALL DIAGNOSTIC COUNTERS CLEARED FOR 4 RTP PIPES
IST314I END
```

Clear all diagnostic counters for all RTP pipes to the specified CPNAME:

```
d net,rtps,clear=all,cpname=sscp1a
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RTPS
IST2248I ALL DIAGNOSTIC COUNTERS CLEARED FOR 2 RTP PIPES
IST314I END
```

Clear all diagnostic counters for the RTP pipe CNR00001:

## DISPLAY RTPS

```
d net,rtps,clear=all,id=cnr00001
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RTPS
IST2248I ALL DIAGNOSTIC COUNTERS CLEARED FOR 1 RTP PIPES
IST314I END
```

Initiate an HPR route test and display the results using the TEST operand:

```
d net,rtps,id=cnr00004,test=yes
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RTPS
IST1695I PU NAME      CP NAME      COSNAME SWITCH CONGEST STALL SESS
IST1960I CNR00004 NETA.SSCP2A      #INTER   NO     NO     NO     1
IST1786I HPR ROUTE TEST INITIATED FOR RTP PU
IST2084I 1 OF 1 MATCHING RTP PIPES DISPLAYED
IST314I END
IST1787I HPR ROUTE TEST RESULTS FOR RTP PU CNR00004
IST1788I NODE CP NAME    TG NUMBER PARTNER CP NAME  INTERNODAL TIME
IST1789I                                (MILLISECONDS)
IST1790I NETA.SSCP1A      21      NETA.SSCP2A      1
IST1792I TOTAL RTP TRAVERSAL TIME 1 MILLISECONDS
IST314I END
```

Displaying an RTP pipe using the ID operand:

```
d net,rtps,id=cnr00004
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RTPS
IST1695I PU NAME      CP NAME      COSNAME SWITCH CONGEST STALL SESS
IST1960I CNR00004 NETA.SSCP2A      #INTER   NO     NO     NO     1
IST2084I 1 OF 1 MATCHING RTP PIPES DISPLAYED
IST314I END
```

Displaying the HPR pipes that go over SWIP2A1:

```
d net,rtps,alsname=swip2a1
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RTPS
IST1695I PU NAME      CP NAME      COSNAME SWITCH CONGEST STALL SESS
IST1960I CNR00005 NETA.SSCP2A      #BATCH   NO     NO     NO     1
IST1960I CNR00004 NETA.SSCP2A      #INTER   NO     NO     NO     1
IST1960I CNR00003 NETA.SSCP2A      RSETUP   NO     NO     NO     0
IST1960I CNR00002 NETA.SSCP2A      CPSVCMG  NO     NO     NO     1
IST1960I CNR00001 NETA.SSCP2A      CPSVCMG  NO     NO     NO     1
IST2084I 5 OF 5 MATCHING RTP PIPES DISPLAYED
IST314I END
```

Displaying the HPR pipes with a first hop of TG21:

```
d net,rtps,firsttg=21
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RTPS
IST1695I PU NAME      CP NAME      COSNAME SWITCH CONGEST STALL SESS
IST1960I CNR00005 NETA.SSCP2A      #BATCH   NO     NO     NO     1
IST1960I CNR00004 NETA.SSCP2A      #INTER   NO     NO     NO     1
IST1960I CNR00003 NETA.SSCP2A      RSETUP   NO     NO     NO     0
IST1960I CNR00002 NETA.SSCP2A      CPSVCMG  NO     NO     NO     1
IST1960I CNR00001 NETA.SSCP2A      CPSVCMG  NO     NO     NO     1
IST2084I 5 OF 5 MATCHING RTP PIPES DISPLAYED
IST314I END
```

Displaying the HPR pipes with a first hop to SSCP2A:

```
d net,rtps,firstcp=neta.sscp2a
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RTPS
IST1695I PU NAME      CP NAME      COSNAME SWITCH CONGEST STALL SESS
IST1960I CNR00005 NETA.SSCP2A      #BATCH   NO     NO     NO     1
```

```

IST1960I CNR00004 NETA.SSCP2A      #INTER  NO    NO    NO    1
IST1960I CNR00003 NETA.SSCP2A      RSETUP   NO    NO    NO    0
IST1960I CNR00002 NETA.SSCP2A      CPSVCMG  NO    NO    NO    1
IST1960I CNR00001 NETA.SSCP2A      CPSVCMG  NO    NO    NO    1
IST2084I 5 OF 5 MATCHING RTP PIPES DISPLAYED
IST314I END

```

Displaying the HPR pipes with a first hop to SSCP2A in summary format:

```

d net,rtps,firstcp=neta.sscp2a,list=summary
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = RTPS
IST2075I DISPLAY RTPS SUMMARY INFORMATION
IST2076I TOTAL MATCHING PIPES = 5
IST2077I CPSVCMG PIPES = 2
IST2078I RSETUP PIPES = 1
IST2079I LU-LU PIPES = 2
IST2080I PATH SWITCHING PIPES = 0
IST2081I CONGESTED PIPES = 0
IST2082I STALLED PIPES = 0
IST2083I SESSIONS = 4
IST314I END

```

---

## DISPLAY SAMAP command

►►—DISPLAY— —NET—,—SAMAP—◄◄

### Abbreviations

Operand	Abbreviation
DISPLAY	D

### Purpose

The DISPLAY SAMAP command displays the subarea mapping table from an ICN host.

### Resulting display

The resulting VTAM display shows the subarea mapping table from an ICN host.

### Examples

Displaying the subarea mapping table:

```

d net,samap
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SAMAP
IST1321I TABLE FOR SAMAP
IST1671I SA20      MAPSTO SA10
IST1671I SA10      MAPSTO SA20
IST314I END

```

---

## DISPLAY SATOAPPN command

►►—DISPLAY— —NET—,—SATOAPPN—◄◄

## DISPLAY SATOAPPN

### Purpose

The DISPLAY SATOAPPN command displays the subarea-to-APPN Class of Service mapping table.

### Resulting display

The resulting VTAM display shows the subarea-to-APPN Class of Service mapping table.

### Examples

Displaying the subarea-to-APPN Class of Service mapping table:

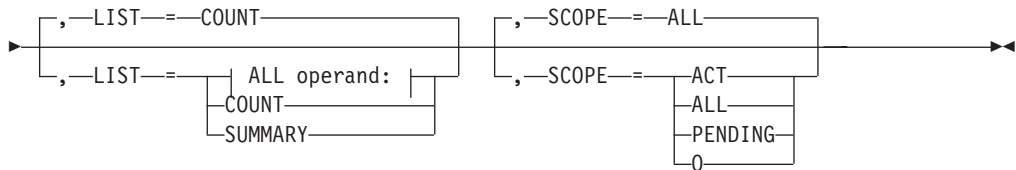
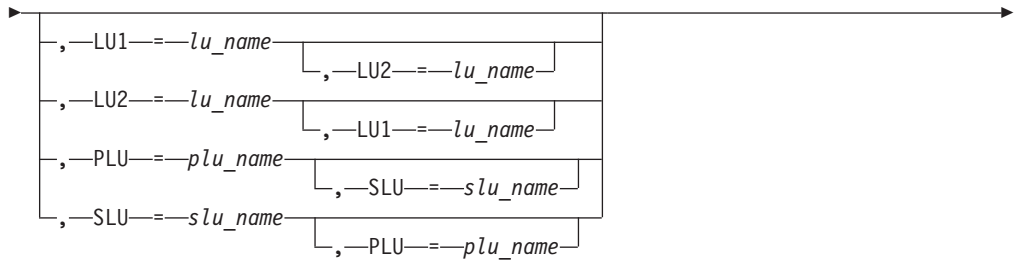
```
d net,satoappn
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SATOAPPN
IST1321I TABLE FOR SATOAPPN
IST1514I SUBAREA COS      APPNCOS
IST1323I COSAPPL1        #CONNECT
IST1323I COSAPPL2        #BATCH
IST1323I COSAPPL3        #BATCHSC
IST1323I COSAPPL4        #INTER
IST1323I COSAPPL5        #CONNECT      DEFAULT
IST1323I ITCOSDF         #INTERSC
IST314I END
```

---

## DISPLAY SESSIONS command

### Display all sessions:

►►—DISPLAY— —NET—,—SESSIONS—►►

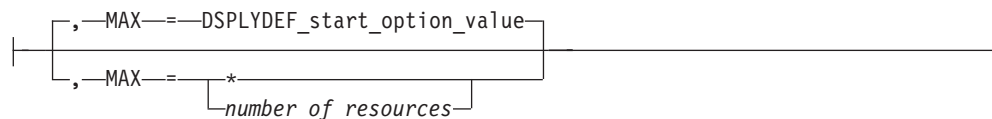


### ALL operand:

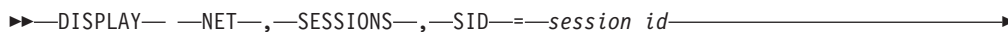
|—ALL—| MAX operand: |



**MAX operand:**



**Display a specific session:**



**Abbreviations**

Operand	Abbreviation
DISPLAY	D
PATHINFO=YES	PATH
SCOPE=ACT	ACT or A
SCOPE=ALL	EVERY or E
SCOPE=PENDING	SCOPE=PEND or PEND
SESSIONS	SESSION

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for SCOPE=ALL, code only EVERY or E. Do not code SCOPE=E.

**Purpose**

The DISPLAY SESSIONS command displays LU-LU session status information. The command can display status information for:

- A single session identified by its session identifier
- All sessions in which a specified logical unit is the primary session partner
- All sessions in which a specified logical unit is the secondary session partner
- All sessions in which a pair of logical units have a specified primary/secondary relationship as session partners
- All sessions in which a specified logical unit is a session partner (without regard to its primary or secondary status)
- All sessions between a pair of logical units regardless of their primary/secondary relationship as session partners
- All sessions known to VTAM, limited with the SCOPE operand to all pending sessions, all queued sessions, or all active sessions

**Note:**

1. To display sessions between specified logical units, one of the session partners must be in the host VTAM network.

## DISPLAY SESSIONS

2. If you issue the DISPLAY SESSIONS command at a network node server that is not an interchange node, control point, or SSCP for either session partner, this command might show duplicate information for some sessions. This might occur briefly during BIND processing in a normal session setup or it might indicate a hung session. If subsequent displays continue to show duplicate information for the same session, the session might be hung.

### Operands

#### LIST

Specifies the level of detail to display.

##### LIST=ALL

Displays all session status information for sessions with the status specified in the SCOPE operand. If SCOPE=ALL, the display includes active, pending, and queued sessions.

##### LIST=COUNT

Displays only the total number of sessions with the status specified in the SCOPE operand. If SCOPE=ALL, the number includes all sessions, regardless of whether they are active, pending, or queued.

##### LIST=SUMMARY

Displays the total number of sessions with the status specified in the SCOPE operand (same as LIST=COUNT), plus the actual session state codes for pending and queued sessions. For a description of possible session initiation and termination states, see z/OS Communications Server: SNA Messages.

#### LU1=*lu\_name*

Identifies the logical unit for which sessions are displayed. *lu\_name* can be specified as a network-qualified name. If you also specify the LU2 operand, the command displays only sessions involving both named logical units.

If *lu\_name* is a generic resource name, VTAM will display session status information for all members known by that generic name.

#### LU2=*lu\_name*

Identifies the logical unit for which sessions are displayed. *lu\_name* can be specified as a network-qualified name. If you also specify the LU1 operand, the command displays only sessions involving both named logical units.

If *lu\_name* is a generic resource name, VTAM will display session status information for all members known by that generic name.

#### MAX

Specifies the maximum number of sessions that VTAM displays for this command. This operand is valid only with LIST=ALL.

##### MAX=\*

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

##### MAX=*number\_of\_resources*

Specifies the number of sessions that VTAM displays for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output

generated by the command. If fewer sessions are found than you have specified on MAX, VTAM displays only the sessions that are found.

### PATHINFO

Specifies whether path information is displayed.

#### PATHINFO=NO

Specifies that no path information is to be displayed.

#### PATHINFO=YES

Displays the following information for each hop in the session path known to this node:

- The TG number
- The partner CP name
- The TG type
- The level of HPR support provided by this node for this TG; the value displayed depends on the HPR start option value and the HPR operand value on the corresponding PU definition (which can be used to override the HPR start option)

The preceding information is displayed in addition to the information currently being displayed.

Additional information such as RSCV and/or HPR path RSCV information is reported to z/OS by a DLUR node.

### PLU=plu\_name

Identifies the logical unit that is the primary session partner. *plu\_name* can be specified as a network-qualified name. If you specify the PLU operand, the command displays only sessions in which this logical unit is the primary session partner. If you also specify the SLU operand, the command displays only sessions involving both named logical units in the specified primary/secondary relationship.

If *plu\_name* is a generic resource name, VTAM will display session status information for all members known by that generic name.

### SCOPE

Specifies the status of the sessions to display. See z/OS Communications Server: SNA Messages for a description of the initiation states “queued”, “pending active”, and “active” for each session status. You cannot use this operand with the SID operand.

#### SCOPE=ACT

Displays only active sessions.

#### SCOPE=ALL

Displays all sessions, whether active, pending, or queued.

#### SCOPE=PENDING

Displays only pending sessions. A pending state is:

- A transient state to or from a fully active state.
- A state of “recovery pending” or “recovery in progress” for sessions that have been retained because of the failure or takeover of an application enabled for persistence.

**Note:** In either situation, the state of the half-session as seen by the PLU is the status reported for the session. Because of this, you must enter the DISPLAY command on the system that contains the application.

## DISPLAY SESSIONS

### SCOPE=Q

Displays only queued sessions.

### SID=session\_id

Identifies the VTAM LU-LU session to display. To display the session identifier named in this operand, issue either the DISPLAY SESSIONS,SCOPE=ALL command or a DISPLAY ID=*resource name*,SCOPE=ALL command. The session ID is identified by SID on the display and is 16 characters long.

If you specify the SID operand, you cannot specify SCOPE or LIST on the same command.

### SLU=s1u\_name

Identifies the logical unit that is the secondary session partner. *slu\_name* can be specified as a network-qualified name. If you specify the SLU operand, the command displays only sessions in which this logical unit is the secondary session partner. If you also specify the PLU operand, the command displays only sessions involving both named logical units in the specified primary/secondary relationship.

If *slu\_name* is a generic resource name, VTAM will display session status information for all members known by that generic name.

## Resulting display

The resulting display shows:

- For LIST=COUNT:
  - The number of sessions with the status specified in the SCOPE operand, optionally limited by LU1, LU2, PLU, or SLU.
  - A summary of active SSCP sessions, showing the number of SSCP-LU sessions, the number of SSCP-PU sessions, and the number of SSCP-SSCP sessions. This includes both active and pending sessions. These counts of SSCP sessions are not included in the number of total sessions (message IST878I). This summary of active SSCP sessions does not appear if the display has been limited by the LU1, LU2, PLU, or SLU operands, or if SCOPE excludes active sessions.
- For LIST=SUMMARY:
  - The number of sessions with the status specified in the SCOPE operand, optionally limited by LU1, LU2, PLU, or SLU.
  - For queued and pending sessions, the number of sessions with each status code.
  - For active sessions, the number of LU-LU sessions, the number of CP-CP contention winner sessions, and the number of CP-CP contention loser sessions.
  - A summary of active SSCP sessions, showing the number of SSCP-LU sessions, the number of SSCP-PU sessions, and the number of SSCP-SSCP sessions. This includes both active and pending sessions. These counts of SSCP sessions are not included in the number of total sessions (message IST878I). This summary of active SSCP sessions does not appear if the display has been limited by the LU1, LU2, PLU, or SLU operands, or if SCOPE excludes active sessions.
- For LIST=ALL:
  - The names of the resources in the sessions.
  - Each session's identifier.
  - Each session's status code.

- The number of sessions with the status specified in the SCOPE operand, optionally limited by LU1, LU2, PLU, or SLU.
- For queued and pending sessions, the number of sessions with each status code.

**Note:** If the value of the MAX operand is exceeded, *count* displays 10 asterisks (\*\*\*\*\*).

- For active sessions, the number of LU-LU sessions, the number of CP-CP or CPSVRMGR contention winner sessions, and the number of CP-CP or CPSVRMGR contention loser sessions.

**Note:** If the value of the MAX operand is exceeded, *count* for the LU-LU sessions displays 10 asterisks (\*\*\*\*\*).

- A summary of active SSCP sessions, showing the number of SSCP-LU sessions, the number of SSCP-PU sessions, and the number of SSCP-SSCP sessions. This includes both active and pending sessions. These counts of SSCP sessions are not included in the number of total sessions (message IST878I). This summary of active SSCP sessions does not appear if the display has been limited by the LU1, LU2, PLU, or SLU operands, or if SCOPE excludes active sessions.
- For SID:
  - The real and alias (if available) names of the primary session partner.
  - The real and alias (if available) names of the secondary session partner.
  - The session status.
  - The adjacent SSCP toward the PLU or SLU, if cross-domain (if available).
  - The rapid transport protocol (RTP) physical unit as the ALSNAME toward the PLU or SLU, if the session is using high performance routing (HPR).
  - The gateway NCP toward the PLU or SLU, if cross-network (if available).
  - The signals needed to complete a session, if the session is pending session setup or takedown.
  - The Class of Service table entry and logon mode entry used.
  - The APPN Class of Service toward the PLU or SLU, (if available).
  - Compression information, if compression is being used on the session in either the PLU-to-SLU or the SLU-to-PLU direction.
    - The compression-level values (0-4) in use for input and output messages
    - The percentage of reduction in length for input and output messages
    - The indicator "NA" (not applicable) if there has been no message traffic or if compression is not being used on either the inbound or outbound half-session.

If compression is not being used in either direction, this information is not displayed.
  - If the command is issued on the application owning host, RU size information is displayed.
  - Path information for each hop in the session known to this node.

### Examples

Displaying a specific session:

```
d net, sessions, sid=eaabec3e5a79ccb
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
```

## DISPLAY SESSIONS

```
IST879I PLU/OLU REAL = NETA.APPL2      ALIAS = ***NA***
IST879I SLU/DLU REAL = NETA.APPL1      ALIAS = ***NA***
IST880I SETUP STATUS = ACTIV
IST933I LOGMODE=INTERACT, COS=*BLANK*
IST1635I PLU HSCB TYPE: FMCB LOCATED AT ADDRESS X'0155F5B8'
IST1635I SLU HSCB TYPE: FMCB LOCATED AT ADDRESS X'0155F720'
IST2064I PLU TO SLU RU SIZE = 65535    SLU TO PLU RU SIZE = 65535
IST1636I PACING STAGE(S) AND VALUES:
IST1637I PLU--STAGE 1--SLU
IST1638I STAGE1: PRIMARY TO SECONDARY DIRECTION - ADAPTIVE
IST1639I     PRIMARY SEND: CURRENT = 7     NEXT = 8
IST1640I     SECONDARY RECEIVE = 32767
IST1641I STAGE1: SECONDARY TO PRIMARY DIRECTION - ADAPTIVE
IST1642I     SECONDARY SEND: CURRENT = 7     NEXT = 8
IST1643I     PRIMARY RECEIVE = 32767
IST314I END
```

Displaying all sessions:

**d net,sessions,scope=all,list=all**

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST873I     PLU           SLU           SID           STATUS
IST874I NETA.SSCP1A     NETA.ENCPA4     EAABEEC3297ED9FC ACTIV/DL
IST874I NETB.SSCP7B     NETA.SSCP1A     C2BB19BC57AD196C ACTIV/CP
IST874I NETA.SSCP1A     NETB.SSCP7B     EAABEEC3297ED9FA ACTIV/CP
IST874I NETA.SSCP2A     NETA.SSCP1A     F6ABEEC32C7EDA76 ACTIV/CP
IST874I NETA.SSCP1A     NETA.SSCP2A     EAABEEC3297ED9F8 ACTIV/CP
IST874I NETA.ENCPA4     NETA.SSCP1A     E2C5E2E2D6D50013 ACTIV/DL
IST924I -----
IST878I NUMBER OF PENDING SESSIONS = 0
IST924I -----
IST878I NUMBER OF ACTIVE SESSIONS = 6
IST1162I LU-LU = 2
IST1162I CP-CP CONWINNER = 2
IST1162I CP-CP CONLOSER = 2
IST924I -----
IST878I NUMBER OF QUEUED SESSIONS = 0
IST924I -----
IST878I NUMBER OF TOTAL SESSIONS = 6
IST924I -----
IST1161I SSCP SESSIONS
IST1162I SSCP-LU = 6
IST1162I SSCP-PU = 4
IST1162I SSCP-SSCP = 0
IST314I END
```

Displaying sessions, limiting output to six sessions:

**d net,sessions,list=all,max=6**

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST873I     PLU           SLU           SID           STATUS
IST874I NETA.MECHZ1A     NETA.ECHOZHA     D9F389C8E5517F35 ACTIV/MI
IST874I NETA.MECHZ1A     NETA.ECHOZHA     D9F389C8E5517F38 ACTIV/MI
IST874I NETA.ECHOZ1A     NETA.ECHOZHA     E7F38956127BB9F6 ACTIV
IST874I NETA.ECHOZ1A     NETA.ECHOZHA     E7F38956127BB9F4 ACTIV
IST874I NETA.MECHZ1A     NETA.ECHOZHA     E7F38956127BB9F3 ACTIV/M
IST874I NETA.MECHZ1A     NETA.ECHOZHA     E7F38956127BB9F1 ACTIV/M
IST1315I DISPLAY TRUNCATED AT MAX = 6
IST924I -----
IST878I NUMBER OF PENDING SESSIONS = *****
IST924I -----
IST878I NUMBER OF ACTIVE SESSIONS = *****
IST1162I LU-LU = *****
IST1162I CP-CP CONWINNER = 1
IST1162I CP-CP CONLOSER = 1
IST924I -----
```

## DISPLAY SESSIONS

```
IST878I NUMBER OF QUEUED SESSIONS = *****
IST924I -----
IST878I NUMBER OF TOTAL SESSIONS = *****
IST924I -----
IST1161I SSCP SESSIONS
IST1162I SSCP-LU = 25
IST1162I SSCP-PU = 1
IST1162I SSCP-SSCP = 0
IST314I END
```

Displaying a summary of all sessions:

```
d net,sessions,scope=all,list=summary
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST924I -----
IST878I NUMBER OF PENDING SESSIONS = 0
IST924I -----
IST878I NUMBER OF ACTIVE SESSIONS = 4
IST1162I LU-LU = 2
IST1162I CP-CP CONWINNER = 1
IST1162I CP-CP CONLOSER = 1
IST924I -----
IST878I NUMBER OF QUEUED SESSIONS = 0
IST924I -----
IST878I NUMBER OF TOTAL SESSIONS = 4
IST924I -----
IST1161I SSCP SESSIONS
IST1162I SSCP-LU = 10
IST1162I SSCP-PU = 4
IST1162I SSCP-SSCP = 0
IST314I END
```

Displaying all sessions for a specific LU:

```
d net,sessions,lu1=app10001,scope=all,list=summary
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST924I -----
IST878I NUMBER OF PENDING SESSIONS = 0
IST924I -----
IST878I NUMBER OF ACTIVE SESSIONS = 1
IST924I -----
IST878I NUMBER OF QUEUED SESSIONS = 0
IST924I -----
IST878I NUMBER OF TOTAL SESSIONS = 1
IST314I END
```

Displaying active sessions for a specific LU:

```
d net,sessions,lu1=app11,scope=act,list=count
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST878I NUMBER OF ACTIVE SESSIONS = 1
IST314I END
```

Displaying pending sessions for a specific LU:

```
d net,sessions,lu1=app11,scope=pending,list=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST873I PLU SLU SID STATUS
IST874I NETA.APPL1 NETA.NETAPPL1 EAABEEC3FD0825DEA PSEST/B
IST878I NUMBER OF PENDING SESSIONS = 1
IST1237I PSEST = 1
IST314I END
```

Displaying queued sessions between two LUs:

## DISPLAY SESSIONS

```
d net,sessions,lu1=appl1,lu2=appl0001,scope=q,list=count
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST1284I LUALIAS APPL0001 IS NETA.NETAPPL1 FOR APPLICATIONS
IST878I NUMBER OF QUEUED SESSIONS = 2
IST314I END
```

Displaying a count of active sessions with a USERVAR:

```
d net,sessions,lu1=echo01a,scope=act,list=count
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST113I ECHO01A IS A USERVAR WITH VALUE ECHO01A IN NETWORK NETA
IST1057I NETA.ECHO01A IS ALSO A REAL RESOURCE
IST878I NUMBER OF ACTIVE SESSIONS = 61
IST314I END
```

Displaying a generic resource name for LU1:

```
d net,sessions,lu1=cics,list=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST1364I CICS IS A GENERIC RESOURCE NAME FOR:
IST1154I NETA.CICS1 NETA.CICS2 NETA.CICS3
IST924I -----
IST873I PLU SLU SID STATUS
IST874I NETA.CICS1 NETA.APPL1A2 EAABEEC3F8FE476C ACTIV
IST874I NETA.APPL1A1 NETA.CICS2 EAABEEC3F8FE476B ACTIV
IST874I NETA.APPL1A1 NETA.CICS2 EAABEEC3F8FE476A ACTIV
IST874I NETA.CICS3 NETA.APPL1A5 EAABEEC3F8FE4769 ACTIV
IST874I NETA.CICS3 NETA.APPL1A9 EAABEEC3F8FE4768 ACTIV
IST878I NUMBER OF PENDING SESSIONS = 0
IST878I NUMBER OF ACTIVE SESSIONS = 5
IST878I NUMBER OF QUEUED SESSIONS = 0
IST878I NUMBER OF TOTAL SESSIONS = 5
IST314I END
```

Displaying PATHINFO with HPR (including all the types of session/paths):

```
d net,sessions,sid=f6abec39de53b70,pathinfo=yes
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST879I PLU/OLU REAL = NETA.NETAPPL1 ALIAS = ***NA***
IST879I SLU/DLU REAL = NETA.AA2LUA1 ALIAS = ***NA***
IST880I SETUP STATUS = ACTIV
IST875I ADJSSCP TOWARDS PLU = ISTAPNCP
IST875I ALSNAME TOWARDS PLU = CNR00004
IST875I ALSNAME TOWARDS SLU = P3A4956N
IST933I LOGMODE=INTERACT, COS=*BLANK*
IST875I APPNCOS TOWARDS PLU = #INTER
IST875I APPNCOS TOWARDS SLU = #INTER
IST1635I PLU HSCB TYPE: BSB LOCATED AT ADDRESS X'02FF6228'
IST1636I PACING STAGE(S) AND VALUES:
IST1644I PLU--STAGE 1-----|-----STAGE 2--SLU
IST1638I STAGE1: PRIMARY TO SECONDARY DIRECTION - ADAPTIVE
IST1640I SECONDARY RECEIVE = 1
IST1641I STAGE1: SECONDARY TO PRIMARY DIRECTION - ADAPTIVE
IST1642I SECONDARY SEND: CURRENT = 1 NEXT = 1
IST1638I STAGE2: PRIMARY TO SECONDARY DIRECTION - ADAPTIVE
IST1639I PRIMARY SEND: CURRENT = 0 NEXT = 1
IST1641I STAGE2: SECONDARY TO PRIMARY DIRECTION - ADAPTIVE
IST1643I PRIMARY RECEIVE = 15
IST1710I RSCV FROM PLU SAVED AT SESSION ACTIVATION
IST1460I TGN CPNAME TG TYPE HPR
IST1461I 21 NETA.SSCP1A APPN RTP
IST1461I 21 NETA.NNCPA2 APPN *NA*
IST1713I RTP RSCV IN THE DIRECTION OF THE PLU
IST1460I TGN CPNAME TG TYPE HPR
```



```

IST1461I  21  NETA.SSCP2A      APPN      RTP
IST1758I  RSCV TOWARDS DLUR SAVED AT SESSION ACTIVATION
IST1460I  TGN  CPNAME          TG TYPE   HPR
IST1461I  21  NETA.SSCP1A      APPN      RTP
IST1461I  21  NETA.NNCPA2      APPN      *NA*
IST1759I  RTP  RSCV FROM THE DIRECTION OF THE DLUR
IST1460I  TGN  CPNAME          TG TYPE   HPR
IST1461I  22  NETA.SSCP1A      APPN      RTP
IST1461I  21  NETA.NNCPA2      APPN      *NA*
IST314I  END

```

Displaying PATHINFO without HPR:

```

d net,sessions,sid=F6ABEEC350FC32A6,path
IST097I  DISPLAY ACCEPTED
IST350I  DISPLAY TYPE = SESSIONS
IST879I  PLU/OLU REAL = NETA.NETAPPL1    ALIAS = ***NA***
IST879I  SLU/DLU REAL = NETA.APPLAA1     ALIAS = ***NA***
IST880I  SETUP STATUS = ACTIV
IST875I  ADJSSCP TOWARDS SLU = ISTAPNCP
IST875I  ALSNAME TOWARDS SLU = AHHCPU1
IST933I  LOGMODE=INTERACT, COS=*BLANK*
IST875I  APPNCOS TOWARDS SLU = #INTER
IST1711I RSCV TOWARDS SLU SAVED AT SESSION ACTIVATION
IST1460I  TGN  CPNAME          TG TYPE   HPR
IST1461I  21  NETA.SSCP1A      APPN      *NA*
IST1461I  21  NETA.SSCPAA      APPN      *NA*
IST314I  END

```

---

## DISPLAY SNSFILTR command

▶▶—DISPLAY— —NET—,—SNSFILTR—◀◀

### Purpose

The DISPLAY SNSFILTR command displays the current active SAW sense filter.

### Resulting display

The resulting VTAM display shows the current active SAW sense filter.

### Examples

Displaying the SAW sense filter:

```

d net,snsfiltr
IST350I  DISPLAY TYPE = SNSFILTR
IST1321I TABLE FOR SAW SENSE FILTER
IST1551I  0857****  087D0001  087D0002  087D0003  087D0004
IST1551I  087D0005  087D0006  087D0007  087D0008  087D0009
IST1551I  089D0001  8013****
IST314I  END

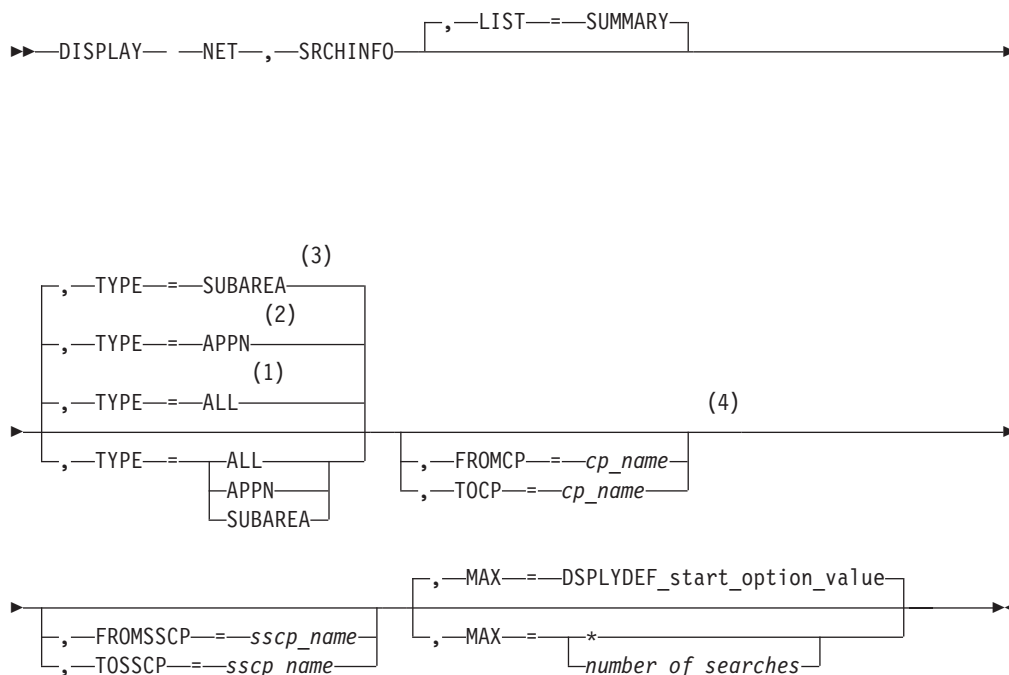
```

---

## DISPLAY SRCHINFO command

Display summary information about outstanding subarea and APPN searches:

## DISPLAY SRCHINFO



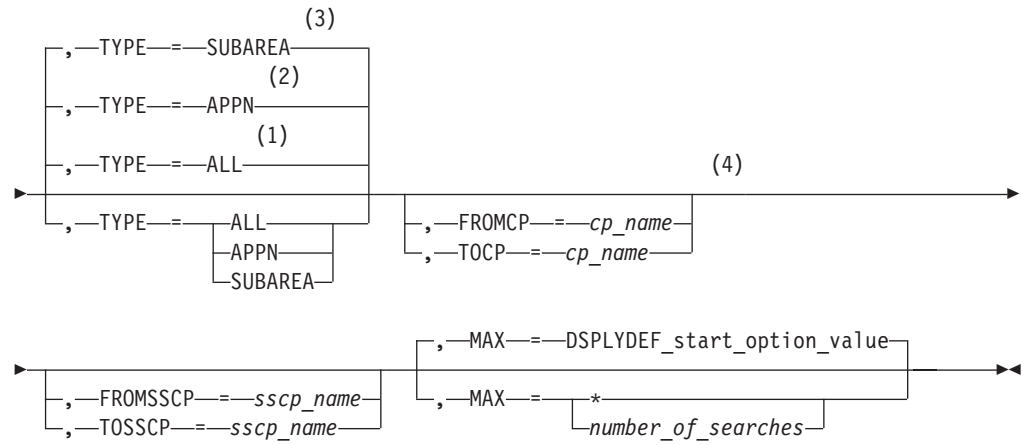
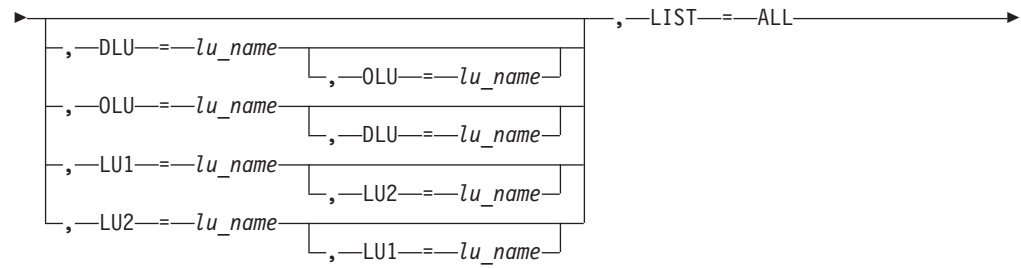
### Notes:

- 1 TYPE=ALL is the default when the HOSTSA and NODETYPE start options are specified.
- 2 TYPE=APPN is the default when the NODETYPE start option is specified without the HOSTSA start option.
- 3 TYPE=SUBAREA is the default when the HOSTSA start option is specified without the NODETYPE start option.
- 4 These operands are valid with TYPE=APPN or TYPE=ALL.

### Display detailed information about outstanding subarea and APPN searches:

```

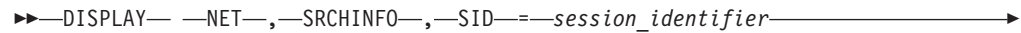
>> DISPLAY NET, SRCHINFO
  
```



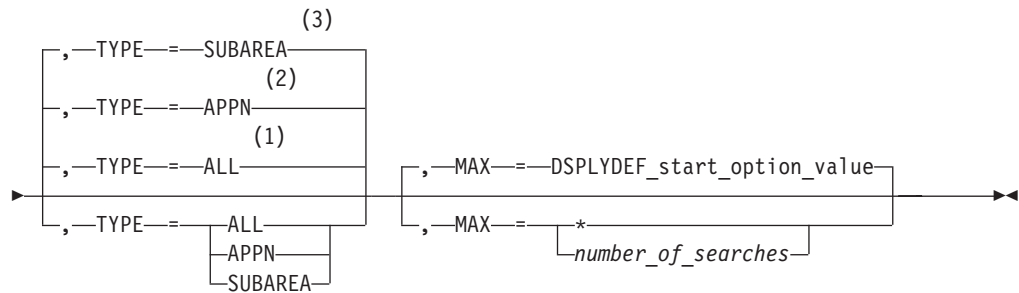
**Notes:**

- 1 TYPE=ALL is the default when the HOSTSA and NODETYPE start options are specified.
- 2 TYPE=APPN is the default when the NODETYPE start option is specified without the HOSTSA start option.
- 3 TYPE=SUBAREA is the default when the HOSTSA start option is specified without the NODETYPE start option.
- 4 These operands are valid with TYPE=APPN or TYPE=ALL.

**Display search information about a specific search request:**



## DISPLAY SRCHINFO



### Notes:

- 1 TYPE=ALL is the default when the HOSTSA and NODETYPE start options are specified.
- 2 TYPE=APPN is the default when the NODETYPE start option is specified without the HOSTSA start option.
- 3 TYPE=SUBAREA is the default when the HOSTSA start option is specified without the NODETYPE start option.

### Abbreviations

Operand	Abbreviation
DISPLAY	D
SID	PCID

### Purpose

The DISPLAY SRCHINFO command displays information about outstanding APPN and subarea search requests.

**Note:** The DISPLAY SRCHINFO,LIST=ALL and the DISPLAY SESSIONS,LIST=ALL commands will not always show the same session identifiers (SIDs). There are sessions (for example, INQUIRE APPSTAT) that do not involve sessions. When session setup has progressed beyond the search for the DLU, the SID of the session will not appear in the DISPLAY SRCHINFO output.

### Operands

#### DLU=*lu\_name*

Specifies the name of a destination LU. Display results for both subarea and APPN are limited by specifying this operand.

*lu\_name* can be specified as a network-qualified name. If you do not specify the network identifier, VTAM uses the identifier of the host from which you are issuing the command.

You can specify wildcard values for this operand. For more information about using wildcards, see "Using wildcard names" on page 11.

#### FROMCP=*cp\_name*

Specifies the name of a control point (CP).

*cp\_name* can be specified as a network-qualified name. If you do not specify the network identifier, VTAM uses the identifier of the host from which you are issuing the command.

You can specify wildcard values for this operand. For more information about using wildcards, see “Using wildcard names” on page 11.

**FROMSSCP=sscp\_name**

Specifies the name of a subsystem control point (SSCP).

The value specified for *sscp\_name* cannot be a network-qualified name.

You can specify wildcard values for this operand. For more information about using wildcards, see “Using wildcard names” on page 11.

**LIST**

Specifies the level of detail to display.

**LIST=SUMMARY**

For TYPE=SUBAREA or TYPE=ALL, displays summary information concerning outstanding CDINIT, DSRLST, and INIT\_OTHER CD (IOCD) search requests. For TYPE=APPN or TYPE=ALL, displays summary information concerning the number of outstanding search requests with all adjacent control points (CPs).

**LIST=ALL**

For TYPE=SUBAREA or TYPE=ALL, displays more detailed information about outstanding CDINIT, DSRLST, and INIT\_OTHER CD (IOCD) search requests, including the RU and the PCID. For TYPE=APPN or TYPE=ALL, displays more detailed information about the number of outstanding search requests with all adjacent CPs, including the PCID.

**LU1=lu\_name**

Specifies the name of a logical unit. If this operand is specified, the information displayed is limited to outstanding search requests sent to or received from the specified LU.

*lu\_name* can be specified as a network-qualified name. If you do not specify the network identifier, VTAM uses the identifier of the host from which you are issuing the command.

You can specify wildcard values for this operand. For more information about using wildcards, see “Using wildcard names” on page 11.

LU1 and LU2 can be used in place of DLU and OLU when it is not known which partner is the destination or originating LU.

**LU2=lu\_name**

Specifies the name of a logical unit.

*lu\_name* can be specified as a network-qualified name. If you do not specify the network identifier, VTAM uses the identifier of the host from which you are issuing the command.

You can specify wildcard values for this operand. For more information about using wildcards, see “Using wildcard names” on page 11.

LU1 and LU2 can be used in place of DLU and OLU when it is not known which partner is the destination or originating LU.

**MAX**

Specifies the maximum number of searches that VTAM displays for this command.

**MAX=\***

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

## DISPLAY SRCHINFO

### **MAX=number\_of\_searches**

Specifies the maximum number of searches that VTAM displays for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output; VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command.

For TYPE=ALL, the MAX operand is applied separately to the subarea and APPN displays.

### **OLU=lu\_name**

Identifies the LU that is the origin of a search request.

*lu\_name* can be specified as a network-qualified name. If you do not specify the network identifier, VTAM uses the identifier of the host from which you are issuing the command.

You can specify wildcard values for this operand. For more information about using wildcards, see “Using wildcard names” on page 11.

### **SID=session\_identifier**

Identifies the session ID (SID) of a specific search to be displayed. The SID is also known as the procedure-correlation identifier (PCID). Both subarea and APPN information will be provided, based on the TYPE operand.

If you specify the SID operand, do not specify LIST.

The SID may be obtained from the output of DISPLAY SRCHINFO,LIST=ALL (search-related requests) or DISPLAY SESSIONS,LIST=ALL (session-related requests).

### **TOCP=cp\_name**

Identifies an adjacent CP for a search request.

*cp\_name* can be specified as a network-qualified name. If you do not specify the network identifier, VTAM uses the identifier of the host from which you are issuing the command.

You can specify wildcard values for this operand. For more information about using wildcards, see “Using wildcard names” on page 11.

### **TOSSCP=sscp\_name**

Identifies the destination SSCP for a search request.

You can specify wildcard values for this operand. For more information about using wildcards, see “Using wildcard names” on page 11.

### **TYPE**

Identifies the type of information required.

#### **TYPE=ALL**

Indicates that both APPN and subarea search information will be displayed. TYPE=ALL is the default for interchange nodes and migration data hosts.

#### **TYPE=APPN**

Indicates that APPN search information will be displayed. Subarea search information will not be displayed.

**TYPE=SUBAREA**

Indicates that subarea search information will be displayed. APPN search information will not be displayed.

**Resulting display**

Specifying the DLU operand limits the display to outstanding search requests sent to the specified LU.

Specifying the OLU operand limits the display to outstanding search requests sent from the specified LU.

Specifying the FROMMCP operand limits the display to outstanding search requests sent from the specified CP.

Specifying the FROMSSCP limits the display to the outstanding search requests sent from the specified SSCP.

Specifying the LU1 or LU2 operand limits the display to the outstanding search requests sent to or received from the specified LU.

Specifying the TOCP operand limits the display to the outstanding search requests sent to the specified CP.

Specifying the TOSSCP operand limits the subarea information displayed to those search requests targeted for a particular SSCP.

**Examples**

Displaying summary of outstanding search requests.

```
d net,srchinfo,list=summary
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SRCHINFO
IST1520I SUBAREA SEARCH INFORMATION:
IST1521I TOSSCP NAME CDINIT DSRLST IOCD INITOT TOTAL
IST1522I SSCP1A 0 1 0 2 3
IST1525I TOTAL NUMBER OF OUTSTANDING SEARCHES = 3
IST1454I 1 SSCP NAME(S) DISPLAYED
IST924I -----
IST1526I APPN SEARCH INFORMATION:
IST1527I TOCP NAME TYPE STATUS BROADCAST DIRECTED TOTAL
IST1528I NETA.SSCPAA NN OPEN 2 1 3
IST1525I TOTAL NUMBER OF OUTSTANDING SEARCHES = 3
IST1454I 1 CP NAME(S) DISPLAYED
IST314I END
```

Displaying detail information about outstanding requests.

```
d net,srchinfo,list=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SRCHINFO
IST1520I SUBAREA SEARCH INFORMATION:
IST1523I OLU DLU SID RU
IST1524I NETA.APPL1 NETA.SSCP1A ***** DSRLST
IST1524I NETA.APPL2 NETA.SSCP1A ***** INITOT
IST1524I NETA.SSCP1A NETA.SSCP1A ***** INITOT
IST1454I 3 PAIR(S) DISPLAYED
IST924I -----
IST1526I APPN SEARCH INFORMATION:
IST1529I OLU DLU SID LOCATE
IST1530I NETA.SSCP1A NETA.SSCP2A EAABEEC3C6093893 1
```

## DISPLAY SRCHINFO

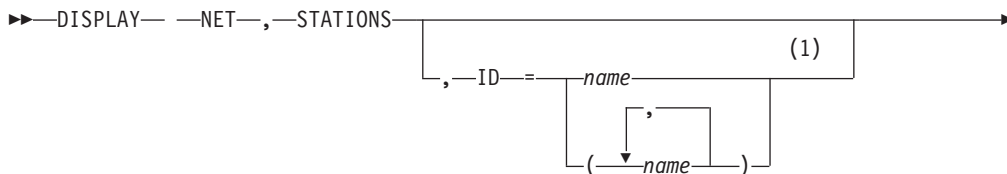
```
IST1530I NETB.SSCP7B      NETA.NETAPPL2    C2BB19BCF437741D    1
IST1530I NETB.SSCP7B      NETA.NETAPPL1    C2BB19BCF437741C    1
IST1525I TOTAL NUMBER OF OUTSTANDING SEARCHES =          3
IST1454I 3 PAIR(S) DISPLAYED
IST314I  END
```

Displaying outstanding information about a specific request.

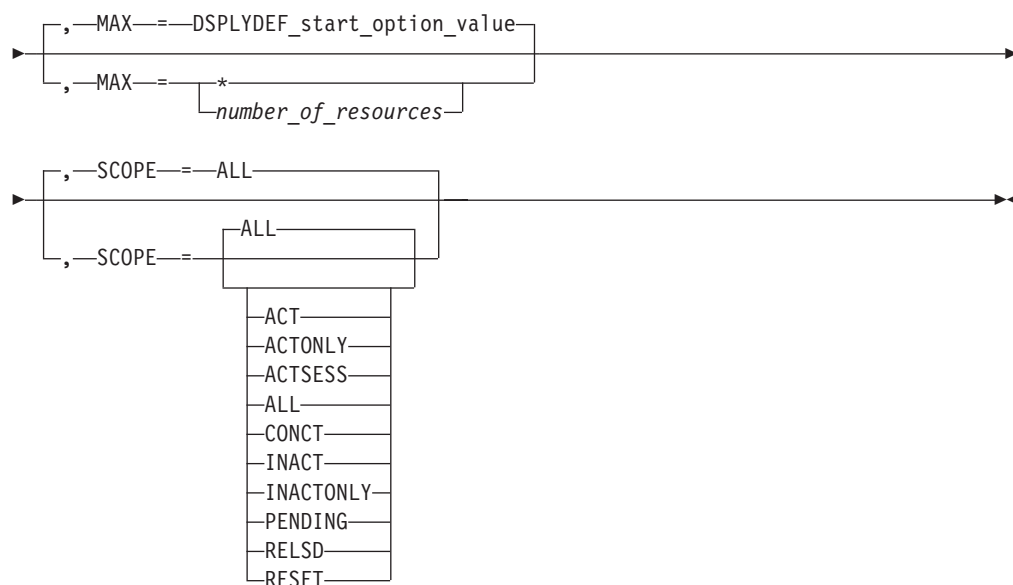
**d net,srchinfo,sid=eaabee3c6093891**

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SRCHINFO
IST1520I SUBAREA SEARCH INFORMATION:
IST1531I SID = EAABEE3C6093891      CP(OLU) = SSCP1A
IST1532I OLU = NETA.APPL1            DLU = NETA.NETAPPL1
IST1540I SEARCH STATUS = PDSRLST     SSCP(OLU) = SSCP1A
IST1539I PCID MODIFIER = 000000000000000000
IST1534I SSCP/CP IN OLU DIRECTION = NETA.SSCP1A
IST1533I SEARCH CONCENTRATED = NO    RDS = NO
IST1705I SORDER = ADJSSCP FROM START OPTION
IST1705I SSCPORD = PRIORITY FROM START OPTION
IST894I  ADJSSCPS TRIED FAILURE SENSE ADJSSCPS TRIED FAILURE SENSE
IST895I  SSCP2A      08420000
IST1454I 1 ADJSSCP(S) DISPLAYED
IST1537I AWAITING REPLY FROM THE FOLLOWING NODE(S):
IST1538I      NETA.ISTAPNCP
IST924I -----
IST1526I APPN SEARCH INFORMATION:
IST1531I SID = EAABEE3C6093891      CP(OLU) = NETA.SSCP1A
IST1532I OLU = NETA.APPL1            DLU = NETA.NETAPPL1
IST1539I PCID MODIFIER = 100000000000000000
IST1545I NODE ROLE VECTOR = X'A000'
IST1541I LOCATES PENDING =          0  CURRENT TASK = X'0B'
IST1533I SEARCH CONCENTRATED = YES    RDS = NO
IST1534I SSCP/CP IN OLU DIRECTION = NETA.SSCP1A
IST1535I REPLY RETURNED TO ORIGINATING CP = NO
IST1536I CONCENTRATED BEHIND C2BB19BCF437741C 221000000000000000
IST924I -----
IST1531I SID = C2BB19BCF437741C      CP(OLU) = NETB.SSCP7B
IST1532I OLU = NETB.SSCP7B           DLU = NETA.NETAPPL1
IST1539I PCID MODIFIER = 221000000000000000
IST1545I NODE ROLE VECTOR = X'2000'
IST1541I LOCATES PENDING =          1  CURRENT TASK = X'17'
IST1533I SEARCH CONCENTRATED = NO     RDS = YES
IST1548I BROADCAST = YES              DIRECTED = NO
IST1534I SSCP/CP IN OLU DIRECTION = NETB.SSCP7B
IST1535I REPLY RETURNED TO ORIGINATING CP = NO
IST1537I AWAITING REPLY FROM THE FOLLOWING NODE(S):
IST1538I      NETA.SSCPAA
IST1543I REQUESTS CONCENTRATED BEHIND THIS SEARCH =      1
IST314I  END
```

## DISPLAY STATIONS command







**Notes:**

- 1 Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.

**Abbreviations**

Operand	Abbreviation
DISPLAY	D
SCOPE=ACT	ACT or A
SCOPE=ACTONLY	ACTONLY
SCOPE=ACTSESS	ACTSESS
SCOPE=ALL	EVERY or E
SCOPE=CONCT	CONCT
SCOPE=INACT	INACT or I
SCOPE=INACTONLY	INACTONL
SCOPE=PENDING	PEND
SCOPE=RELSD	RELSD
SCOPE=RESET	RESET

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for SCOPE=ALL, code only EVERY or E. Do not code SCOPE=E.

**Purpose**

The DISPLAY STATIONS command displays the status of all cross-subarea link stations for active major nodes.

**Operands**

**ID=name**

Specifies the name of one or more major nodes, groups, lines, or link stations.

## DISPLAY STATIONS

If this operand is specified, information is displayed about only the link stations associated with the specified nodes. If this operand is omitted, information is displayed about all link stations in every active major node.

Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand. For more information about using wildcards, see “Using wildcard names” on page 11.

**Attention:** Specifying a wildcard name might degrade performance because VTAM checks every major node, group, line, and link station in the network.

### MAX

Specifies the maximum number of cross-subarea link stations that VTAM displays for this command.

#### MAX=\*

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

#### MAX=number\_of\_resources

Specifies the number of cross-subarea link stations that VTAM displays for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer cross-subarea link stations are found than you have specified on MAX, VTAM displays only the stations that are found.

### SCOPE

Specifies the required scope of the display.

**Note:** If you specify the SCOPE operand without specifying a value SCOPE=ALL is assumed.

#### SCOPE=ACT

Specifies that information is to be displayed about all active, pending, and connectable cross-subarea link stations within each major node or associated with a specific node. If this display is undesirably large, you can use SCOPE=ACTONLY or SCOPE=CONCT to further limit the display.

#### SCOPE=ACTONLY

Specifies that information is to be displayed about all cross-subarea link stations in an active state within each major node or associated with a specific node. The display does **not** include link stations in pending or connectable states. If no link stations are found in an active state, you can use SCOPE=ACT to broaden the scope of the display to include those in active, connectable, and pending states.

#### SCOPE=ACTSESS

Specifies that information is to be displayed about all cross-subarea link stations that are active with sessions within each major node or associated with a specific node.

#### SCOPE=ALL

Specifies that information is to be displayed about all cross-subarea link stations within each major node or associated with a specific node (regardless of their status).

### SCOPE=CONCT

Specifies that information is to be displayed about all cross-subarea link stations in a CONCT (connectable) state within each major node or associated with a specific node. If no link stations are found in a connectable state, you can use SCOPE=ACT to broaden the scope of the display to include those in active, connectable, and pending states.

### SCOPE=INACT

Specifies that information is to be displayed about all inactive cross-subarea link stations within each major node or associated with a specific node. If this display is undesirably large, you can use SCOPE=INACTONLY or SCOPE=RESET to further limit the display.

### SCOPE=INACTONLY

Specifies that information is to be displayed about all inactive cross-subarea link stations within each major node or associated with a specific node. Resources in a RESET state are not included in the SCOPE=INACTONLY display.

### SCOPE=PENDING

Specifies that information is to be displayed about all pending cross-subarea link stations within each major node or associated with a specific node. A pending state is a transient state to or from the fully active state.

### SCOPE=RELSD

Specifies that the information is to be displayed about all PUs in a RELSD state within the specified major nodes (or within all NCP, local SNA, and switched major nodes if the ID operand is omitted).

### SCOPE=RESET

Specifies that information is to be displayed about cross-subarea link stations in a RESET state within each major node or associated with a specific node.

## Resulting display

The resulting display shows:

- For each major node containing physical units that have subordinate link stations (host PU, NCP major node, or channel-attachment major node), or a node with subordinate or associated link stations:
  - The name of the major node
  - The subarea address of the major node (if it has one)
- For each link station:
  - The name and status of the link
  - The name and status of the link station
  - The current transmission group number
  - The defined transmission group number (If no specific transmission group number was defined, it is displayed as 0.)
  - The name (if known) and subarea (if known) of any adjacent NCP or host with which the link station is currently associated, and the name of the network in which the adjacent NCP or host is

## Examples

Displaying a specific cross-subarea link station:

## DISPLAY STATIONS

```
d net,stations,id=a31p04a
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATIONS
IST393I PU T4/5 MAJOR NODE A3162ZC, SUBAREA = 310
IST396I LNKSTA STATUS CTG GTG ADJNODE ADJSA NETID ADJLS
IST397I A31P04A NEVAC 1 1 0
IST610I LINE A31C04 - STATUS NEVAC
IST1454I 1 STATIONS(S) DISPLAYED FOR ID=A31P04A
IST314I END
```

Displaying all cross-subarea link stations:

```
d net,stations
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATIONS
IST393I PU T4/5 MAJOR NODE ISTPUS, SUBAREA = 500
IST396I LNKSTA STATUS CTG GTG ADJNODE ADJSA NETID ADJLS
IST397I 0016-S ACTIV----I 1 1 A3162ZC 310 NETA
IST610I LINE 0016-L - STATUS ACTIV----I
IST397I 0015-S ACTIV----I 1 1 A0362ZC 3 NETA
IST610I LINE 0015-L - STATUS ACTIV----I
IST393I PU T4/5 MAJOR NODE A0362ZC, SUBAREA = 3
IST396I LNKSTA STATUS CTG GTG ADJNODE ADJSA NETID ADJLS
IST397I A03P08A NEVAC 0 0 0
IST610I LINE A03C08 - STATUS NEVAC
IST397I A03P10A NEVAC 1 1 0
IST610I LINE A03C10 - STATUS NEVAC
IST393I PU T4/5 MAJOR NODE A3162ZC, SUBAREA = 310
IST396I LNKSTA STATUS CTG GTG ADJNODE ADJSA NETID ADJLS
IST397I A31P00A NEVAC 1 1 0
IST610I LINE A31C00 - STATUS NEVAC
IST397I A31P01A NEVAC 1 1 0
IST610I LINE A31C01 - STATUS NEVAC
IST397I A31P02A NEVAC 1 1 0
IST610I LINE A31C02 - STATUS NEVAC
IST397I A31P03A NEVAC 1 1 0
IST610I LINE A31C03 - STATUS NEVAC
IST397I A31P04A NEVAC 1 1 0
IST610I LINE A31C04 - STATUS NEVAC
IST397I A31P05A NEVAC 1 1 0
IST610I LINE A31C05 - STATUS NEVAC
IST397I A31P06A NEVAC 1 1 0
IST610I LINE A31C06 - STATUS NEVAC
IST1454I 11 STATIONS(S) DISPLAYED
IST314I END
```

Displaying cross-subarea link stations, limiting output to six resources:

```
d net,stations,max=6
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATIONS
IST393I PU T4/5 MAJOR NODE ISTPUS, SUBAREA = 1
IST1358I NO QUALIFYING MATCHES
IST393I PU T4/5 MAJOR NODE NCP3AA1, SUBAREA = 3
IST394I ADJACENT LINK STATIONS NOT OWNED BUT AWAITING ACTIVATION
IST395I LS4A3A4 LS4A3A3 LS4A3A2 LS4A3A1
IST396I LNKSTA STATUS CTG GTG ADJNODE ADJSA NETID ADJLS
IST397I LS3A4A1 NEVAC 2 2
IST610I LINE LN3A4A1 - STATUS NEVAC
IST397I LS3A4A2 NEVAC 2 2
IST610I LINE LN3A4A2 - STATUS NEVAC
IST1315I DISPLAY TRUNCATED AT MAX = 6
IST1454I 6 STATIONS(S) DISPLAYED
IST314I END
```

## DISPLAY STATS command

### Display resource statistics:

▶▶ DISPLAY —NET—, —STATS—, —TYPE—=—VTAM—▶▶

[ , —MAX—=—DSPLYDEF\_start\_option\_value ]  
 [ , —MAX—= \* —NUM— ]  
     [ —NUM— ]      [ —number\_of\_resources— ]

### Display data compression statistics:

▶▶ DISPLAY —NET—, —STATS—, —TYPE—=—COMPRESS—▶▶

### Display coupling facility structure statistics:

▶▶ DISPLAY —NET—, —STATS—, —TYPE—=—CFS—▶▶

[ , —STRNAME—=—STRGR\_start\_option\_value ]  
 [ , —STRNAME—= —structure\_name— ]  
     [ \* —SWSA\_structure\_name— ]  
         [ —SWSA\_structure\_name— ]      [ Entry Options ]  
     [ \* —Sysplexports\_structure\_name— ]  
         [ —Sysplexports\_structure\_name— ]      [ Entry Options ]

### Entry Options:

[ , —DVIPA=dvipa\_address— ]  
 [ , —LIST=—list\_number— ]  
 [ , —LIST=ALL— ]  
     [ , —FROM=—1— ]  
     [ , —FROM=—starting\_list\_number— ]

▶ | Scope Options | | Max Options | ▶

### Scope Options:

[ , —SCOPE=—ONLY— ]  
 [ , —SCOPE=—ALL— ]  
     [ —ONLY— ]

### Max Options:

[ , —MAX—=—DSPLYDEF\_start\_option\_value— ]  
 [ , —MAX—= \* —NUM— ]  
     [ —NUM— ]      [ —number\_of\_lines— ]

## Abbreviations

Operand	Abbreviation
DISPLAY	D
SCOPE=ALL	EVERY or E
SCOPE=ONLY	NONE or N
STRNAME	STRNM

## Purpose

The DISPLAY STATS (statistics) command displays information about the network, such as the number of resources of each type, the values of certain start options, the MVS coupling facility structure, and data compression.

This information can be used with z/OS Communications Server: New Function Summary to calculate the amount of storage required for VTAM. For information about how to use the host-based storage information in this display, see the z/OS Communications Server: New Function Summary.

**Attention:** Depending on the size and configuration of your network, issuing this command from the console or from the ISTSTATS program operator might affect system performance. Issuing the DISPLAY STATS command from the console is not recommended.

When issued with the value TYPE=CFS to display the SWSA structure (STRNAME=SWSA\_<structure\_name>), additional keywords can be specified to display information from the lists and list entries in the SWSA structure.

More specifically, for each claimed list, the output will display:

- The list number
- The DVIPA address
- The stack name (job name) and system name of the owning TCP stack
- The number of entries in the list
- For a list that is not being used for sequence number tracking, the takeover or giveback count
- For a list that is used for sequence number tracking, the next available sequence number is displayed.

A *claimed list* is one which has been associated with a DVIPA address and assigned an owning TCP stack.

Base your choice on the following conditions. If all claimed lists in the structure are displayed, the sum of the number of entries of all the lists will be one less than the current number of entries shown in message IST1377I. This is because list 0, which is used for structure maintenance, is never displayed.

If you specify . . .	Then . . .
A specific list number, but the list is not claimed	A message specifying LIST <listnumber> IS UNCLAIMED will be displayed.
A specific DVIPA address, but there are no claimed lists associated with that DVIPA	A message specifying NO CLAIMED LIST FOUND FOR THE SPECIFIED DVIPA will be displayed.

If you specify . . .	Then . . .
LIST=ALL and there are no claimed lists within the range requested	A message specifying NO CLAIMED LISTS FOUND will be displayed.
Requested list entry information (by the way of the SCOPE=ALL keyword)	The list entry key for each entry on the list will be displayed in hexadecimal format.

You can now perform the steps to display a specific claimed list.

When issued with the value TYPE=CFS to display the Sysplexports structure (STRNAME=*Sysplexports\_structure\_name*), additional keywords can be specified to display information from the lists and list entries in the Sysplexports structure.

More specifically, for each claimed list (that is, a list associated to a DVIPA), the output will display:

- The list number
- The DVIPA address
- The number of assigned ephemeral ports
- For each TCP/IP stack associated with the DVIPA, the stack name (job name), system name of that TCP stack, and the number of ephemeral ports assigned to that stack

Base your choice on the following conditions:

If you specify . . .	Then . . .
A specific list number, but the list is not claimed	A message specifying LIST <i>listnumber</i> IS UNCLAIMED will be displayed.
A specific DVIPA address, but there are no claimed lists associated with that DVIPA	A message specifying NO CLAIMED LIST FOUND FOR THE SPECIFIED DVIPA will be displayed.
LIST=ALL and there are no claimed lists within the range requested	A message specifying NO CLAIMED LISTS FOUND will be displayed.
Requested list entry information (by the way of the SCOPE=ALL keyword)	The set of ephemeral ports for each TCP/IP stack associated with that list will be displayed.

You can now perform the steps to display a specific claimed list.

## Operands

### DVIPA

Specifies a DVIPA address in dotted decimal format or colon-hexadecimal format. All list headers pertaining to this DVIPA will be displayed.

### FROM

Indicates the starting list number at which the search for claimed lists to be displayed begins. Valid only when LIST=ALL is specified.

### LIST

Specifies the list number to display. If LIST=ALL is specified, the FROM keyword may be used to indicate where to begin searching for claimed lists.

### MAX

Specifies the maximum number of output lines that VTAM displays for this command. The MAX operand is valid only when TYPE=VTAM or TYPE=CFS

## DISPLAY STATS

and *STRNAME=SWSA\_structure\_name* or  
*STRNAME=Sysplexports\_structure\_name* are specified.

**Guideline:** The value *MAX=\** might generate an undesirably large display. Do not specify *MAX=\** until you understand the potential effect of this command on your console.

### **MAX=\***

Specifies that the value of the *DSPLYMAX* start option is used to limit the display output.

### **MAX=number\_of\_resources**

Specifies the maximum number of statistics to display. The valid range is 1 - value of *DSPLYMAX*. The default is the value specified for the *DSPLYDEF* start option.

### **MAX=number\_of\_lines**

Specifies the maximum number of lines of output to display when displaying information from the structure specified by the *SWSA\_structure\_name* value or the structure specified by the *Sysplexports\_structure\_name* value. The valid range is 1 to the value of *DSPLYMAX*. The default is the value specified for the *DSPLYDEF* start option.

### **NUM**

A synonym for the *MAX* operand.

### **SCOPE**

Specifies the scope of the display. This keyword is valid only when you specify *TYPE=CFS*, *STRNAME=SWSA\_structure\_name* or *STRNAME=Sysplexports\_structure\_name*, and you specify either the *DVIPA* keyword or the *LIST* keyword.

### **SCOPE=ALL**

If you specify *STRNAME=SWSA\_structure\_name*, the information from the list headers and the list entry key for each entry on the list is displayed. If you specify *STRNAME=Sysplexports\_structure\_name*, the assigned ephemeral ports for each TCP/IP stack are displayed.

### **SCOPE=ONLY**

Displays the information from the list headers only.

### **STRNAME**

Specifies which VTAM or TCP/IP coupling facility structure to display.

### **STRNAME=structure\_name**

Specifies the name of a VTAM coupling facility structure to display. The structure name can be 1 - 16 characters long. If subplexing is being used (that is, start option *XCFGRPID* has been specified), the *structure\_name* value must include the 2-digit suffix specified on the *XCFGRPID* start option.

### **STRNAME=\***

Specifies that all VTAM structures are to be displayed.

### **STRNAME=SWSA\_structure\_name**

The *SWSA\_structure\_name* value has the form *EZBDVIPAvvtt*, where *vv* is the 2-digit VTAM XCF group ID suffix provided on the *XCFGRPID* start option, and *tt* is the 2-digit TCP/IP XCF group ID suffix provided with the *XCFGRPID* parameter on the *GLOBALCONFIG* statement in the TCP/IP profile.



**Guidelines:**

- If no VTAM XCF group ID suffix was provided, but a TCP/IP XCF group ID was specified, the format of the name is EZBDVIPA01*tt*.
- If no TCP/IP XCF group ID suffix was specified, but a VTAM XCF group ID was specified, the format of the name is EZBDVIPA*vv*.
- If neither XCF group ID is provided, the structure name is EZBDVIPA.

When the structure name explicitly specifies the SWSA structure, you can specify additional keywords to display information from the list headers and list entries within the SWSA structure.

**STRNAME=Sysplexexports\_structure\_name**

The *Sysplexexports\_structure\_name* value has the form EZBEPOR*Tvvtt*, where *vv* is the 2-digit VTAM XCF group ID suffix provided on the XCFGRPID start option, and *tt* is the 2-digit TCP/IP XCF group ID suffix provided with the XCFGRPID parameter on the GLOBALCONFIG statement in the TCP/IP profile.

**Guidelines:**

- If no VTAM XCF group ID suffix was provided, but a TCP/IP XCF group ID was specified, the format of the name is EZBEPOR*T01tt*.
- If no TCP/IP XCF group ID suffix was specified, but a VTAM XCF group ID was specified, the format of the name is EZBEPOR*Tvv*.
- If neither XCF group ID is provided, the structure name is EZBEPOR*T*.

When the structure name explicitly specifies the Sysplexexports structure, you can specify additional keywords to display information from the list headers and list entries within the Sysplexexports structure.

**TYPE**

Specifies what type of statistical information to display.

**TYPE=VTAM**

Displays information about the type and number of resources in the network and the values of certain start options.

**TYPE=COMPRESS**

Displays information about data compression.

**TYPE=CFS**

Displays attributes for the MVS coupling facility structure.

**Resulting display**

The resulting display shows:

- For TYPE=VTAM, a function ID for each resource type, the number of resources of each type, and the values of certain start options.
- For TYPE=COMPRESS, the number of half-sessions by active compression level that use data compression on input and output flows.

Output values for adaptive compression levels are split into BASIC and FROZEN. BASIC indicates the number of half-sessions currently using compression tables in the adaptive mode. FROZEN indicates the number of half-sessions currently using static compression tables.

Output values for sessions using run-length encoding (RLE) compression levels are also split into BASIC and FROZEN. BASIC indicates the number of half-sessions currently using compression tables in the basic mode. FROZEN does not apply to RLE compression.

## DISPLAY STATS

- For TYPE=CFS, the attributes for the MVS coupling facility structure identified on the STRNAME operand.
- For TYPE=CFS with STRNAME=SWSA\_<structure\_name> specified and either DVIPA or LIST specified, information about the contents of the list headers within the SWSA structure, and, if SCOPE=ALL is specified, the list entry keys for each list entry on the list.
- For TYPE=CFS with option STRNAME=Sysplexexports\_<structure\_name> specified:
  - The range of sysplex-wide unique ephemeral ports is displayed, if such a range has been defined using the TCP GLOBALCONFIG EXPLICITBINDPORTRANGE profile statement.
  - If DVIPA is specified, the display shows information about the number of ephemeral ports that are assigned for the specified DVIPA, each TCP/IP stack associated with the DVIPA, and the number of ephemeral ports assigned to each of those stacks.
  - If LIST is specified, the display shows information about the DVIPA address associated with the specified list number, the number of ephemeral ports assigned for that DVIPA, and information about each TCP/IP stack that is associated with that DVIPA. The display also shows the number of ephemeral ports that are assigned to each of those stacks.
  - If LIST=0 is specified, the display shows the number of assigned sysplex-wide unique ephemeral ports that are included in the explicit bind port range (EXPLICITBINDPORTRANGE). The display also shows each TCP/IP stack that is using the explicit bind port range and the number of explicit bind port range ports that are assigned to each of those stacks.
  - If SCOPE=ALL is specified, the set of ephemeral ports that are assigned to each stack is displayed. The ports displayed for the explicit bind port range (list 0) might include ports that are not in the current explicit bind port range if the ports were assigned before when the current explicit bind port range was set.

## Examples

Displaying statistical information:

```
d net,stats,type=vtam
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=VTAM
IST1349I COMPONENT ID IS 5695-11701-10A
IST1345I  ID      VALUE      DESCRIPTION
IST1227I  151     0 = DEPENDENT LU TOTAL FOR ISTPUS
IST1227I  151     32 = DEPENDENT LU TOTAL FOR NCP3AB8
IST1227I  11      0 = CHANNEL-TO-CHANNEL ATTACHMENTS
IST1227I  61      0 = SNA DATA COMPRESSION SESSIONS
IST1227I  63      27 = RECOVERABLE SESSIONS
IST1227I  56      1 = TOTAL APPL SESSIONS
IST1227I  58      0 = LU6.2 SESSIONS
IST1227I  60      1 = ICSF ENCRYPTION SERVICES
IST1227I  67      33 = PU STATEMENTS UNDER SW LINES
IST1227I  15      0 = SNA PU TOTAL MAXBFRU
IST1227I  21      0 = ICA DEVICES
IST1227I  51      49 = ACTIVE LU TOTAL
IST1227I  10      0 = TOTAL LINE STATEMENTS FOR XCA MAJOR NODES
IST1227I  14      0 = CA CLUSTER CONTROLLER TOTAL
IST1227I  2      200 = VIT TABLE SIZE
IST1227I  65      70 = NUMBER OF LINES DEFINED
IST1227I  3      256 = IOBUF SIZE
IST1227I  47      511 = MAXIMUM SUBAREA
IST1227I  48      60 = DEFINED PU TOTAL
IST1227I  49      4 = ACTIVE PU TOTAL
```

## DISPLAY STATS

IST1227I	16	39 = LOCAL NON-SNA TERMINALS
IST1227I	80	28 = NETWORK INDEPENDENT LU TOTAL
IST1227I	81	0 = DYNAMICALLY DEFINED LU TOTAL
IST1227I	6	17 = MAXBFRU FOR CHANNEL-ATTACHED CONTROLLERS
IST1227I	8	0 = XCA MAJOR NODES
IST1227I	74	0 = CROSS NETWORK APPL SESSIONS
IST1227I	17	0 = NETVIEW PIU TRACE BUFFER SIZE
IST1227I	18	2 = NETVIEW PIU TRACE BUFFERS
IST1227I	19	0 = NETVIEW SAW BUFFER SIZE
IST1227I	46	28 = INDEPENDENT LU TOTAL
IST1227I	52	0 = ACTIVE DEPENDENT LU TOTAL
IST1227I	66	0 = SWNET STATEMENTS
IST1227I	99	ICN = VTAM CONFIGURATION
IST1227I	70	0 = PATH STATEMENTS
IST1227I	77	0 = SAME DOMAIN LU6.2 SESSIONS
IST1227I	78	0 = SAME NETWORK MULTI-NODE LU6.2 SESSIONS
IST1227I	79	0 = CROSS NETWORK LU6.2 SESSION
IST1227I	50	71 = DEFINED LU TOTAL
IST1227I	57	1 = LU6.2 APPLICATIONS
IST1227I	53	0 = LOCAL LU-LU SESSIONS
IST1227I	55	1 = LU TOTAL TSO SESSIONS
IST1227I	71	0 = APPL - LU SESSIONS
IST1227I	73	0 = SAME NETWORK MULTI-NODE LU SESSIONS
IST1227I	5	2 = CHANNEL-ATTACHED CONTROLLERS
IST1227I	12	0 = TOTAL MAXBFRU FOR CTC ATTACHMENTS
IST1227I	13	0 = CTC TOTAL MAXBFRU CROSS DOMAIN
IST1227I	54	0 = PERSISTENT LU-LU SESSIONS
IST1227I	20	0 = NETVIEW SAW BUFFERS
IST1227I	22	2 = DESTINATION SUBAREAS
IST1227I	101	NO = CENTRAL DIRECTORY SERVER SUPPORT
IST1227I	123	0 = MPC READ BUFFER
IST1227I	64	2 = CURRENT NUMBER OF SESSION PARTNERS
IST1227I	100	13 = DYNAMIC DIRECTORY ENTRIES
IST1227I	102	1 = REGISTERED DIRECTORY ENTRIES
IST1227I	103	0 = SYSTEM DEFINED DIRECTORY ENTRIES
IST1227I	104	0 = ADJACENT END NODES
IST1227I	106	0 = CENTRAL DIRECTORY SERVER
IST1227I	107	0 = ADJACENT NETWORK NODES
IST1227I	108	7 = APPN CLASS OF SERVICE
IST1227I	109	1 = NETWORK NODES IN THE NETWORK
IST1227I	111	0 = CONNECTION NETWORKS
IST1227I	116	0 = INTERMEDIATE ROUTED SESSIONS
IST1227I	119	0 = CROSS NETWORK LU SESSIONS
IST1227I	120	0 = MULTIPATH CHANNEL MAJOR NODES
IST1227I	121	73 = MPC READ SUBCHANNEL ADDRESSES
IST1227I	122	73 = MPC WRITE SUBCHANNEL ADDRESSES
IST1227I	124	0 = MPC WRITE BUFFER
IST1227I	125	1 = APPLICATION SESSIONS
IST1227I	113	0 = PARALLEL SESSION PER LU
IST1227I	112	0 = SAME NETWORK MULTI-NODE APPL SESSIONS
IST1227I	140	0 = MAXIMUM DIRECTORY SIZE
IST1227I	141	100 = MAXIMUM TRS ROUTING TREES
IST1227I	142	0 = END NODE TRANSMISSION GROUPS
IST1227I	143	0 = NETWORK NODE TRANSMISSION GROUPS
IST1227I	144	0 = VIRTUAL NODE TRANSMISSION GROUPS
IST1227I	152	0 = ACTIVE DEPENDENT LU REQUESTERS
IST1227I	153	0 = ACTIVE DLUR SERVED PU TOTAL
IST1227I	154	0 = ACTIVE DLUR SERVED LU TOTAL
IST1227I	155	0 = VR-BASED TRANSMISSION GROUPS
IST1227I	156	0 = CONNECTION NETWORK DYNAMIC TGS
IST1227I	157	1 = TRANSPORT RESOURCE LIST ENTRIES
IST1227I	159	0 = ADJACENT CLUSTER TABLE CPNAME ENTRIES
IST1227I	160	0 = CP-CP SESSIONS
IST1227I	161	170 = HIGHEST ELEMENT ADDRESS ASSIGNED
IST1227I	162	433 = HIGHEST EXTENDED ELEMENT ADDRESS ASSIGNED

## DISPLAY STATS

```
IST1227I 164          143 = CURRENT ELEMENT ADDRESS TOTAL
IST1227I 165          371 = CURRENT EXTENDED ELEMENT ADDRESS TOTAL
IST1454I 92 STATISTICS DISPLAYED
IST314I  END
```

Displaying statistical information, limiting output to five resources:

```
d net,stats,type=vtam,max=5
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=VTAM
IST1349I COMPONENT ID IS 5695-11701-401
IST1345I  ID      VALUE      DESCRIPTION
IST1227I  151     0 = DEPENDENT LU TOTAL FOR ISTPUS
IST1227I  11     0 = CHANNEL-TO-CHANNEL ATTACHMENTS
IST1227I  61     0 = SNA DATA COMPRESSION SESSIONS
IST1227I  63     2 = RECOVERABLE SESSIONS
IST1227I  56     0 = TOTAL APPL SESSIONS
IST1315I DISPLAY TRUNCATED AT MAX = 5
IST1454I 5 STATISTICS DISPLAYED
IST314I  END
```

Displaying data compression statistics:

```
d net,stats,type=compress
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=COMPRESS
IST1435I LEVEL    INPUT      OUTPUT
IST1176I                BASIC   FROZEN
IST1177I  0      13910      13800  **NA**
IST1177I  1       489       164    **NA**
IST1177I  2       701       833     404
IST1177I  3       286        55     20
IST1177I  4        90       147     53
IST314I  END
```

Displaying the default coupling facility structure:

```
d net,stats,type=cfs
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=CFS
IST1370I NETA.A01N IS CONNECTED TO STRUCTURE ISTGENERIC
IST1797I STRUCTURE TYPE = LIST
IST1517I LIST HEADERS = 4 - LOCK HEADERS = 4
IST1373I STORAGE ELEMENT SIZE = 1024
IST924I -----
IST1374I                CURRENT    MAXIMUM  PERCENT
IST1375I STRUCTURE SIZE      10240K   25088K   41
IST1376I STORAGE ELEMENTS    0         972     0
IST1377I LIST ENTRIES        1       48595   0
IST314I  END
```

Displaying all coupling facility structures:

```
d net,stats,type=cfs,strname=*
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=CFS
IST1370I NETA.A01N IS CONNECTED TO STRUCTURE ISTMNPS
IST1797I STRUCTURE TYPE = LIST
IST924I -----
IST350I DISPLAY TYPE = STATS,TYPE=CFS
IST1370I NETA.A01N IS CONNECTED TO STRUCTURE ISTGENERIC
IST1797I STRUCTURE TYPE = LIST
IST314I  END
```

Displaying a multinode persistent session coupling facility structure:

```

d net,stats,type=cfs,strname=istmnps
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=CFS
IST1370I NETA.A01N IS CONNECTED TO STRUCTURE ISTMNPS
IST1797I STRUCTURE TYPE = LIST
IST1517I LIST HEADERS = 256 - LOCK HEADERS = 0
IST1373I STORAGE ELEMENT SIZE = 256
IST924I -----
IST1374I                CURRENT    MAXIMUM  PERCENT
IST1375I STRUCTURE SIZE          10240K   25088K    41
IST1376I STORAGE ELEMENTS         1188    25401     4
IST1377I LIST ENTRIES             1050    12700     8
IST314I END
  
```

Displaying a multinode persistent session coupling facility structure with alternate structures:

```

d net,stats,type=cfs,strname=istmnps
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=CFS
IST1370I NETA.A81N IS CONNECTED TO STRUCTURE ISTMNPS
IST1797I STRUCTURE TYPE = LIST
IST1517I LIST HEADERS = 256 - LOCK HEADERS = 0
IST1373I STORAGE ELEMENT SIZE = 256
IST924I -----
IST1374I                CURRENT    MAXIMUM  PERCENT
IST1375I STRUCTURE SIZE          6144K   12288K    50
IST1376I STORAGE ELEMENTS         3617   15422    23
IST1377I LIST ENTRIES             696    7711     9
IST924I -----
IST1519I ALTERNATE STRUCTURES ARE:
IST1567I ISTMNPS02          ISTMNPS01
IST314I END
  
```

Displaying the contents of an SWSA structure for all lists associated with DVIPA addresses:

```

d net,stats,type=cfs,strname=ezbdivipa1121,list=all,scope=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=CFS
IST1370I NETA.A01N IS CONNECTED TO STRUCTURE EZBDVIPA1121
IST1797I STRUCTURE TYPE = LIST
IST1517I LIST HEADERS = 1024 - LOCK HEADERS = 0
IST1373I STORAGE ELEMENT SIZE = 256
IST924I -----
IST1374I                CURRENT    MAXIMUM  PERCENT
IST1375I STRUCTURE SIZE          6144K   10240K    60
IST1376I STORAGE ELEMENTS         32    16821     0
IST1377I LIST ENTRIES             4    1682      0
IST924I -----
IST1834I LIST DVIPA SYSNAME TCPNAME  #ENTRIES  TGCCOUNT SEQNUMBER
IST1835I   1 203.3.1.165
IST1836I           MVS165 TCPCS3          0          1
IST1835I   3 203.1.1.11
IST1836I           VIC011 TCPCS          2          2
IST1838I           LIST ENTRY KEYS:
IST1839I           010000000000000100000000100000000
IST1839I           0200000000000001077A83D000000000
IST1835I   4 203.1.1.11
IST1837I           VIC011 TCPCS          1          18
IST1838I           LIST ENTRY KEYS:
IST1839I           00000000000000000000000000000011
IST314I END
  
```

Displaying the contents of the Sysplexports structure for all lists associated with DVIPA addresses:

## DISPLAY STATS

**d net,stats,type=cfs,strname=ezbeport1122,list=all**

```

IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=CFS
IST1370I NETA.A01N IS CONNECTED TO STRUCTURE EZBEPOR1122
IST1797I STRUCTURE TYPE = LIST
IST1517I LIST HEADERS = 1024 - LOCK HEADERS = 1024
IST1373I STORAGE ELEMENT SIZE = 256
IST924I -----
IST1374I                CURRENT      MAXIMUM  PERCENT
IST1375I STRUCTURE SIZE          6144K    10240K    60
IST1376I STORAGE ELEMENTS         32      16821     0
IST1377I LIST ENTRIES              8       1682     0
IST924I -----
IST1823I LIST DVIPA SYSNAME  TCPNAME      # Assigned Ports
IST1824I   1 203.3.1.165
IST1825I           VIC011  TCPCS2                2
IST1825I           VIC011  TCPCS                  0
IST1825I           MVS165  TCPCS                  1
IST1824I   4 203.1.1.11
IST1825I           MVS165  TCPCS3                2
IST1825I           VIC011  TCPCS                  3
IST314I END
  
```

Displaying the contents of the Sysplexports structure, including a set of all the ephemeral ports associated with each TCP/IP stack for lists that are not empty:

**d net,stats,type=cfs,strname=ezbeport1222,list=all,scope=all**

```

IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=CFS
IST1370I NETA.SSCP1A IS CONNECTED TO STRUCTURE EZBEPOR1222
IST1797I STRUCTURE TYPE = LIST
IST1517I LIST HEADERS = 1024 - LOCK HEADERS = 1024
IST1373I STORAGE ELEMENT SIZE = 256
IST924I -----
IST1374I                CURRENT      MAXIMUM  PERCENT
IST1375I STRUCTURE SIZE          6144K    10240K    60
IST1376I STORAGE ELEMENTS         32      16821     0
IST1377I LIST ENTRIES              8       1682     0
IST924I -----
IST2221I EXPLICITBINDPORTRANGE - START: 50000 END: 51023
IST1823I LIST DVIPA SYSNAME  TCPNAME      # Assigned Ports
IST1824I   0 EXPLICITBINDPORTRANGE
IST1825I           VIC011  TCPCS2                66
IST1826I           PORTS: 50000 50001 50002 50003 50004 50005
IST1827I           50006 50007 50008 50009 50010 50011
IST1827I           50012 50013 50014 50015 50016 50017
IST1827I           50018 50019 50020 50021 50022 50023
IST1827I           50024 50025 50026 50027 50028 50029
IST1827I           50030 50031 50032 50033 50034 50035
IST1827I           50036 50037 50038 50039 50040 50041
IST1827I           50042 50043 50044 50045 50046 50047
IST1827I           50048 50049 50050 50051 50052 50053
IST1827I           50054 50055 50056 50057 50058 50059
IST1827I           50060 50061 50062 50063
IST1825I           VIC011  TCPCS                  1
IST1826I           PORTS: 50064
IST1825I           MVS165  TCPCS                  1
IST1826I           PORTS: 50065
IST1824I   1 203.3.1.165
IST1825I           VIC011  TCPCS2                3
IST1826I           PORTS: 1025 60234
IST1825I           VIC011  TCPCS                  2
IST1825I           MVS165  TCPCS                  0
IST1825I           MVS165  TCPCS                  1
IST1826I           PORTS: 24051
IST1824I   4 203.1.1.11
IST1825I           MVS165  TCPCS3                12
IST1826I           PORTS: 11576 23000
  
```

```

IST1825I          VIC011  TCPCS          10
IST1826I          PORTS:  1027  2145  9815  20471  47611  48001
IST1827I          51225  60223  61427  63000
IST314I  END
  
```

Displaying the contents of the Sysplexports structure, including a set of all the ephemeral ports associated with the specified IPv6 DVIPA address:

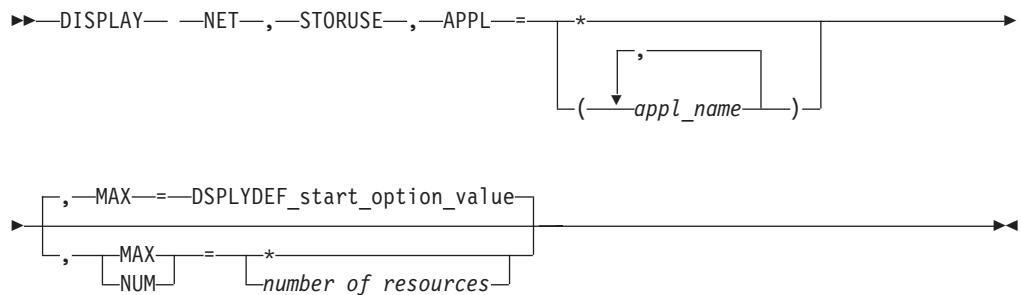
**d net,stats,type=cfs,strname=ezbeport3131,scope=all,dvipa=2003::38:1:1**

```

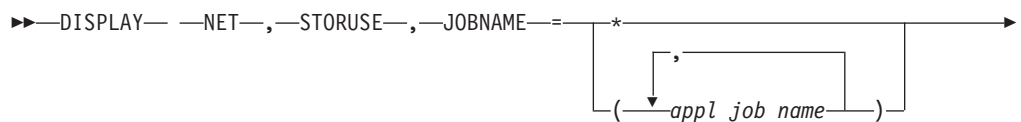
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=CFS
IST1370I NETA.SSCP1A IS CONNECTED TO STRUCTURE EZBEPORT3131
IST1797I STRUCTURE TYPE = LIST
IST1517I LIST HEADERS = 1024 - LOCK HEADERS = 1024
IST1373I STORAGE ELEMENT SIZE = 256
IST924I -----
IST1374I          CURRENT      MAXIMUM  PERCENT
IST1375I STRUCTURE SIZE          8192K    15104K   *NA*
IST1376I STORAGE ELEMENTS         64      25711    0
IST1377I LIST ENTRIES             3        804    0
IST924I -----
IST2221I EXPLICITBINDPORTRANGE - START: 50000 END: 51023
IST1823I LIST DVIPA SYSNAME  TCPNAME          # ASSIGNED PORTS
IST1824I   1 2003::38:1:1
IST1825I          VIC038  TCPCS          64
IST1826I          PORTS:  1024  1025  1026  1027  1028  1029
IST1827I          1030  1031  1032  1033  1034  1035
IST1827I          1036  1037  1038  1039  1040  1041
IST1827I          1042  1043  1044  1045  1046  1047
IST1827I          1048  1049  1050  1051  1052  1053
IST1827I          1054  1055  1056  1057  1058  1059
IST1827I          1060  1061  1062  1063  1064  1065
IST1827I          1066  1067  1068  1069  1070  1071
IST1827I          1072  1073  1074  1075  1076  1077
IST1827I          1078  1079  1080  1081  1082  1083
IST1827I          1084  1085  1086  1087
IST314I  END
  
```

## DISPLAY STORUSE command

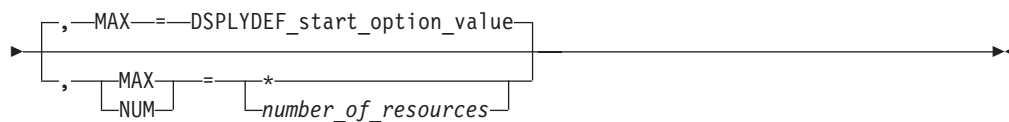
Display storage usage for applications:



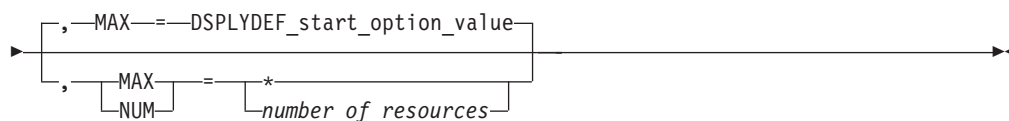
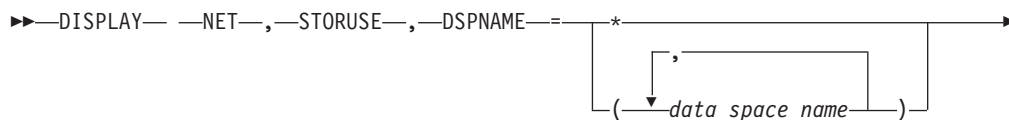
Display storage usage for application jobs:



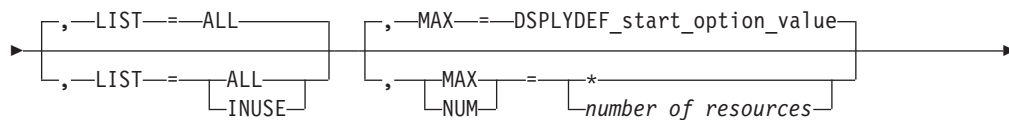
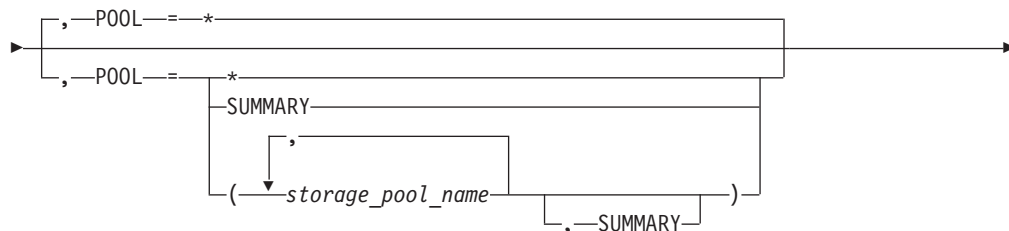
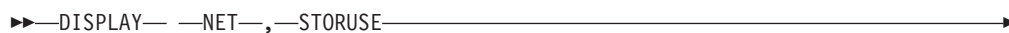
## DISPLAY STORUSE



### Display storage usage for data spaces:



### Display storage usage for storage pools:



## Abbreviations

Operand	Abbreviation
DISPLAY	D

## Purpose

The `DISPLAY STORUSE` (storage usage) command provides storage usage information for VTAM data spaces, modules, and storage pools.

You can specify one of the following names:

- Application name



- Application job name
- Data space name
- Storage pool name

## Operands

### APPL

Specifies the applications for which storage usage will be displayed.

#### **APPL=app1\_name**

Displays storage usage for one or more applications.

#### **APPL=\***

Displays storage usage for all applications.

### DSPNAME

Specifies the data spaces for which storage usage information will be displayed.

#### **DSPNAME=data\_space\_name**

Displays storage usage for one or more VTAM data spaces.

#### **DSPNAME=\***

Displays storage usage for all VTAM data spaces.

### JOBNAME

Specifies the VTAM application jobs for which storage usage will be displayed.

#### **JOBNAME=app1\_job\_name**

Displays storage usage for one or more VTAM application jobs.

#### **JOBNAME=\***

Displays storage usage for all VTAM application jobs.

### LIST

Specifies whether storage information should be displayed about all pools or only those currently in use.

The LIST operand is valid only when all GETBLK pools are being displayed and the POOL, DSPNAME, APPLNAME, and JOBNAME operands are omitted from the DISPLAY STORUSE command.

#### **LIST=ALL**

Displays storage information about all pools, regardless of whether storage is currently allocated from that storage pool.

#### **LIST=INUSE**

Displays storage information only for pools that have been currently allocated from that storage pool.

### MAX

Specifies the maximum number of output lines that VTAM displays for this command.

#### **MAX=\***

Specifies that the value of the DSPLYMAX start option limits the display output.

#### **MAX=number\_of\_resources**

Specifies the number of applications, application jobs, data spaces, or storage pools for which VTAM displays storage usage. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

## DISPLAY STORUSE

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified, stopping when it reaches that number. VTAM does not search any further. This saves processing time and gives you control over the amount of display output generated by the command. If fewer applications, application jobs, data spaces, or storage pools are found than you have specified on MAX, VTAM displays only the storage usage information for those found.

### NUM

A synonym for the MAX operand.

### POOL

Specifies the VTAM storage pools for which storage usage will be displayed. Use \* to display a list of valid pool names available in your system.

#### **POOL=storage\_pool\_name**

Displays storage usage for one or more VTAM storage pools.

#### **POOL=SUMMARY**

Displays storage usage collectively for all storage pools and modules.

The information supplied by SUMMARY is independent of the information supplied by *storage\_pool\_name*. SUMMARY can be specified with or without *storage\_pool\_name*.

#### **POOL=\***

Displays storage usage collectively and individually for all VTAM storage pools, and collectively for all VTAM modules.

For descriptions of the functions and characteristics of the storage pools displayed, see the z/OS Communications Server: SNA Network Implementation Guide.

### POOLTYPE

Specifies the type of pools for which storage information is to be displayed.

The POOLTYPE operand is valid only when all GETBLK pools are being displayed and the POOL, DSPNAME, APPLNAME, and JOBNAME operands are omitted from the DISPLAY STORUSE command.

#### **POOLTYPE=ALL**

Displays storage information about all pools.

#### **POOLTYPE=CSA**

Displays storage information only for pools in common service area (CSA) storage.

#### **POOLTYPE=PRIVATE**

Displays storage information only for pools in VTAM private storage.

## Resulting display

The resulting display shows:

- Pool name or data space name
- Job name
- Application name
- Number of applications
- Current storage
- Maximum storage

## Examples

Displaying storage usage for a specific pool:

```
d net,storuse,pool=sibext
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STORAGE USAGE
IST1242I POOL      CURRENT MAXIMUM
IST1243I SIBEXT      128      128
IST1454I 1 POOL(S) DISPLAYED
IST314I END
```

Displaying storage usage for pools, limiting output to five resources:

```
d net,storuse,max=5
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STORAGE USAGE
IST1242I POOL      CURRENT MAXIMUM POOL      CURRENT MAXIMUM
IST1243I ACDEB      4      4 ACPCB      0      0
IST1243I ADJCP      8      8 ADJNODE     0      0
IST1243I ANDCB      0      0
IST1315I DISPLAY TRUNCATED AT MAX = 5
IST1454I 5 RESOURCE(S) DISPLAYED
IST924I -----
IST1244I TOTAL PRIVATE POOL STORAGE USAGE:    228    228
IST1244I TOTAL COMMON POOL STORAGE USAGE:     64     64
IST924I -----
IST981I VTAM PRIVATE: CURRENT = 5208K, MAXIMUM USED = 5253K
IST924I -----
IST1565I CSA MODULES = 1384K
IST1565I CSA24 MODULES = 40K
IST1565I PRIVATE MODULES = 5205K
IST314I END
```

Displaying storage usage for pools, in CSA storage that have been currently allocated from that storage pool:

```
d net,storuse,pool type=csa,list=inuse
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STORAGE USAGE
IST1242I POOL      CURRENT MAXIMUM POOL      CURRENT MAXIMUM
IST1243I COS      16      16 CPWACSA     4      4
IST1243I CPWAPVT   4      4 EPTDVT     8      8
IST1243I ERICPOOL  8      8 ERTE       4      4
IST1243I FMCB     16      16 NDREC      8      8
IST1243I RUPEPRIV 16      16 UTILPVTS  20     20
IST1454I 10 POOL(S) DISPLAYED
IST924I -----
IST1244I TOTAL PRIVATE POOL STORAGE USAGE:    220    220
IST1244I TOTAL COMMON POOL STORAGE USAGE:     68     68
IST924I -----
IST981I VTAM PRIVATE: CURRENT = 585K, MAXIMUM USED = 639K
IST924I -----
IST1565I CSA MODULES = 1384K
IST1565I CSA24 MODULES = 32K
IST1565I PRIVATE MODULES = 5500K
IST314I END
```

Displaying storage usage for pools, in private storage that have been currently allocated from that private storage pool:

```
d net,storuse,pool type=private,list=inuse
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STORAGE USAGE
IST1242I POOL      CURRENT MAXIMUM POOL      CURRENT MAXIMUM
IST1243I ACDEB      4      4 CDRSC     32     32
IST1243I DECB       4      4 DISKIO    8      8
```

## DISPLAY STORUSE

```
IST1243I DMTSQ          4      4  FMCBEXT      4      4
IST1243I LMTABLE       4      4  NIDCB        4      4
IST1243I PAQ           8      8  POWEPRIV    8      8
IST1243I POWMPRIV     8      8  PULURDTE   4      4
IST1243I RUPECOMM     4      4  SRTE       20     20
IST1243I SSCPFMCB    16     16  UTILCSAL   4      4
IST1243I UTILCSAS    20     20  UTILPVTL   20     20
IST1243I WREEID       8      8
IST1454I 19 POOL(S) DISPLAYED
IST924I -----
IST1244I TOTAL PRIVATE POOL STORAGE USAGE:    220    220
IST1244I TOTAL COMMON POOL STORAGE USAGE:     68     68
IST924I -----
IST981I VTAM PRIVATE: CURRENT = 585K, MAXIMUM USED = 639K
IST924I -----
IST1565I CSA MODULES = 1384K
IST1565I CSA24 MODULES = 32K
IST1565I PRIVATE MODULES = 5500K
IST314I END
```

Displaying storage usage for all data spaces, limiting output to 6 resources:

**d net,storuse,dspname=\*,max=6**

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STORAGE USAGE
IST1238I DSPNAME  CURRENT  MAXIMUM  QUEUED
IST1239I ISTNMPDS    0      0      0
IST1239I ISTNMSDS    0      0      0
IST924I -----
IST1240I DSPNAME  CURRENT  MAXIMUM  JOBNAME  APPL    COUNT
IST1241I ISTFC8E0    8      8  VTAM    SSCP1A  1
IST1241I IST68072    0      0  ECHO    APPL1   1
IST1241I IST72596    0      0  ECHO    APPL2   1
IST1241I IST30B99    0      0  ECHO    APPL3   1
IST1454I 6 DSPNAME(S) DISPLAYED
IST314I END
```

Displaying storage usage for a specific data space:

**d net,storuse,dspname=istnmsds**

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STORAGE USAGE
IST1238I DSPNAME  CURRENT  MAXIMUM  QUEUED
IST1239I ISTNMSDS    0      0      0
IST1454I 1 DSPNAME(S) DISPLAYED
IST314I END
```

Displaying storage usage for all applications, limiting output to four resources:

**d net,storuse,appl=\*,max=4**

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STORAGE USAGE
IST1240I DSPNAME  CURRENT  MAXIMUM  JOBNAME  APPL    COUNT
IST1241I ISTFC8E0    8      8  VTAM    SSCP1A  1
IST1241I IST68072    0      0  ECHO    APPL1   1
IST1241I IST72596    0      0  ECHO    APPL2   1
IST1241I IST30B99    0      0  ECHO    APPL3   1
IST1315I DISPLAY TRUNCATED AT MAX = 4
IST1454I 4 APPL(S) DISPLAYED
IST314I END
```

Displaying storage usage for a specific job:

**d net,storuse,jobname=echo31e**

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STORAGE USAGE
```

```
IST1240I DSPNAME CURRENT MAXIMUM JOBNAME APPL COUNT
IST1241I 00002IST 0 0 ECH031E ECH050A 1
IST1241I 00003IST 0 0 ECH031E ECH050 1
IST314I END
```

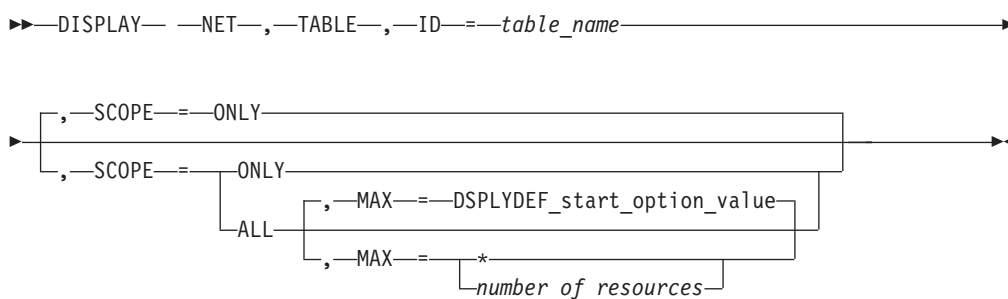
Displaying storage usage for a specific application:

```
d net,storuse,appl=echo02a
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STORAGE USAGE
IST1240I DSPNAME CURRENT MAXIMUM JOBNAME APPL COUNT
IST1241I 00001IST 4 16 ECH031E ECH002A 1
IST314I END
```

Displaying storage usage summary information:

```
d net,storuse,pool=summary
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STORAGE USAGE
IST1244I TOTAL PRIVATE POOL STORAGE USAGE: 228 228
IST1244I TOTAL COMMON POOL STORAGE USAGE: 76 76
IST924I -----
IST981I VTAM PRIVATE: CURRENT = 4550K, MAXIMUM USED = 4603K
IST924I -----
IST1565I CSA MODULES = 1384K
IST1565I CSA24 MODULES = 40K
IST1565I PRIVATE MODULES = 5205K
IST314I END
```

## DISPLAY TABLE command



### Abbreviations

Operand	Abbreviation
DISPLAY	D
SCOPE=ALL	EVERY or E
SCOPE=ONLY	NONE or N

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for SCOPE=ALL, code only EVERY or E. Do not code SCOPE=E.

### Purpose

This command displays the table type and the number of resources that are associated with the table (use count) and identifies the users of a table. The tables displayed include:

## DISPLAY TABLE

- Associated LU (ASLTAB)
- Class of Service (COSTAB)
- Logon interpret (LOGTAB)
- Logon mode (MODETAB)
- Message-flooding prevention (FLDTAB)
- Model name (MDLTAB)
- USS (USSTAB)

### Note:

1. SAW data filter tables are not displayed by this command.
2. The CMIP services directory definition file is not displayed by this command.

## Operands

### **ID=table\_name**

Specifies the name of the table.

### **MAX**

Specifies the maximum number of resources that VTAM displays for this command.

The MAX operand is valid only when SCOPE=ALL is specified.

### **MAX=\***

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

### **MAX=number\_of\_resources**

Specifies the number of resources to display for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer resources are found than you have specified on MAX, VTAM displays only the resources that are found.

### **SCOPE**

Specifies whether to display a list of users of the table.

#### **SCOPE=ALL**

Displays the name of each resource associated with the table. For a COS table, the use count might be higher than the number of user resource names displayed for SCOPE=ALL, if the COS table is used by a type 4 or type 5 physical unit for multiple networks.

#### **SCOPE=ONLY**

Does not display the names of the resources associated with the table.

## Resulting display

The resulting display shows:

- For SCOPE=ONLY, the table name, type, and use count
- For SCOPE=ALL, the table name, type, use count, and the resources associated with the table

**Note:** If the ID operand specifies the current value of the DYNMODTB start option, ISTCDRDY is displayed as a resource using the table.

## Examples

Displaying all resources for an associated LU table:

```
d net,table,id=as1tab1,scope=all
IST097I DISPLAY ACCEPTED
IST986I TABLE=ASLTAB1 TYPE=ASLTAB USE COUNT=62
IST987I THE RESOURCES THAT USE THE TABLE ARE:
IST988I A04D88A1 A04D88A2 A04D88A3
IST988I A04D8817 A04D8818 A04D8819
IST988I A04D881A A04D881B A04D881C
IST988I A04D881D A04D881E A04D881F
IST988I C23MMNLU A04MMNLU
IST1454I 14 RESOURCE(S) DISPLAYED
IST314I END
```

Displaying all resources for a Class of Service table:

```
d net,table,id=istsdcos,scope=all
IST097I DISPLAY ACCEPTED
IST986I TABLE=ISTSDCOS TYPE=COSTAB USE COUNT=1
IST987I THE RESOURCES THAT USE THE TABLE ARE:
IST988I ISTPUS
IST1454I 1 RESOURCE(S) DISPLAYED
IST314I END
```

Displaying all resources for a message-flooding prevention table:

```
d net,table,id=istmsfld,scope=all
IST097I DISPLAY ACCEPTED
IST986I TABLE=ISTMSFLD TYPE=FLDTAB USE COUNT=1
IST987I THE RESOURCES THAT USE THE TABLE ARE:
IST988I ISTNOP
IST1454I 1 RESOURCE(S) DISPLAYED
IST314I END
```

Displaying the use count for a logon interpret table:

```
d net,table,id=interp,scope=only
IST097I DISPLAY ACCEPTED
IST986I TABLE=INTERP TYPE=LOGTAB USE COUNT=832
IST314I END
```

Displaying all resources for a logon mode table:

```
d net,table,id=amodetab,scope=all
IST097I DISPLAY ACCEPTED
IST986I TABLE=AMODETAB TYPE=MODETAB USE COUNT=1227
IST987I THE RESOURCES THAT USE THE TABLE ARE:
IST988I A04I0421 A04I0422 A04I0423
IST988I A04I0424 A04I0425 A04I0431
IST988I A04D52AA A04D52AB A04D52AC
IST988I A04D52AD A04D52AE A04D52AF
IST988I A04D52C1 A04D52C2 A04D52C3
IST988I A04D52C4 A04D52C5 A04D52C6
IST988I A04D52C7 A04D52C8 A04D52C9
IST988I A04D52CA A04D52CB A04D52CC
IST988I A04D52CD A04D52CE A04D52CF
IST1454I 27 RESOURCE(S) DISPLAYED
IST314I END
```

Displaying all resources for a model name table:

## DISPLAY TABLE

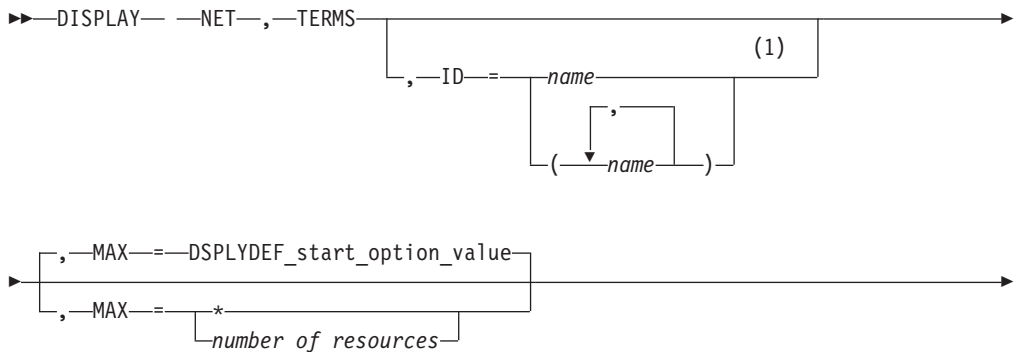
```
d net,table,id=mdltab1,scope=all
IST097I DISPLAY ACCEPTED
IST986I TABLE=MDLTAB1 TYPE=MDLTAB USE COUNT=61
IST987I THE RESOURCES THAT USE THE TABLE ARE:
IST1154I NETA.A03D88A1      NETA.A03D88A2      NETA.A03D88A3
IST1154I NETA.A03D88A4      NETA.A03D88A5      NETA.A03D88A6
IST1154I NETA.A03D88A7      NETA.A03D88A8      NETA.A03D88A9
IST1154I NETA.A03D88AA     NETA.A03D88AB     NETA.A03D88AC
IST1154I NETA.A03D88AD     NETA.A03D88AE     NETA.A03D88AF
IST1154I NETA.A03D8871     NETA.A03D8872     NETA.A03D8873
IST1154I NETA.A03D8874     NETA.A03D8875     NETA.A03D8876
IST1154I NETA.A03D8877     NETA.A03D8878     NETA.A03D8879
IST1154I NETA.A03D887A     NETA.A03D887B     NETA.A03D887C
IST1154I NETA.A03D887D     NETA.A03D887E     NETA.A03D887F
IST1154I NETA.A03D8841     NETA.A03D8842     NETA.A03D8843
IST1154I NETA.A03D8844     NETA.A03D8845     NETA.A03D8846
IST1154I NETA.A03D8847     NETA.A03D8848     NETA.A03D8849
IST1154I NETA.A03D884A     NETA.A03D884B     NETA.A03D884C
IST1154I NETA.A03D884D     NETA.A03D884E     NETA.A03D884F
IST1154I NETX.A03D8811     NETX.A03D8812     NETX.A03D8813
IST1154I NETX.A03D8814     NETX.A03D8815     NETX.A03D8816
IST1154I NETX.A03D8817     NETX.A03D8818     NETX.A03D8819
IST1154I NETX.A03D881A     NETX.A03D881B     NETX.A03D881C
IST1154I NETX.A03D881D     NETX.A03D881E     NETX.A03D881F
IST1154I NETA.A03MMNLU
IST1454I 61 RESOURCE(S) DISPLAYED
IST314I END
```

Displaying all resources for a USS table:

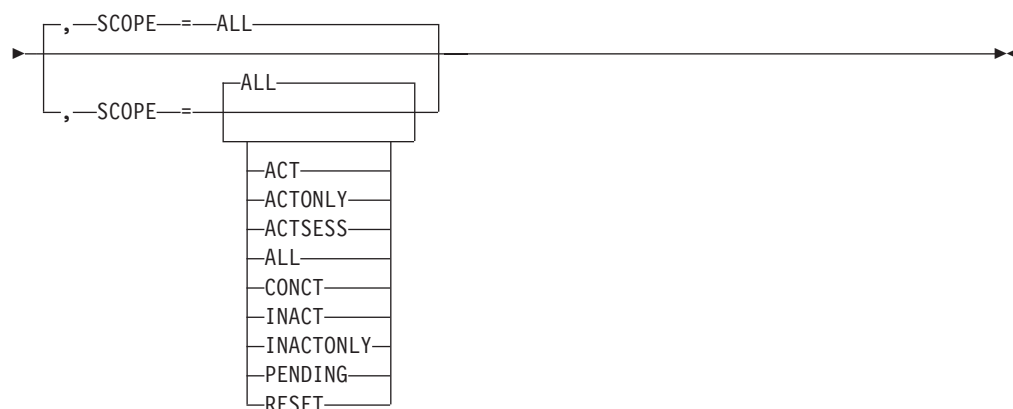
```
d net,table,id=ausstab,scope=all
IST097I DISPLAY ACCEPTED
IST986I TABLE=AUSSTAB TYPE=USSTAB USE COUNT=912
IST987I THE RESOURCES THAT USE THE TABLE ARE:
IST988I A04D88A1 A04D88A2 A04D88A3
IST988I A04D88A4 A04D88A5 A04D88A6
IST988I A04D52CD A04D52CE A04D52CF
IST988I A04PT88A A04PT89A A04PT92A
IST1454I 12 RESOURCE(S) DISPLAYED
IST314I END
```

---

## DISPLAY TERMS command







**Notes:**

- 1 Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.

**Abbreviations**

Operand	Abbreviation
DISPLAY	D
SCOPE=ACT	ACT or A
SCOPE=ACTONLY	ACTONLY
SCOPE=ACTSESS	ACTSESS
SCOPE=ALL	EVERY or E
SCOPE=CONCT	CONCT
SCOPE=INACT	INACT or I
SCOPE=INACTONLY	INACTONL
SCOPE=PENDING	PEND
SCOPE=RESET	RESET

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for SCOPE=ALL, code only EVERY or E. Do not code SCOPE=E.

**Purpose**

The DISPLAY TERMS (terminals) command displays the status of device-type logical units (terminals) that are in active major nodes. The command does not display information about independent LUs.

**Note:**

1. In a domain that has many terminals, this command might result in an undesirably large display, especially if the SCOPE=ALL operand, which is the default, is used. You can limit the display by using a more restrictive SCOPE value and by specifying the required major node or nodes on the ID operand.
2. To display device-type logical units independently of the major nodes that contain them, use the DISPLAY RSCLIST command with IDTYPE=TERMS.

### Operands

#### **ID=name**

Specifies the name of one or more active NCP, local SNA, local non-SNA, or switched major nodes whose device-type LUs are to be displayed.

Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand. For more information about using wildcards, see “Using wildcard names” on page 11.

**Attention:** Specifying a wildcard name might degrade performance because VTAM checks every major node in the network.

#### **MAX**

Specifies the maximum number of terminals that VTAM displays for this command.

#### **MAX=\***

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

#### **MAX=number\_of\_resources**

Specifies the number of terminals that VTAM displays for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer terminals are found than you have specified on MAX, VTAM displays only the terminals that are found.

#### **SCOPE**

Specifies the required scope of the display.

**Note:** If you specify the SCOPE operand without specifying a value SCOPE=ALL is assumed.

#### **SCOPE=ACT**

Specifies that information is to be displayed about all active, pending, and connectable device-type logical units within the specified major nodes (or within all major nodes if the ID operand is omitted). If this display is undesirably large, you can use SCOPE=ACTONLY or SCOPE=CONCT to further limit the display.

#### **SCOPE=ACTONLY**

Specifies that information is to be displayed about all device-type logical units in an active state within the specified major nodes (or within all major nodes if the ID operand is omitted). The display does **not** include terminals in pending or connectable states. If no terminals are found in an active state, you can use SCOPE=ACT to broaden the scope of the display to include terminals in active, connectable, and pending states.

#### **SCOPE=ACTSESS**

Specifies that information is to be displayed about all device-type logical units that are active with sessions within the specified major nodes (or within all major nodes if the ID operand is omitted).

#### **SCOPE=ALL**

Specifies that information is to be displayed about all device-type logical

units (regardless of their status) within the specified major nodes (or within all major nodes if the ID operand is omitted).

**SCOPE=CONCT**

Specifies that information is to be displayed about all device-type logical units in a CONCT (connectable) state within the specified major nodes (or within all major nodes if the ID operand is omitted). If no terminals are found in a connectable state, you can use SCOPE=ACT to broaden the scope of the display to include terminals in active, connectable, and pending states.

**SCOPE=INACT**

Specifies that information is to be displayed about all inactive device-type logical units within the specified major nodes (or within all major nodes if the ID operand is omitted). If this display is undesirably large, you can use SCOPE=INACTONLY or SCOPE=RESET to further limit the display.

**SCOPE=INACTONLY**

Specifies that information is to be displayed about all inactive device-type logical units within the specified major nodes (or within all major nodes if the ID operand is omitted). Resources in a RESET state are not included in the SCOPE=INACTONLY display.

**SCOPE=PENDING**

Specifies that information is to be displayed about all pending device-type logical units within the specified major nodes (or within all major nodes if the ID operand is omitted). A pending state is a transient state to or from the fully active state.

**SCOPE=RESET**

Specifies that information is to be displayed about all device-type logical units in a RESET state within the specified major nodes (or within all major nodes if the ID operand is omitted).

**Resulting display**

For each major node with terminals, the resulting display shows:

- The major node name
- The line name and status (if the terminal is attached over a line)
- The name and status of the associated physical unit (if any)
- The name and status of the logical unit

**Note:** Physical units and logical units in a switched major node are always listed under the switched major node and never under the NCP or channel-attachment major node containing the switched link through which they are attached. To determine the name of this NCP or channel-attachment major node and line, enter a “DISPLAY ID command” on page 136” with ID=*pu\_name* or ID=*lu\_name*.

**Examples**

Displaying terminals within a specific node:

```
d net,terms,id=a50local
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = LOGICAL UNITS/TERMS
IST351I LOCAL 3270 MAJOR NODE = A50LOCAL
IST089I A50A720 TYPE = LOGICAL UNIT , NEVAC ,CUA=0720
IST089I A50A721 TYPE = LOGICAL UNIT , ACTIV ,CUA=0721
IST089I A50A722 TYPE = LOGICAL UNIT , ACT/S ,CUA=0722
```

## DISPLAY TERMS

```
IST089I A50A723 TYPE = LOGICAL UNIT      , ACTIV      ,CUA=0723
IST089I A50A724 TYPE = LOGICAL UNIT      , ACTIV      ,CUA=0724
IST089I A50A725 TYPE = LOGICAL UNIT      , ACTIV      ,CUA=0725
IST089I A50A726 TYPE = LOGICAL UNIT      , NEVAC      ,CUA=0726
IST1454I 7 RESOURCE(S) DISPLAYED FOR ID=A50LOCAL
IST314I END
```

Displaying all terminals:

### **d net, terms**

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = LOGICAL UNITS/TERMS
IST353I SWITCHED SNA MAJOR NODE = ISTD5WMN
IST146I LINE NAME = J000400B, STATUS = ACTIV
IST359I ATTACHMENT = SWITCHED
IST089I A04P88A TYPE = PU_T2              , ACTIV---X-
IST355I LOGICAL UNITS:
IST080I A04D88A1 ACTIV---X- A04D88A2 ACTIV---X- A04D88A3 ACT/S---X-
IST080I A04D88A4 ACTIV---X- A04D88A5 ACTIV---X- A04D88A6 ACTIV---X-
IST080I A04D88A7 ACTIV---X- A04D88A8 ACTIV---X- A04D88A9 ACTIV---X-
IST080I A04D88AA ACTIV---X- A04D88AB ACT/S---X- A04D88AC ACT/S---X-
IST080I A04D88AD ACT/S---X- A04D88AE ACT/S---X- A04D88AF ACT/S---X-
IST146I LINE NAME = J0004011, STATUS = ACTIV
IST359I ATTACHMENT = SWITCHED
IST089I A04P887 TYPE = PUT_2              , ACTIV---X-
IST355I LOGICAL UNITS:
IST080I A04D8871 ACTIV---X- A04D8872 ACTIV---X- A04D8873 ACTIV---X-
IST080I A04D8874 ACTIV---X- A04D8875 ACTIV---X- A04D8876 ACTIV---X-
IST080I A04D8877 ACTIV---X- A04D8878 ACTIV---X- A04D8879 ACTIV---X-
IST080I A04D887A ACTIV---X- A04D887B ACT/S---X- A04D887C ACT/S---X-
IST080I A04D887D ACT/S---X- A04D887E ACT/S---X- A04D887F ACT/S---X-
IST146I LINE NAME = J0004017, STATUS = ACTIV
IST359I ATTACHMENT = SWITCHED
IST089I A04P884 TYPE = PUT_2              , ACTIV---X-
IST355I LOGICAL UNITS:
IST080I A04D8841 ACTIV---X- A04D8842 ACT/S---X- A04D8843 ACT/S---X-
IST080I A04D8844 ACT/S---X- A04D8845 ACTIV---X- A04D8846 ACTIV---X-
IST080I A04D8847 ACTIV---X- A04D8848 ACTIV---X- A04D8849 ACTIV---X-
IST080I A04D884A ACTIV---X- A04D884B ACT/S---X- A04D884C ACT/S---X-
IST080I A04D884D ACT/S---X- A04D884E ACT/S---X- A04D884F ACT/S---X-
IST146I LINE NAME = J000401D, STATUS = ACTIV
IST359I ATTACHMENT = SWITCHED
IST089I A04P881 TYPE = PUT_2              , ACTIV---X-
IST355I LOGICAL UNITS:
IST080I A04D8811 ACTIV---X- A04D8812 ACT/S---X- A04D8813 ACTIV---X-
IST080I A04D8814 ACTIV---X- A04D8815 ACT/S---X- A04D8816 ACTIV---X-
IST080I A04D8817 ACTIV---X- A04D8818 ACTIV---X- A04D8819 ACTIV---X-
IST080I A04D881A ACTIV---X- A04D881B ACTIV---X- A04D881C ACTIV---X-
IST080I A04D881D ACT/S---X- A04D881E ACT/S---X- A04D881F ACTIV---X-
IST1454I 60 RESOURCE(S) DISPLAYED
IST314I END
```

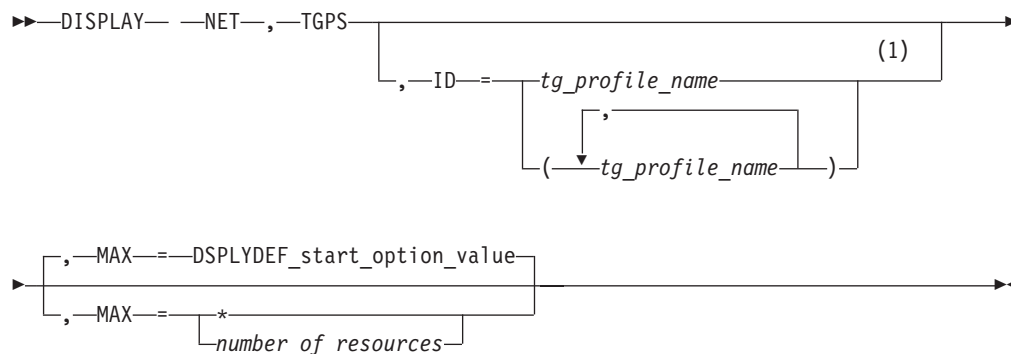
Displaying terminals, limiting output to three resources:

### **d net, terms,max=3**

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = LOGICAL UNITS/TERMS
IST354I PU T4/5 MAJOR NODE = NCP3AA1
IST146I LINE NAME = LN3A1, STATUS = NEVAC
IST359I ATTACHMENT = LEASED
IST089I P3A3767A TYPE = PU_T1            , NEVAC
IST355I LOGICAL UNITS:
IST080I L3A3767A NEVAC
IST089I P3A3274A TYPE = PU_T2            , NEVAC
IST355I LOGICAL UNITS:
```

```
IST080I L3A3278A NEVAC      L3A3279A NEVAC
IST1315I DISPLAY TRUNCATED AT MAX = 3
IST1454I 3 RESOURCE(S) DISPLAYED
IST314I END
```

## DISPLAY TGPS command



### Notes:

- 1 Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.

### Abbreviations

Operand	Abbreviation
DISPLAY	D
TGPS	TGP

### Purpose

The DISPLAY TGPS (transmission group profiles) command displays the currently defined TG profiles by name, along with the transmission group characteristics that they represent. For more information about defining a transmission group profile, see the z/OS Communications Server: SNA Resource Definition Reference. This command is valid only when it is issued at an APPN node (network node, end node, interchange node, or migration data host).

### Operands

#### ID=tg\_profile\_name

Specifies the name of one or more transmission group profiles to display. If you omit the ID operand, all profiles are displayed.

Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand. For more information about using wildcards, see "Using wildcard names" on page 11.

**Attention:** Specifying a wildcard name might degrade performance because VTAM checks every transmission group profile in the network.

#### MAX

Specifies the maximum number of transmission group profiles that VTAM displays for this command.

## DISPLAY TGPS

### MAX=\*

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

### MAX=number\_of\_resources

Specifies the number of transmission group profiles that VTAM displays for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer transmission group profiles are found than you have specified on MAX, VTAM displays only the transmission group profiles that are found.

## Resulting display

The resulting display shows the TG profile names and the TG characteristics that are defined to VTAM. The TG characteristics are shown in a 16-byte hex string.

### Byte Description

- |     |   |
|-----|---|
| 1   | Flag byte. This byte is zero when you display a TG profile, but other values might appear when you display the TG characteristics for an active resource (for example, the output of the DISPLAY ADJCP command).  |
| 2   | Capacity. This value corresponds to the CAPACITY value coded in the TGP definition statement. The displayed value is an internal representation of the coded value. For more information about how the CAPACITY value coded in the TG profile is mapped to the internal representation used by VTAM, see the z/OS Communications Server: SNA Resource Definition Reference. |
| 3–7 | Reserved (zero)   |
| 8   | Cost per unit time. This value corresponds to the COSTTIME value coded in the TGP definition statement.   |
| 9   | Cost per byte. This value corresponds to the COSTBYTE value coded in the TGP definition statement.  |
| 10  | Reserved (zero)   |
| 11  | Security. This value corresponds to the SECURITY value coded in the TGP definition statement as follows:<br><br>X'01' UNSECURE<br>X'20' PUBLIC<br>X'40' UNDERGRO<br>X'60' SECURE<br>X'80' GUARDED<br>X'A0' ENCRYPT<br>X'C0' SHIELDED  |
| 12  | Propagation delay. This value corresponds to the PDELAY value coded in the TGP definition statement as follows:   |

- X'4C' NEGLIGIB
- X'71' TERRESTR
- X'91' PACKET
- X'99' LONG
- 13 Reserved (zero)
- 14-16 User-defined. These values correspond to the values coded for UPARM1, UPARM2, and UPARM3 respectively in the TGP definition statement.

## Examples

Displaying a specific transmission group profile:

```
d net,tgps,id=secure
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TGPS
IST1107I TGP NAME TG CHARACTERISTICS
IST1108I SECURE 00750000000000969600604C00000000
IST1454I 1 TGP(S) DISPLAYED FOR ID=SECURE
IST314I END
```

Displaying all transmission group profiles:

```
d net,tgps
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TGPS
IST1107I TGP NAME TG CHARACTERISTICS
IST1108I UNSECURE 00750000000000646400014C00000000
IST1108I UNDERGRO 007500000000007D7D00404C00000000
IST1108I SECURE 00750000000000969600604C00000000
IST1108I GUARDED 00750000000000C8C800804C00000000
IST1108I SHIELDED 00750000000000C8FF00C04C00000000
IST1108I TGPL11 0075000000000000000014C000000000
IST1108I TGPL12 00B4000000000000000604C00808080
IST1108I TGPL21 0043000000000000000014C000000000
IST1108I TGPL22 00B40000000000A0A006071003C3C3C
IST1108I TGPL31 0052000000000000000204C003D3D3D
IST1108I TGPL32 00B40000000000A0A00409100808080
IST1108I LOWSWCH 002D000000000003CB400207100808080
IST1108I MEDSWCH 002D0000000000787800207100808080
IST1108I HIGHSWCH 002D0000000000B43C00207100808080
IST1108I LOWLEASE 002D0000000000507800017100808080
IST1108I MEDLEASE 002D0000000000645000017100808080
IST1108I HIGHLEAS 002D0000000000782800017100808080
IST1108I TRINGLOW 00750000000000A1400014C00808080
IST1108I TRINGHI 00850000000000A1400014C00808080
IST1108I CHANNEL 002D0000000000050500604C00808080
IST1108I CHANESCA 002D0000000000050A00604C00808080
IST1108I TGPTESTA 00140000000000FF0000804C00818181
IST1108I TGPTESTB 004A00000000000640000014C003D3D3D
IST1108I TGPTESTC 00520000000000A0000204C003D3D3D
IST1108I TGPL0W 00140000000000FFC800804C00818181
IST1108I TGPMED 004A000000000006400014C003D3D3D
IST1454I 26 TGP(S) DISPLAYED
IST314I END
```

Displaying transmission group profiles, limiting output to three resources:

```
d net,tgps,max=3
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TGPS
IST1107I TGP NAME TG CHARACTERISTICS
IST1108I PROFILE1 002D0000000000082000014C00808080
IST1108I PROFILE2 003C000000000000000017100808080
```

## DISPLAY TGPS

```
IST1108I PROFILE3 002D000000000000000019100808080
IST1315I DISPLAY TRUNCATED AT MAX = 3
IST1454I 3 TGP(S) DISPLAYED
IST314I END
```

---

## DISPLAY TNSTAT command

►►—DISPLAY— —NET—,—TNSTAT—◀◀

### Abbreviations

Operand	Abbreviation
DISPLAY	D

### Purpose

The DISPLAY TNSTAT (tuning statistics) command is used to determine:

- Whether tuning statistics data is directed to the system console.
- The time interval between tuning statistics summaries.
- The global setting for collecting tuning statistics.
- Whether TRLEs (TRLE controlled devices) are collecting statistics and if so, which TRLEs.
- Whether devices subsequently activated will collect tuning statistics.
- The names of all TRL major nodes having at least one TRLE currently collecting tuning statistics (ACTIVE)

### Resulting display

The resulting display shows a typical response for a DISPLAY TNSTAT command.

### Examples

Displaying a TNSTAT:

```
d net,tnstat
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TNSTAT
IST1450I GLOBAL TNSTAT = INACTIVE CNSL = NO TIME = 60
IST924I -----
IST1954I TRL MAJOR NODE = TRL1A
IST1451I TRLE = TRLE1A TNSTAT = ACTIVE
IST924I -----
IST1954I TRL MAJOR NODE = ISTTRL
IST1451I TRLE = IUTL0D00 TNSTAT = ACTIVE
IST314I END
```

---

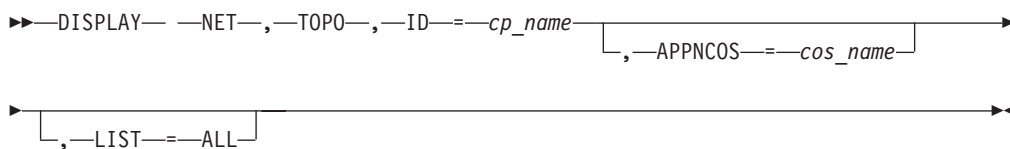
## DISPLAY TOPO command

Display a summary of the topology database:

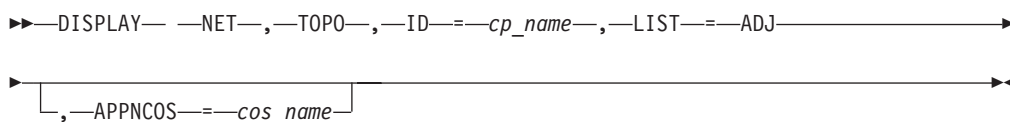
►►—DISPLAY— —NET—,—TOPO— [,—LIST—==SUMMARY—]◀◀



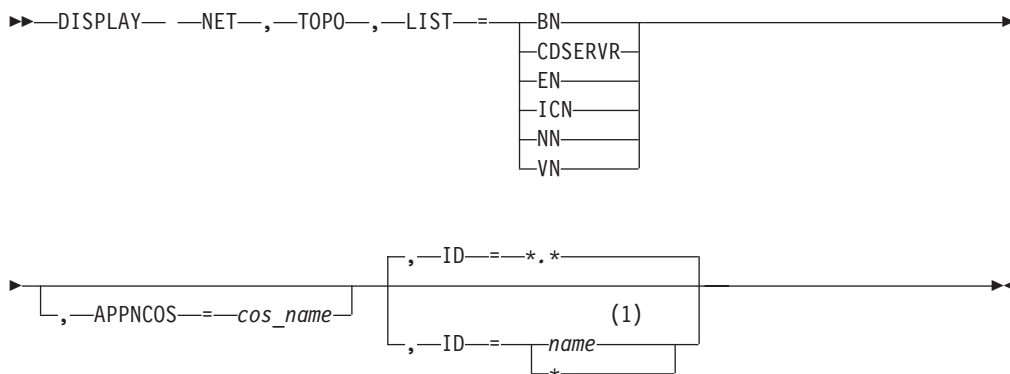
**Display a specific node:**



**Display adjacent nodes:**



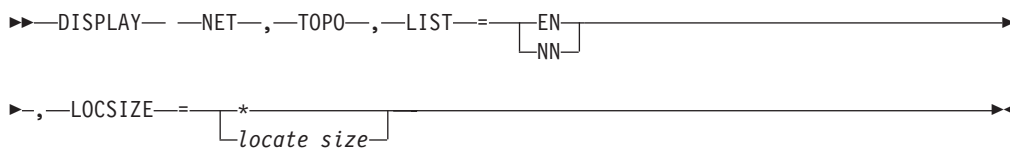
**Display nodes of a specific type:**



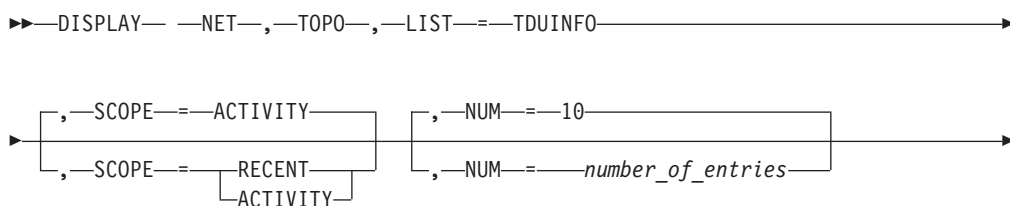
**Notes:**

- 1 Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.

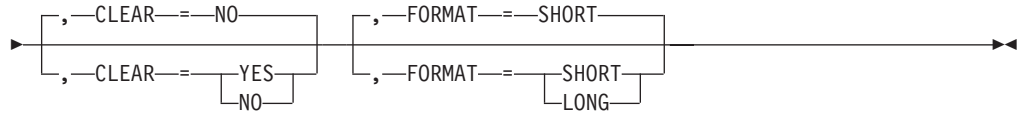
**Display all nodes with a specific locsize:**



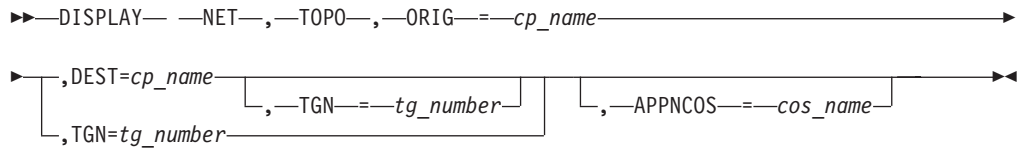
**Display TDU statistics information:**



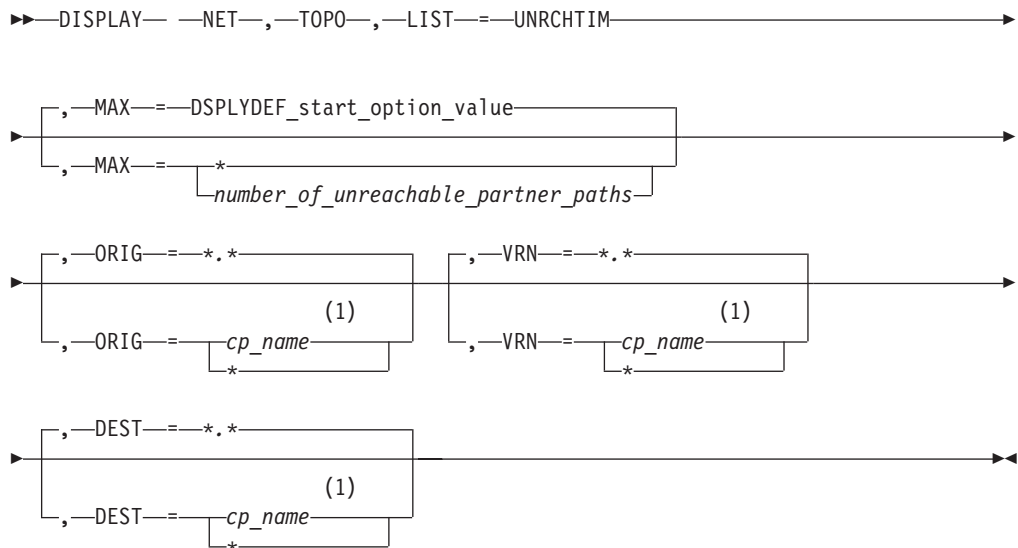
## DISPLAY TOPO



### Display a specific TG or TGs:



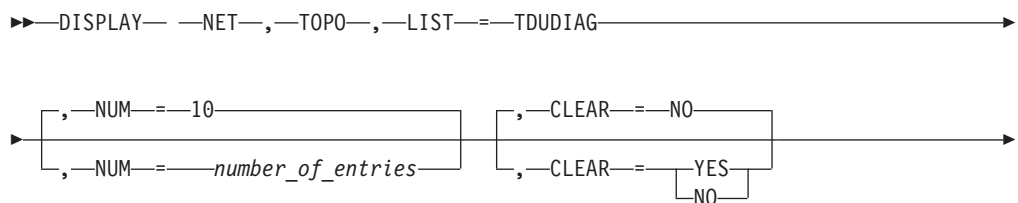
### Display Enterprise Extender connection network unreachable partner information on a network node:



#### Notes:

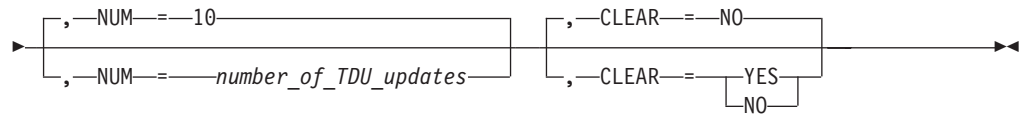
- 1 Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.

### Display a summary of topology database update (TDU) diagnostic information:

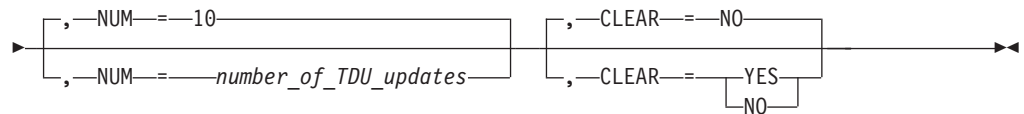
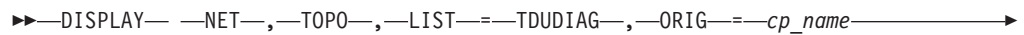




**Display TDU diagnostic information for a node:**



**Display TDU diagnostic information for a TG:**



**Rule:** The values LIST=UNRCHTIM and LIST=TDUDIAG are valid on the DISPLAY NET,TOPO command only when the command is issued on a network node.

**Abbreviations**

Operand	Abbreviation
CLEAR=YES	CLEAR
DISPLAY	D
SCOPE=ACTIVITY	ACTIVITY
SCOPE=RECENT	RECENT

**Purpose**

The DISPLAY TOPO (topology) command displays information about the topology of an APPN network.

This command is valid in all APPN-capable hosts. However, because end nodes and migration data hosts do not receive topology updates (TDU) from other nodes, only local topology resources and brief information about adjacent nodes can be displayed at end nodes. For example, you can display detailed information about the local end node and the TGs originated at that end nodes. The end node's topology database does not have information about any TGs originated at an adjacent node to the end node itself. End nodes know the following information about an adjacent node:

## DISPLAY TOPO

- Network-qualified CP name
- Node type (network node, end node or virtual node)
- Status of the CP-CP sessions between the local end node and the adjacent node

This command displays only the information that is found in the topology database. Some resources might not be displayed in a network node or an interchange node for the following reasons:

- No CP-CP session path exists between the resource and the node from which this command is issued.
- Information about end nodes and the resources they own is not broadcast to the network.
- Information between two nonnative nodes is limited to keep them from being used as intermediate nodes.

When you display transmission group (TG) information, the order in which you specify the origin and destination can make a difference. `ORIG=A,DEST=B` does not necessarily display the same results as `ORIG=B,DEST=A`.

The following examples illustrate how this command works.

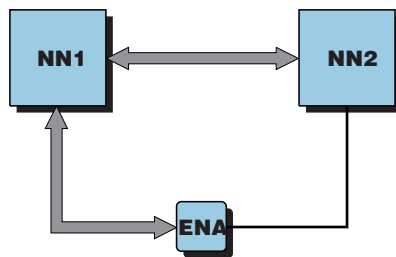


Figure 3. *DISPLAY TOPO* topology example 1

In Figure 3, end node A (ENA) has a CP-CP session with network node 1 (NN1) and an active link to network node 2 (NN2). Also, a CP-CP session exists between NN1 and NN2. The command:

```
D NET,TOPO,ORIG=NN2,DEST=ENA
```

issued from NN2 displays the requested TG information. However, the command:

```
D NET,TOPO,ORIG=ENA,DEST=NN2
```

issued from NN2 causes an error message, `RESOURCE NOT FOUND`. Because ENA is an end node, its TGs are not broadcast to the network, so NN2 does not know that ENA has a TG from ENA to NN2.

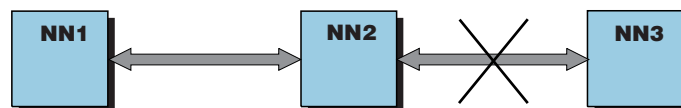


Figure 4. *DISPLAY TOPO* topology example 2

In Figure 4, CP-CP sessions exist between NN1 and NN2 and between NN2 and NN3. Suppose the link between NN2 and NN3 goes down. The command:

```
D NET,TOPO,ORIG=NN2,DEST=NN3
```

issued from NN1 indicates that the TG is inactive, but the command:

```
D NET,TOPO,ORIG=NN3,DEST=NN2
```

issued from NN1 indicates that the TG is still active. This is because the link between NN2 and NN3 appears to VTAM's topology component to be two one-way TGs, and there is no CP-CP session path available to NN1 so that NN3 can report that the TG from NN3 to NN2 is inactive.

## Operands

**APPNCOS**=*cos\_name*

Specifies the Class of Service to be used to calculate the node weight or the TG weight.

**CLEAR**

Specifies whether the TDU information in the topology database is cleared after the current display operation. After you clear the TDU information, you can re-enter the command to display the TDU information that was collected in the time interval between the two commands. See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures for additional information about using the DISPLAY TOPO command with LIST=TDUINFO and LIST=TDUDIAG to diagnose TDU problems.

**CLEAR=NO**

No TDU information is cleared.

**CLEAR=YES**

When specified with LIST=TDUINFO or LIST=TDUDIAG summary (no other operands included), all TDU information is cleared.

When specified with LIST=TDUDIAG for a node or a TG, only TDU diagnostic information for the specified topology resource is cleared.

**DEST**=*cp\_name*

Specifies the destination node (a control point) for a transmission group (TG), or, when used with the LIST=UNRCHTIM operand, the name of an unreachable partner (destination) on an unreachable partner path through an Enterprise Extender connection network. The *cp\_name* value can be network qualified (netid.cpname) or a CP name without a network ID. If just the CP name is entered without a network ID, the network ID of the node on which the command is entered will be used. Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.

**FORMAT**

Specifies the format of the display output of TDU information entries when LIST=TDUINFO is specified or TDU diagnostic entries when LIST=TDUDIAG is specified without node or TG operands.

When LIST=TDUINFO,SCOPE=RECENT is specified, the FORMAT operand specifies the format of the display output of each TDU information entry for each category of topology resources that were most recently included in TDUs. The TDU information categories are topology resources received and topology resources sent.

When LIST=TDUINFO,SCOPE=ACTIVITY is specified, the FORMAT operand specifies the format of the display output of each TDU information entry for each category of topology resources that were most frequently included in TDUs. The TDU information categories are topology resources received, topology resources sent, and topology resources with RSNs updated by this node.

## DISPLAY TOPO

When LIST=TDUDIAG is specified without node or TG operands, the FORMAT operand specifies the format of the display output of each TDU diagnostic entry for each category of topology resources that were most frequently included in TDUs, and that also have saved TDU diagnostic RSN update records. The TDU diagnostic categories are topology resources received, topology resources sent, and topology resources with RSNs updated by this node.

### FORMAT=SHORT

Displays one line of output for each TDU information entry or each TDU diagnostic entry. FORMAT=SHORT is the default.

### FORMAT=LONG

Displays two lines of output for each TDU information entry or each TDU diagnostic entry.

**Result:** The number of TDU information entries or TDU diagnostic entries that are displayed is determined by the NUM operand value, and is the same whether FORMAT=SHORT or FORMAT=LONG is specified.

**ID** Specifies the name of the resource to display.

#### ID=*cp\_name*

Specifies the name of a control point to display. The *cp\_name* value can be network qualified (netid.cpname) or a CP name without a network ID. If just the CP name is entered without a network ID, the network ID of the node on which the command is entered will be used.

#### ID=*name*

Specifies the name of a resource to display when used with the following operands:

- LIST=BN
- LIST=CDSERVER
- LIST=EN
- LIST=ICN
- LIST=NN
- LIST=VN

Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand. For more information about using wildcards, see "Using wildcard names" on page 11.

#### ID=\*

Specifies that all resources are to be displayed.

## LIST

Specifies the type of information to be displayed.

### LIST=ADJ

Displays information about nodes that are adjacent to the node specified on the ID operand. (For this command, a node is considered to be adjacent if it is attached by an active transmission group.)

### LIST=ALL

Displays detailed information about the node specified on the ID operand. If you omit LIST=ALL, VTAM displays brief information about the node.

### LIST=BN

Displays information about the border nodes specified on the ID operand.

If you omit the ID operand, information about all border nodes is displayed. LIST=BN is not valid in end nodes or migration data hosts.

**LIST=CDSERVR**

Displays information about the central directory servers specified on the ID operand. If you omit the ID operand, information about all central directory servers is displayed. LIST=CDSERVR is not valid in end nodes or migration data hosts.

**LIST=EN**

Displays information about the end nodes specified on the ID operand, including migration data hosts (MDH). If you omit the ID operand, information about all end nodes is displayed.

**LIST=ICN**

Displays information about the interchange nodes specified on the ID operand. If you omit the ID operand, information about all interchange nodes is displayed. LIST=ICN is not valid in end nodes or migration data hosts.

**LIST=NN**

Displays information about the network nodes specified on the ID operand, including interchange nodes (ICN). If you omit the ID operand, information about all network nodes is displayed.

**LIST=SUMMARY**

Displays a summary, including how many nodes of each type are in the database. LIST=SUMMARY is the default.

**LIST=TDUDIAG**

Displays diagnostic information about topology database updates (TDUs).

When no node or TG operands are specified on the command, LIST=TDUDIAG displays summary TDU diagnostic information.

When the ID operand is specified to identify a node, LIST=TDUDIAG displays detailed diagnostic information about resource sequence number (RSN) updates for that node.

When the ORIG, DEST, and TGN operands are specified to identify a TG, LIST=TDUDIAG displays detailed diagnostic information about resource sequence number (RSN) updates for that TG.

**Rule:** The value LIST=TDUDIAG is valid only when it is entered on a network node.

**LIST=TDUINFO**

Displays information about the topology database updates (TDUs) that are received and sent by this node. This information can be used to detect a TDU war in the network. Because end nodes or migration data hosts never receive TDUs from other nodes and are never involved in TDU wars, LIST=TDUINFO is not valid in end nodes or migration data hosts. See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures for additional information about using the DISPLAY TOPO command with LIST=TDUINFO and LIST=TDUDIAG to diagnose TDU problems.

**LIST=UNRCHTIM**

Displays unreachable partner information for Enterprise Extender connection networks. Unreachable partner information is maintained only by network nodes and, for this reason, LIST=UNRCHTIM is valid only on

## DISPLAY TOPO

network nodes. Unreachable partner information identifies paths from one node through an Enterprise Extender virtual node to a second node that is considered unreachable because of a connection network dial failure or connection network link INOP condition. When this occurs, the problem path is remembered for the period of time specified for the UNRCHTIM for that connection network. During this period, the problem path will not be considered for new sessions or HPR path switches.

To display unreachable partner information, you can specify one of the following names:

- The name of an origin node on an unreachable partner path, using the ORIG operand
- The name of a virtual node on an unreachable partner path, using the VRN operand
- The name of an unreachable partner (destination) on an unreachable partner path, using the DEST operand

The ORIG, VRN, and DEST operands can be used in any combination to control the scope of the unreachable partner information that is displayed. If you omit all three of these operands, all Enterprise Extender unreachable partner information is displayed. Depending on the value of the DSPLYWLD start option, a wildcard value can be used for the ORIG, VRN, and DEST operands.

### LIST=VN

Displays information about the virtual nodes specified on the ID operand. If you omit the ID operand, information about all virtual nodes is displayed.

### LOCSIZE=*locate\_size*

Specifies that only nodes which support the specified LOCATE message size are displayed.

If you specify the LOCSIZE operand, you must specify either LIST=EN or LIST=NN.

The LOCATE message size supported by a node is one of the node's resource characteristics distributed to other nodes by TDU broadcasts. Because end nodes and migration data hosts do not receive TDUs from other nodes, this parameter is valid only in network nodes and interchange nodes.

Table 2. LOCSIZE values

Value	Description
1K	Display all network nodes that support Locate message size of 1K.
1K+	Display all network nodes that support Locate message size of 1K and above.
2K	Display all network nodes that support Locate message size of 2K.
2K+	Display all network nodes that support Locate message size of 2K and above.
4K	Display all network nodes that support Locate message size of 4K.
4K+	Display all network nodes that support Locate message size of 4K and above.
8K	Display all network nodes that support Locate message size of 8K.
8K+	Display all network nodes that support Locate message size of 8K and above.



Table 2. *LOCSIZE* values (continued)

Value	Description
16K	Display all network nodes that support Locate message size of 16K.
16K+	Display all network nodes that support Locate message size of 16K and above.
32K	Display all network nodes that support Locate message size of 32K.
32K+	Display all network nodes that support Locate message size of 32K and above.
64K	Display all network nodes that support Locate message size of 64K.
64K+	Display all network nodes that support Locate message size of 64K and above.
128K	Display all network nodes that support Locate message size of 128K.

**MAX**

Specifies the maximum number of unreachable partner paths that VTAM displays for this command. This operand is valid only with LIST=UNRCHTIM.

**MAX=\***

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

**MAX=number\_of\_unreachable\_partner\_paths**

Specifies the number of unreachable partner paths that VTAM displays for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer unreachable partner paths are found than you have specified on MAX, VTAM displays only the unreachable partner paths that are found.

**NUM**

Specifies the number of TDU information entries or TDU diagnostic entries to be displayed. The default value is 10.

When LIST=TDUINFO,SCOPE=RECENT is specified, the NUM operand specifies the number of TDU information entries to be displayed for each category of topology resources that were most recently included in TDUs. The TDU information categories are topology resources received and topology resources sent.

When LIST=TDUINFO,SCOPE=ACTIVITY is specified, the NUM operand specifies the number of TDU information entries to be displayed for each category of topology resources that were most frequently included in TDUs. The TDU information categories are topology resources received, topology resources sent, and topology resources with RSNs updated by this node.

When LIST=TDUDIAG is specified without node or TG operands, the NUM operand specifies the number of TDU diagnostic information entries to be displayed for each category of topology resources that were most frequently included in TDUs, and that also have saved TDU diagnostic RSN update records. The TDU diagnostic information categories are topology resources received, topology resources sent, and topology resources with RSNs updated by this node.

## DISPLAY TOPO

When LIST=TDUDIAG is entered with the ID operand for a node or the ORIG, DEST, and TGN operands for a TG, NUM specifies the number of saved TDU diagnostic RSN update entries to be displayed. The maximum value is 50.

### **ORIG=***cp\_name*

Specifies the origin node (a control point) for a transmission group (TG) or, when used with the LIST=UNRCHTIM operand, the name of an origin end node or network node on an unreachable partner path through an Enterprise Extender connection network. The *cp\_name* value can be network qualified (netid.cpname) or a CP name without a network ID. If just the CP name is entered without a network ID, the network ID of the node on which the command is entered will be used. Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.

### **SCOPE**

Specifies the type of TDU information to be displayed.

#### **SCOPE=RECENT**

Displays information about topology resources that were most recently included in TDUs.

#### **SCOPE=ACTIVITY**

Displays information about topology resources with the most frequent TDU activity.

### **TGN=***tg\_number*

Specifies the transmission group number of the route to be displayed. The number must be an integer in the range 1–255.

### **VRN=***cp\_name*

Specifies the name of a virtual node on an unreachable partner path through an Enterprise Extender connection network. The *cp\_name* value can be network qualified (netid.cpname) or a CP name without a network ID. If just the CP name is entered without a network ID, the network ID of the node on which the command is entered will be used. Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.

## Resulting display

The resulting display depends on the information that was requested.

- For a summary of the topology, VTAM end node displays:
  - The number of adjacent nodes
  - The number of network nodes with a direct connection to this node
  - The number of end nodes with a direct connection to this node
  - The time and date of the last topology garbage collection
- For brief information for the local end node, VTAM end node displays:
  - The network-qualified name of the control point
  - The node type
  - The current weight of the node, if the Class of Service was specified
- For detailed information for the local end node, VTAM end node displays the short form plus the following information:
  - An indication of whether the node is a migration data host
  - The resource sequence number
  - The number of days remaining until the node entry is removed from the topology database

- An indication of the level of HPR support provided by the node
- The LOCATE message size supported by the end node
- All TGs owned by the end node
- For brief information for other specific nodes, VTAM end node displays:
  - The network-qualified name of the control point
  - The node type
  - The status of CP-CP sessions between the local end node and the node displayed
- For a summary of the topology, VTAM network node displays:
  - The time and date of the last database checkpoint
  - The time and date of the last topology garbage collection
  - The time and date of the checkpoint data set recovered during VTAM initialization
  - If the routing trees have been cleared, the time and date of the last routing trees clear operation
  - The number of adjacent nodes
  - The number of network nodes
  - The number of end nodes with a direct APPN connection to this node
  - The number of end nodes served
  - The number of central directory servers
  - The number of interchange nodes
  - The number of border nodes
- For brief information for a specific node, VTAM network node displays:
  - The network-qualified name of the control point
  - The node type
  - The route addition resistance value
  - Whether the node is congested
  - The current weight of the node, if the Class of Service was specified
- For brief information for a specific node, VTAM end node displays:
  - The network-qualified name of the control point
  - The node type
- For detailed information for a specific node, VTAM network node displays the short form plus the following information:
  - An indication of whether the node is a border node
  - An indication of whether the node is a central directory server
  - An indication of whether the node is an interchange node
  - The resource sequence number
  - The number of days remaining until the node entry is removed from the topology database
  - All TGs owned by the node
  - An indication of the level of HPR support provided by the node
  - The LOCATE message size supported by the node
  - The time and date when the last TDU about this node is received, and the name of the CP that sent the TDU
  - The time and date when TDU statistics counts on this resource were reset the last time

## DISPLAY TOPO

- The number of TDUs about this resource sent
- The number of TDUs about this resource received
- The number of TDUs about this resource accepted
- The number of TDUs about this resource rejected
- The number of TDUs about this resource ignored
- For a display of adjacent nodes, VTAM displays the short form of node information for all nodes known to be adjacent to the node specified on the ID operand. If ID specifies the name of (a) the node from which you are issuing this command, or (b) a node immediately adjacent to the node from which you are issuing this command, the display indicates whether a CP-CP session exists between this node and the adjacent nodes. The existence of a CP-CP session is not displayed if there is one or more nodes between the node from which the command is issued and the node that is named on the ID operand.

If ID specifies the name of the node from which you are issuing this command, it is possible for the display to indicate TDU congestion, which means that many topology update transactions are in progress on the CP-CP session with an adjacent node. This is a transient condition; the congestion should clear in a short time.

- For a display of one or more TGs, VTAM displays:
  - The network-qualified name of the origin control point
  - The network-qualified name of the destination control point
  - The TG number
  - The TG status
  - The TG type
  - An indication of CP-CP session support
  - The current weight of the TG, if a Class of Service was specified on the command. If the origin or destination of the TG is a virtual node, the weight of the TG is divided by two. This smaller weight value is shown in the display.
  - The resource sequence number
  - The number of days remaining until the TG is removed from the topology database
  - An indication of whether the TG is HPR-capable
  - The capacity (line speed) of the TG. The value displayed for capacity might not exactly match the value you coded for the resource. See the z/OS Communications Server: SNA Resource Definition Reference for information about how VTAM maps the defined value to the value it actually uses.
  - The propagation delay
  - The cost per unit time
  - The cost per byte
  - The security level of the TG
  - Three user-defined parameters (default is zero)
  - The name of the physical unit if the origin node of the TG is the local node
  - The time and date when the TDU statistics counts for the TG were reset
  - The time and date when the last TDU about this TG is received, and the name of the CP that sent the TDU
  - The number of TDUs about this resource sent
  - The number of TDUs about this resource received
  - The number of TDUs about this resource accepted

- The number of TDUs about this resource rejected
- The number of TDUs about this resource ignored
- For a display of a particular type of node, VTAM displays the short form of node information for each node in the topology database that matches the pattern specified on the ID operand and the type specified on the LIST operand (BN, CDSERVR, EN, ICN, NN, or VN).
- For a display of an unreachable partner path through an Enterprise Extender connection network, VTAM displays the following information:
  - The network-qualified name of the Enterprise Extender virtual node
  - The total number of unreachable partner paths associated with the virtual node
  - If the unreachable partner limit is exceeded for the virtual node, an indication that it is exceeded, along with the lower unreachable partner threshold that must be reached before the virtual node will be used again
  - The network-qualified name of the origin node on the unreachable paths through the connection network
  - The network-qualified name of the unreachable partner (destination) on the unreachable paths through the connection network
  - The unreachable time value specified for the Enterprise Extender connection network
  - The time the unreachable time expires for the unreachable paths through the connection network
- For topology database update (TDU) information, LIST=TDUINFO and LIST=TDUDIAG display the following information:
  - Nodes and TGs for which control vector corruption has been detected
  - Nodes and TGs whose control vectors have been received in TDUs
  - Nodes and TGs whose control vectors have been sent in TDUs
  - Nodes and TGs whose resource sequence numbers (RSNs) have been updated, and the network nodes that made the RSN updates

### Examples

Displaying a summary of the topology database at a network node:

```
d net,topo,list=summary
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST1306I LAST CHECKPOINT  ADJ NN  EN  SERVED EN CDSERVR ICN  BN
IST1307I 10/23/00 12:32:30 2  3  0  0      0      2  2
IST1781I INITDB CHECKPOINT DATASET  LAST GARBAGE COLLECTION
IST1785I 10/21/00 08:00:20          10/23/00 10:19:27
IST314I END
```

Displaying a summary of the topology database at an end node:

```
d net,topo,list=summary
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST1348I VTAM STARTED AS MIGRATION DATA HOST
IST1805I ONLY LOCAL TOPOLOGY INFORMATION IS AVAILABLE
IST1306I LAST CHECKPOINT  ADJ NN  EN  SERVED EN CDSERVR ICN  BN
IST1307I ***NA***          1  2  1  *NA*   *NA*   *NA* *NA*
IST1781I INITDB CHECKPOINT DATASET  LAST GARBAGE COLLECTION
IST1785I ***NA***          NONE
IST314I END
```

Displaying brief information for a specific node:

## DISPLAY TOPO

```
d net,topo,id=a01n
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST1295I CP NAME          NODETYPE  ROUTERES  CONGESTION  CP-CP WEIGHT
IST1296I NETA.A01N      NN        1         NONE        YES  *NA*
IST314I END
```

Displaying brief information for a specific node, including its weight:

```
d net,topo,id=a01n,appncos=#connect
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST1295I CP NAME          NODETYPE  ROUTERES  CONGESTION  CP-CP WEIGHT
IST1296I NETA.A01N      NN        1         NONE        YES  115
IST314I END
```

Displaying detailed information for a specific node:

```
d net,topo,id=sscp2a,list=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST1295I CP NAME          NODETYPE  ROUTERES  CONGESTION  CP-CP WEIGHT
IST1296I NETA.SSCP2A    NN        1         NONE        YES  *NA*
IST1579I -----
IST1297I                  ICN/MDH   CDSERVER  RSN          HPR
IST1298I                  NO        NO        8            RTP
IST1579I -----
IST1223I                  BN        NATIVE    TIME LEFT    LOCATE SIZE
IST1224I                  NO        YES       12           16K
IST924I -----
IST2356I PLATFORM = Z/OS VTAM
IST924I -----
IST2275I TDU INFORMATION SINCE LAST RESET ON 02/11/10 AT 10:48:52
IST1769I LAST TDU RECEIVED - 02/11/10 13:40:14 FROM NETA.SSCP1A
IST2281I LAST TDU SENT - 02/11/10 13:40:20
IST2282I TDU COUNTS:
IST2352I SENT      = 3          RECEIVED = 3
IST2353I ACCEPTED = 1          REJECTED = 0
IST2354I IGNORED  = 2
IST924I -----
IST1299I TRANSMISSION GROUPS ORIGINATING AT CP NETA.SSCP2A
IST1357I                                     CPCP
IST1300I DESTINATION CP   TGN      STATUS  TGTYPE      VALUE WEIGHT
IST1301I NETA.SSCP1A     255     OPER    INTERM VRTG YES  *NA*
IST314I END
```

Displaying nodes that are adjacent to the specified node:

```
d net,topo,id=a01n,list=adj,appncos=#connect
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST1295I CP NAME          NODETYPE  ROUTERES  CONGESTION  CP-CP WEIGHT
IST1296I NETA.A02N      NN        1         NONE        YES  65
IST1296I NETA.A500N     NN        1         NONE        YES  145
IST1296I IP.IP          GVRN      *NA*     ***NA***   *NA*  *NA*
IST314I END
```

Displaying border nodes:

```
d net,topo,list=bn
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST1295I CP NAME          NODETYPE  ROUTERES  CONGESTION  CP-CP WEIGHT
IST1296I NETA.SSCP1A    NN        1         NONE        YES  *NA*
IST1296I NETB.SSCP7B   NN        128      NONE        NO   *NA*
IST314I END
```

Displaying central directory servers:

**d net,topo,list=cdsrvr,appncos=#connect**

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST1295I CP NAME          NODETYPE  ROUTERES  CONGESTION  CP-CP WEIGHT
IST1296I NETA.A500N      NN        1         NONE        YES        5
IST314I END
```

Displaying end nodes whose names begin with "CM2" and end with "A":

**d net,topo,list=en,id=cm2\*a**

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST1295I CP NAME          NODETYPE  ROUTERES  CONGESTION  CP-CP WEIGHT
IST1296I NETA.CM2AA      EN        *NA*     ***NA***   YES        *NA*
IST1296I NETA.CM2BA      EN        *NA*     ***NA***   YES        *NA*
IST1296I NETA.CM2CDA     EN        *NA*     ***NA***   NO         *NA*
IST314I END
```

Displaying interchange nodes:

**d net,topo,list=icn**

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST1295I CP NAME          NODETYPE  ROUTERES  CONGESTION  CP-CP WEIGHT
IST1296I NETA.A500N      NN        1         NONE        YES        *NA*
IST1296I NETA.A02N      NN        1         NONE        *NA*     *NA*
IST1296I NETA.A01N      NN        1         NONE        NO         *NA*
IST314I END
```

Displaying network nodes:

**d net,topo,list=nn**

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST1295I CP NAME          NODETYPE  ROUTERES  CONGESTION  CP-CP WEIGHT
IST1296I NETA.SSCP1A     NN        1         NONE        *NA*     *NA*
IST1296I NETA.SSCP2A     NN        1         NONE        YES        *NA*
IST1296I NETA.SSCP7B     NN        128      NONE        NO         *NA*
IST314I END
```

Displaying virtual nodes:

**d net,topo,list=vn**

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST1295I CP NAME          NODETYPE  ROUTERES  CONGESTION  CP-CP WEIGHT
IST1296I NETA.VN1        VN        *NA*     ***NA***   *NA*     *NA*
IST1296I IP.IP           GVRN     *NA*     ***NA***   *NA*     *NA*
IST314I END
```

Displaying transmission group information at a network node:

**d net,topo,orig=sscp1a,dest=sscp2a**

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST1299I TRANSMISSION GROUPS ORIGINATING AT CP NETA.SSCP1A
IST1357I
CPCP
IST1300I DESTINATION CP   TGN      STATUS  TGTYPE   VALUE WEIGHT
IST1301I NETA.SSCP2A     21       OPER    INTERM   YES  *NA*
IST1579I
-----
IST2241I
RSN              HPR              TIME  ISL
IST1163I         26              YES    12    *NA*
IST1164I
-----
IST1579I
CAPACITY PDELAY  COSTTIME  COSTBYTE
IST1302I     32M   TERRESTR  0         0
IST1303I
IST1579I
-----
IST1304I     SECURITY  UPARAM1  UPARAM2  UPARAM3
```

## DISPLAY TOPO

```

IST1305I          UNSECURE 128      128      128
IST1579I          -----
IST1736I          PU NAME
IST1737I          P1234567
IST924I  -----
IST2275I TDU INFORMATION SINCE LAST RESET ON 02/11/10 AT 10:48:52
IST1769I LAST TDU RECEIVED - 02/11/10 13:40:14 FROM NETA.SSCP1A
IST2281I LAST TDU SENT - 02/11/10 13:40:20
IST2282I TDU COUNTS:
IST2352I SENT      = 10          RECEIVED = 4
IST2353I ACCEPTED = 0          REJECTED = 2
IST2354I IGNORED  = 2
IST314I END

```

Displaying transmission group information for a specific Class of Service at a network node:

**d net, topo, orig=sscpca, dest=sscpba, tgn=21, appncos=#connect**

```

IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST1299I TRANSMISSION GROUPS ORIGINATING AT CP NETA.SSCP1A
IST1357I          CPCP
IST1300I DESTINATION CP  TGN      STATUS  TGTYPE  VALUE WEIGHT
IST1301I NETA.SSCPBA    21      OPER   INTERM  YES  210
IST1579I          -----
IST2241I          TIME  ISL
IST1163I          RSN      HPR      LEFT  WEIGHT
IST1164I          26      YES     12   *NA*
IST1579I          -----
IST1302I          CAPACITY PDELAY  COSTTIME  COSTBYTE
IST1303I          8K      TERRESTR 0        0
IST1579I          -----
IST1304I          SECURITY UPARAM1  UPARAM2  UPARAM3
IST1305I          UNSECURE 0          0        0
IST924I  -----
IST2275I TDU INFORMATION SINCE LAST RESET ON 02/11/10 AT 10:48:52
IST1769I LAST TDU RECEIVED - 02/11/10 13:40:14 FROM NETA.SSCP1A
IST2281I LAST TDU SENT - 02/11/10 13:40:20
IST2282I TDU COUNTS:
IST2352I SENT      = 10          RECEIVED = 4
IST2353I ACCEPTED = 0          REJECTED = 2
IST2354I IGNORED  = 2
IST314I END

```

Displaying information about virtual-route-based transmission groups at a network node:

**d net, topo, orig=sscp2a, dest=sscp1a, tgn=255**

```

IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST1299I TRANSMISSION GROUPS ORIGINATING AT CP NETA.SSCP2A
IST1357I          CPCP
IST1300I DESTINATION CP  TGN      STATUS  TGTYPE  VALUE WEIGHT
IST1301I NETA.SSCP1A    255     OPER   INTERM VRTG  YES  *NA*
IST1579I          -----
IST2241I          TIME  ISL
IST1163I          RSN      HPR      LEFT  WEIGHT
IST1164I          26      YES     12   *NA*
IST1579I          -----
IST1302I          CAPACITY PDELAY  COSTTIME  COSTBYTE
IST1303I          8K      TERRESTR 0        0
IST1579I          -----
IST1304I          SECURITY UPARAM1  UPARAM2  UPARAM3
IST1305I          UNSECURE 128      128      128
IST924I  -----
IST2275I TDU INFORMATION SINCE LAST RESET ON 02/11/10 AT 10:48:52
IST1769I LAST TDU RECEIVED - 02/11/10 13:40:14 FROM NETA.SSCP1A

```



```
IST2281I LAST TDU SENT - 02/11/10 13:40:20
IST2282I TDU COUNTS:
IST2352I SENT = 10 RECEIVED = 4
IST2353I ACCEPTED = 0 REJECTED = 2
IST2354I IGNORED = 2
IST314I END
```

Displaying all network nodes or interchange nodes that support any LOCATE message size:

```
d net topo,list=nn,loctype=*
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST1701I CP NAME LOCATE SIZE
IST1702I NETA.SSCP1A 16K
IST1702I NETA.SSCPBA 1K
IST1702I NETA.SSCP2A 16K
IST314I END
```

Displaying a list of network nodes or interchange nodes that support a specified LOCATE size with LIST=NN:

```
d net,topo,list=nn,loctype=16k
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST1701I CP NAME LOCATE SIZE
IST1702I NETA.SSCP1A 16K
IST1702I NETA.SSCP2A 16K
IST314I END
```

Displaying a list of end nodes (known to this NN) or interchange nodes that support a specified LOCATE size:

```
d net,topo,list=en,loctype=1k
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST1701I CP NAME LOCATE SIZE
IST1702I NETA.SSCP1A 1K
IST314I END
```

Displaying detailed information for the local end node:

```
d net,topo,id=sscpaa,list=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST1295I CP NAME NODETYPE ROUTERES CONGESTION CP-CP WEIGHT
IST1296I NETA.SSCPAA EN *NA* ***NA*** *NA* *NA*
IST1579I
IST1297I ICN/MDH CDSERVR RSN HPR
IST1298I YES *NA* 6 RTP
IST1579I
IST1223I BN NATIVE TIME LEFT LOCATE SIZE
IST1224I *NA* *NA* 15 16K
IST1299I TRANSMISSION GROUPS ORIGINATING AT CP NETA.SSCPAA
IST1357I CPCP
IST1300I DESTINATION CP TGN STATUS TGTYPE VALUE WEIGHT
IST1301I NETA.SSCPBA 21 INOP ENDPT YES *NA*
IST1301I NETA.SSCP2A 21 INOP ENDPT YES *NA*
IST1301I NETA.SSCP1A 21 OPER ENDPT YES *NA*
IST314I END
```

Displaying a local TG that originated at the local end node:

```
d net,topo,orig=sscpaa,dest=sscp1a
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST1299I TRANSMISSION GROUPS ORIGINATING AT CP NETA.SSCPAA
IST1357I CPCP
```

## DISPLAY TOPO

```

IST1300I DESTINATION CP      TGN      STATUS  TGTYPE      VALUE WEIGHT
IST1301I NETA.SSCP1A        21      OPER    ENDPT       YES  *NA*
IST1579I -----
IST2241I                                     TIME  ISL
IST1163I                                     RSN      HPR      LEFT  WEIGHT
IST1164I                                     14      YES     15   *NA*
IST1579I -----
IST1302I CAPACITY PDELAY  COSTTIME  COSTBYTE
IST1303I 32M      NEGLIGIB 0          0
IST1579I -----
IST1304I SECURITY UPARM1  UPARM2    UPARM3
IST1305I UNSECURE 128    128      128
IST1579I -----
IST1736I PU NAME
IST1737I AHCPU1
IST3141I END

```

Displaying brief information for a specific node adjacent to the local end node:

```

d net,topo,id=sscp1a
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST1295I CP NAME          NODETYPE ROUTERES CONGESTION CP-CP WEIGHT
IST1296I NETA.SSCP1A      NN        *NA*     ***NA***  YES  *NA*
IST3141I END

```

Displaying unreachable partner information for a specific Enterprise Extender virtual node:

```

d net,topo,vrn=vrn1,list=unrchtim
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST2057I UNREACHABLE PARTNER INFORMATION:
IST924I -----
IST2150I VIRTUAL NODE NETA.VRN1 - 6 UNREACHABLE PARTNERS
IST2052I  ORIGIN NODE          PARTNER NODE  UNRCHTIM  EXPIRES
IST2055I NETA.SSCP1A          NETWORKB.SSCP7B  300S    23:18:19
IST2055I NETA.SSCP1A          NETA.SSCPAA      300S    00:15:42
IST2055I NETA.TEST1          NETWORK1.TEST4444 14500S  01:15:24
IST2055I NETA.SSCP2A          NETA.SSCPAA      780S    00:24:10
IST2055I NETA.TEST1234        NETA.SSCPAA      300S    00:16:59
IST2055I NETA.TEST1233        NETWORKB.TEST5555 300S    00:02:33
IST924I -----
IST3141I END

```

Displaying unreachable partner information for a specific Enterprise Extender origin node and virtual node:

```

d net,topo,orig=neta.sscp1a,vrn=vrn1,list=unrchtim
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST2057I UNREACHABLE PARTNER INFORMATION:
IST924I -----
IST2150I VIRTUAL NODE NETA.VRN1 - 6 UNREACHABLE PARTNERS
IST2052I  ORIGIN NODE          PARTNER NODE  UNRCHTIM  EXPIRES
IST2055I NETA.SSCP1A          NETWORKB.SSCP7B  300S    23:18:19
IST2055I NETA.SSCP1A          NETA.SSCPAA      300S    00:15:42
IST924I -----
IST3141I END

```

Displaying unreachable partner information using wildcards:

```

d net,topo,list=unrchtim,vrn=*.vn*,dest=netb.sscpb*
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TOPOLOGY
IST2057I UNREACHABLE PARTNER INFORMATION:
IST924I -----
IST2150I VIRTUAL NODE NET3.VN3 - 15 UNREACHABLE PARTNERS

```

```

IST2052I  ORIGIN NODE          PARTNER NODE  UNRCHTIM  EXPIRES
IST2055I  NETA.SSCP1A          NETB.SSCPBA   5000S    17:35:21
IST924I  -----
IST2150I  VIRTUAL NODE NET4.VN4 - 3 UNREACHABLE PARTNERS
IST2052I  ORIGIN NODE          PARTNER NODE  UNRCHTIM  EXPIRES
IST2055I  NETA.SSCP1A          NETB.SSCPBA   5000S    17:36:48
IST924I  -----
IST2150I  VIRTUAL NODE NET5.VN5 - 1 UNREACHABLE PARTNERS
IST2052I  ORIGIN NODE          PARTNER NODE  UNRCHTIM  EXPIRES
IST2055I  NETA.SSCP1A          NETB.SSCPBC   5000S    17:38:12
IST314I  END

```

Displaying all unreachable partner information known in this node:

**d net,topo,list=unrchtim**

```

IST097I  DISPLAY ACCEPTED
IST350I  DISPLAY TYPE = TOPOLOGY
IST2057I  UNREACHABLE PARTNER INFORMATION:
IST924I  -----
IST2150I  VIRTUAL NODE NETA.VRN1 - 6 UNREACHABLE PARTNERS
IST2052I  ORIGIN NODE          PARTNER NODE  UNRCHTIM  EXPIRES
IST2055I  NETA.SSCP1A          NETWORKB.SSCP7B  300S    23:18:19
IST2055I  NETA.SSCP1A          NETA.SSCPAA      300S    00:15:42
IST2055I  NETA.TEST1          NETWORK1.TEST4444 14500S  01:15:24
IST2055I  NETA.SSCP2A          NETA.SSCPAA      780S    00:24:10
IST2055I  NETA.TEST1234       NETA.SSCPAA      300S    00:16:59
IST2055I  NETA.TEST1233       NETWORKB.TEST5555 300S    00:02:33
IST924I  -----
IST2150I  VIRTUAL NODE NETB.GVRN2 - 4 UNREACHABLE PARTNERS
IST2052I  ORIGIN NODE          PARTNER NODE  UNRCHTIM  EXPIRES
IST2055I  NETA.SSCP1A          NETA.SSCPAA      1500S   00:40:47
IST2055I  NETA.TEST1233       NETWORKB.TEST5555 300S    00:02:33
IST2055I  NETA.TEST1234       NETA.SSCPAA      300S    00:16:59
IST2055I  NETA.TEST1          NETWORK1.TEST4444 14500S  01:15:24
IST924I  -----
IST314I  END

```

Displaying unreachable partner information limited by the MAX operand:

**d net,topo,list=unrchtim,max=8**

```

IST097I  DISPLAY ACCEPTED
IST350I  DISPLAY TYPE = TOPOLOGY
IST2057I  UNREACHABLE PARTNER INFORMATION:
IST924I  -----
IST2150I  VIRTUAL NODE NETA.VRN1 - 6 UNREACHABLE PARTNERS
IST2052I  ORIGIN NODE          PARTNER NODE  UNRCHTIM  EXPIRES
IST2055I  NETA.SSCP1A          NETWORKB.SSCP7B  300S    23:18:19
IST2055I  NETA.SSCP1A          NETA.SSCPAA      300S    00:15:42
IST2055I  NETA.TEST1          NETWORK1.TEST4444 14500S  01:15:24
IST2055I  NETA.SSCP2A          NETA.SSCPAA      780S    00:24:10
IST2055I  NETA.TEST1234       NETA.SSCPAA      300S    00:16:59
IST2055I  NETA.TEST1233       NETWORKB.TEST5555 300S    00:02:33
IST924I  -----
IST2150I  VIRTUAL NODE NETB.GVRN2 - 44 UNREACHABLE PARTNERS
IST2151I  PARTNER LIMIT EXCEEDED - UNUSABLE UNTIL COUNT IS BELOW 32
IST2052I  ORIGIN NODE          PARTNER NODE  UNRCHTIM  EXPIRES
IST2055I  NETA.SSCP1A          NETA.SSCPAA      1500S   00:40:47
IST2055I  NETA.TEST1233       NETWORKB.TEST5555 300S    00:02:33
IST1315I  DISPLAY TRUNCATED at MAX = 8
IST314I  END

```

Displaying TDU information about topology resources with the most frequent TDU activity:

**D NET,TOPO,LIST=TDUINFO,SCOPE=ACTIVITY**

```

IST097I  DISPLAY ACCEPTED
IST350I  DISPLAY TYPE = TDU INFORMATION
IST1780I  TOPOLOGY RESOURCES WITH MOST FREQUENT TDU ACTIVITY

```

# DISPLAY TOPO

```

IST2275I TDU INFORMATION SINCE LAST RESET ON 02/11/10 AT 10:48:52
IST2290I TDUDIAG START OPTION = 1000
IST2276I NO CORRUPTION OF TOPOLOGY CONTROL VECTORS DETECTED
IST924I -----
IST2286I TDUS RECEIVED:
IST1777I CP NAME          RSN      DESTINATION CP    TGN ACC  REJ
IST1778I NETA.SSCP1A      3126    NETA.SSCPAA      21  793  4288
IST1778I NETA.SSCP1A      3128    NETA.SSCPBA      21  793  4260
IST1778I NETA.SSCP1A      3128    NETA.SSCP2A      21  793  4257
IST1778I NETA.SSCPAA      16      NETA.SSCP1A      21   5    2
IST1778I NETA.SSCP2A      4        NETA.SSCPBA      21   2    0
IST1778I NETA.SSCPAA      10      NETA.SSCPBA      21   2    0
IST1778I NETA.SSCPBA      4        NETA.SSCP2A      21   0    1
IST1778I NETA.SSCPBA      4        NETA.SSCPAA      21   0    1
IST1778I NETA.SSCP2A      4        NETA.SSCPAA      21   1    0
IST1778I NETA.SSCP2A      4        NETA.SSCP1A      21   1    0
IST2301I 10 OF 14 TOPOLOGY RESOURCES DISPLAYED
IST924I -----
IST2287I TDUS SENT:
IST2288I CP NAME          RSN      DESTINATION CP    TGN SENT REC
IST1778I NETA.SSCP1A      3126    NETA.SSCPAA      21  5257  5119
IST1778I NETA.SSCP1A      3128    NETA.SSCPBA      21  5231  5101
IST1778I NETA.SSCP1A      3128    NETA.SSCP2A      21  5228  5098
IST1778I NETA.SSCPAA      16      NETA.SSCP1A      21   9    11
IST1778I NETA.SSCPBA      4        NETA.SSCPAA      21   5    1
IST1778I NETA.SSCPBA      4        NETA.SSCP2A      21   4    1
IST1778I NETA.SSCPAA      10      NETA.SSCPBA      21   4    3
IST1778I NETA.SSCP2A      4        NETA.SSCPBA      21   3    3
IST1778I NETA.SSCP2A      4        NETA.SSCPAA      21   3    2
IST1778I NETA.SSCP2A      4        NETA.SSCP1A      21   3    2
IST2301I 10 OF 16 TOPOLOGY RESOURCES DISPLAYED
IST924I -----
IST2289I RESOURCE SEQUENCE NUMBERS UPDATED BY THIS NODE:
IST2292I CP NAME          RSN      DESTINATION CP    TGN  UPDATED
IST2293I NETA.SSCPBA      4        NETA.SSCP2A      21   2
IST2293I NETA.SSCPBA      4        NETA.SSCPAA      21   2
IST2293I NETA.SSCPBA      4        NETA.SSCP1A      21   2
IST2301I 3 OF 3 TOPOLOGY RESOURCES DISPLAYED
IST314I END

```

Displaying TDU information about topology resources that were most recently included in TDUs:

## D NET, TOPO, LIST=TDUINFO, SCOPE=RECENT

```

IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TDU INFORMATION
IST1776I TOPOLOGY RESOURCES WITH MOST RECENT TDU ACTIVITY
IST2275I TDU INFORMATION SINCE LAST RESET ON 02/11/10 AT 10:48:52
IST2290I TDUDIAG START OPTION = 1000
IST2276I NO CORRUPTION OF TOPOLOGY CONTROL VECTORS DETECTED
IST924I -----
IST1779I TDUS RECEIVED BETWEEN 02/11/10 13:40:14 - 02/11/10 13:40:14
IST1777I CP NAME          RSN      DESTINATION CP    TGN ACC  REJ
IST1778I NETA.SSCP1A      3126    NETA.SSCPAA      21  793  4288
IST1778I NETA.SSCP1A      3128    NETA.SSCP2A      21  793  4257
IST1778I NETA.SSCP1A      3124    NETA.SSCPAA      21  792  4288
IST1778I NETA.SSCP1A      3122    NETA.SSCPAA      21  791  4288
IST1778I NETA.SSCP1A      3128    NETA.SSCPBA      21  793  4260
IST1778I NETA.SSCP1A      3126    NETA.SSCP2A      21  792  4257
IST1778I NETA.SSCP1A      3126    NETA.SSCPBA      21  792  4260
IST1778I NETA.SSCP1A      3124    NETA.SSCPBA      21  791  4260
IST1778I NETA.SSCP1A      3124    NETA.SSCP2A      21  791  4257
IST1778I NETA.SSCP1A      3122    NETA.SSCP2A      21  790  4257
IST2301I 10 OF 50 TOPOLOGY RESOURCES DISPLAYED
IST924I -----
IST2285I TDUS SENT BETWEEN 02/11/10 13:40:14 - 02/11/10 13:40:20
IST2288I CP NAME          RSN      DESTINATION CP    TGN SENT REC

```

```

IST1778I NETA.SSCP1A      3126   NETA.SSCPAA      21 5257 5119
IST1778I NETA.SSCP1A      3128   NETA.SSCP2A      21 5228 5098
IST1778I NETA.SSCP1A      3124   NETA.SSCPAA      21 5256 5118
IST1778I NETA.SSCP1A      3122   NETA.SSCPAA      21 5255 5117
IST1778I NETA.SSCP1A      3128   NETA.SSCPBA      21 5231 5101
IST1778I NETA.SSCP1A      3126   NETA.SSCP2A      21 5227 5097
IST1778I NETA.SSCP1A      3126   NETA.SSCPBA      21 5230 5100
IST1778I NETA.SSCP1A      3124   NETA.SSCPBA      21 5229 5099
IST1778I NETA.SSCP1A      3124   NETA.SSCP2A      21 5226 5096
IST1778I NETA.SSCP1A      3122   NETA.SSCP2A      21 5225 5095
IST2301I 10 OF 50 TOPOLOGY RESOURCES DISPLAYED
IST314I  END
    
```

Displaying TDU information, with FORMAT=LONG, about topology resources that were most recently included in TDUs:

**D NET, TOPO, LIST=TDUINFO, SCOPE=RECENT, FORMAT=LONG, NUM=2**

```

IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TDU INFORMATION
IST1776I TOPOLOGY RESOURCES WITH MOST RECENT TDU ACTIVITY
IST2275I TDU INFORMATION SINCE LAST RESET ON 02/11/10 AT 10:48:52
IST2290I TDUDIAG START OPTION = 1000
IST2276I NO CORRUPTION OF TOPOLOGY CONTROL VECTORS DETECTED
IST924I -----
IST1779I TDUS RECEIVED BETWEEN 02/11/10 13:40:14 - 02/11/10 13:40:14
IST2357I CP NAME          RSN          DESTINATION CP    TGN
IST2358I NETA.SSCP2A      24369982   NETA.SSCP1A      21
IST2353I  ACCEPTED = 1435981   REJECTED = 2537561
IST2358I NETA.SSCP2A      24369980   NETA.SSCP1A      21
IST2353I  ACCEPTED = 1435981   REJECTED = 2537560
IST2301I 2 OF 50 TOPOLOGY RESOURCES DISPLAYED
IST924I -----
IST2285I TDUS SENT BETWEEN 02/11/10 13:40:14 - 02/11/10 13:40:20
IST2357I CP NAME          RSN          DESTINATION CP    TGN
IST2358I NETA.SSCP2A      24369984   NETA.SSCP1A      21
IST2352I  SENT      = 4296828   RECEIVED = 65097324
IST2358I NETA.SSCP2A      24369982   NETA.SSCP1A      21
IST2352I  SENT      = 4296827   RECEIVED = 65097323
IST2301I 2 OF 50 TOPOLOGY RESOURCES DISPLAYED
IST314I  END
    
```

Displaying a summary of topology database update (TDU) diagnostic information:

**D NET, TOPO, LIST=TDUDIAG**

```

IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TDU DIAGNOSTICS
IST2274I TDU DIAGNOSTIC SUMMARY:
IST1780I TOPOLOGY RESOURCES WITH MOST FREQUENT TDU ACTIVITY
IST2308I THAT HAVE SAVED TDUDIAG RSN UPDATES
IST2275I TDU INFORMATION SINCE LAST RESET ON 02/11/10 AT 13:11:32
IST2290I TDUDIAG START OPTION = 1000
IST2276I NO CORRUPTION OF TOPOLOGY CONTROL VECTORS DETECTED
IST924I -----
IST2286I TDUS RECEIVED:
IST1777I CP NAME          RSN          DESTINATION CP    TGN ACC  REJ
IST1778I NETA.SSCP1A      3126   NETA.SSCPAA      21 793  4288
IST1778I NETA.SSCP1A      3128   NETA.SSCP2A      21 793  4257
IST1778I NETA.SSCP1A      3128   NETA.SSCPBA      21 793  4260
IST2301I 3 OF 3 TOPOLOGY RESOURCES DISPLAYED
IST924I -----
IST2287I TDUS SENT:
IST2288I CP NAME          RSN          DESTINATION CP    TGN SENT REC
IST1778I NETA.SSCP1A      3126   NETA.SSCPAA      21 5257 5119
IST1778I NETA.SSCP1A      3128   NETA.SSCP2A      21 5228 5098
IST1778I NETA.SSCP1A      3128   NETA.SSCPBA      21 5231 5101
IST2301I 3 OF 3 TOPOLOGY RESOURCES DISPLAYED
    
```

## DISPLAY TOPO

```
IST924I -----
IST2289I RESOURCE SEQUENCE NUMBERS UPDATED BY THIS NODE:
IST2301I 0 OF 0 TOPOLOGY RESOURCES DISPLAYED
IST314I END
```

Displaying TDU diagnostic information for a node:

```
D NET, TOPO, LIST=TDUDIAG, ID=SSCP1A, NUM=3
IST350I DISPLAY TYPE = TDU DIAGNOSTICS
IST2306I TDU DIAGNOSTIC INFORMATION FOR NODE: ID = NETA.SSCP1A
IST2290I TDUDIAG START OPTION = 1000
IST2312I CURRENT RSN = 8 - HEX RSN = 00000008
IST924I -----
IST2275I TDU INFORMATION SINCE LAST RESET ON 01/29/10 AT 11:43:47
IST1769I LAST TDU RECEIVED - 01/29/10 15:43:25 FROM NETA.SSCP2A
IST2281I LAST TDU SENT - 01/29/10 15:42:14
IST2282I TDU COUNTS:
IST2352I SENT = 6 RECEIVED = 8
IST2353I ACCEPTED = 3 REJECTED = 0
IST2354I IGNORED = 5
IST2313I RSN UPDATE COUNT = 2
IST924I -----
IST2294I TDUDIAG RSN UPDATES:
IST2295I TIME HEX RSN HEX RSN
IST2296I CP NAME UPDATED BEFORE AFTER REASON
IST2297I NETA.SSCP1A 15:43:25 00000006 00000008 TDU GREATER
IST2300I RECEIVED FROM: NETA.SSCP1A
IST2297I NETA.SSCPBA 15:42:14 00000004 00000006 F QUIESCE
IST2297I NETA.SSCP1A 15:40:02 00000002 00000004 NODE UPDATE
IST2300I RECEIVED FROM: NETA.SSCPAA
IST2314I 3 OF 4 RSN UPDATES DISPLAYED
IST314I END
```

Displaying TDU diagnostic information for a TG:

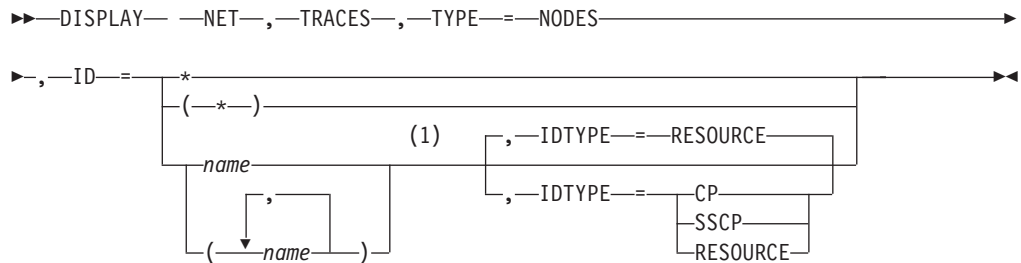
```
D NET, TOPO, LIST=TDUDIAG, ORIG=SSCP1A, DEST=SSCPBA, TGN=21
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TDU DIAGNOSTICS
IST2311I TDU DIAGNOSTIC INFORMATION FOR TG: TGN = 21
IST2256I ORIG = NETA.SSCP1A - DEST = NETA.SSCPBA
IST2290I TDUDIAG START OPTION = 1000
IST2312I CURRENT RSN = 3128 - HEX RSN = 00000C38
IST2355I TDUDIAG THRESHOLD REACHED ON 02/11/10 AT 13:37:08
IST924I -----
IST2275I TDU INFORMATION SINCE LAST RESET ON 02/11/10 AT 10:48:52
IST1769I LAST TDU RECEIVED - 02/11/10 13:40:14 FROM NETA.SSCP1A
IST2281I LAST TDU SENT - 02/11/10 13:40:20
IST2282I TDU COUNTS:
IST2352I SENT = 3890 RECEIVED = 5101
IST2353I ACCEPTED = 793 REJECTED = 4260
IST2354I IGNORED = 48
IST2313I RSN UPDATE COUNT = 4260
IST924I -----
IST2294I TDUDIAG RSN UPDATES:
IST2295I TIME HEX RSN HEX RSN
IST2296I CP NAME UPDATED BEFORE AFTER REASON
IST2297I NETA.SSCP1A 13:40:20 00000C36 00000C38 TDU GREATER
IST2300I RECEIVED FROM: NETA.SSCP1A
IST2297I NETA.SSCP1A 13:40:20 00000C34 00000C36 TDU GREATER
IST2300I RECEIVED FROM: NETA.SSCP2A
IST2297I NETA.SSCP1A 13:40:19 00000C32 00000C34 TDU GREATER
IST2300I RECEIVED FROM: NETA.SSCP1A
IST2297I NETA.SSCP1A 13:40:19 00000C30 00000C32 TDU GREATER
IST2300I RECEIVED FROM: NETA.SSCPAA
IST2297I NETA.SSCP1A 13:40:19 00000C2E 00000C30 TDU GREATER
IST2300I RECEIVED FROM: NETA.SSCP1A
IST2297I NETA.SSCP1A 13:40:19 00000C2C 00000C2E TDU GREATER
IST2300I RECEIVED FROM: NETA.SSCPAA
```

```

IST2297I NETA.SSCP1A      13:40:19 00000C2A 00000C2C TDU GREATER
IST2300I  RECEIVED FROM: NETA.SSCP1A
IST2297I NETA.SSCP1A      13:40:19 00000C28 00000C2A TDU GREATER
IST2300I  RECEIVED FROM: NETA.SSCP2A
IST2297I NETA.SSCP1A      13:40:19 00000C26 00000C28 TDU GREATER
IST2300I  RECEIVED FROM: NETA.SSCP1A
IST2297I NETA.SSCP1A      13:40:18 00000C24 00000C26 TDU GREATER
IST2300I  RECEIVED FROM: NETA.SSCPAA
IST2314I 10 OF 50 RSN UPDATES DISPLAYED
IST314I  END
    
```

## DISPLAY TRACES command

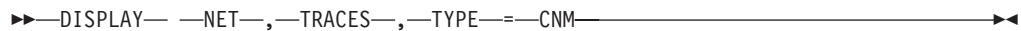
**Display the status of BUF, GPT, IO, LINE, QDIOSYNC, SIT, STATE, and TG traces:**



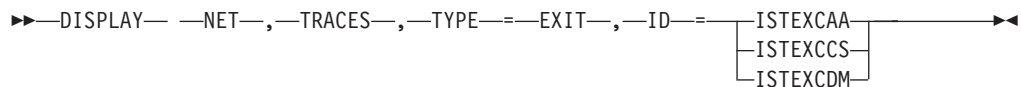
**Notes:**

- 1 Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.

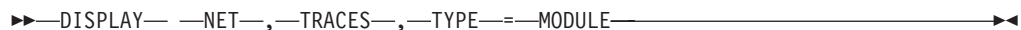
**Display the status of communication network management traces:**



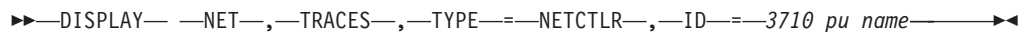
**Display the status of the user Exit buffer trace:**



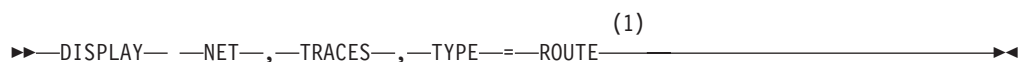
**Display the status of a module trace:**



**Display the status of a network controller line trace:**



**Display the status of the APPN route selection trace in a network node:**



## DISPLAY TRACES

### Notes:

- 1 TYPE=ROUTE is allowed only in a network node.

### Display the status of an SMS (buffer use) trace:

```
▶▶ DISPLAY —NET—, —TRACES—, —TYPE—=—SMS [ , —ID—=—VTAMBUF ] ▶▶
```

### Display the status of a resource state trace:

```
▶▶ DISPLAY —NET—, —TRACES—, —TYPE—=—STATE ▶▶
```

### Display the status of a TSO user trace:

```
▶▶ DISPLAY —NET—, —TRACES—, —TYPE—=—TSO ▶▶
```

```
▶▶ , —ID—=— * ▶▶  
  (—*—)  
  (1)  
  user_id  
  ↓  
  (—user_id—)
```

### Notes:

- 1 Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.

### Display the status of the VTAM internal trace:

```
▶▶ DISPLAY —NET—, —TRACES— [ , —TYPE—=—VTAM ] ▶▶
```

### Display the status of all active traces:

```
▶▶ DISPLAY —NET—, —TRACES—, —TYPE—=—ALL ▶▶
```

## Abbreviations

Operand	Abbreviation
DISPLAY	D
TRACES	TRACE
TYPE=NODES	TYPE=NODE

## Purpose

The DISPLAY TRACES command displays the status of a trace.

## Operands

**ID** Specifies a value that varies depending on the type of trace.



- For **TYPE=NODES**, ID specifies the name of one or more resources whose trace status is to be displayed. The ID operand is required with **TYPE=NODES**. You can specify major or minor node names. Resource names can be network-qualified.

Depending on the value of the **DSPLYWLD** start option, wildcard values can be used for this operand. However, if you specify a wildcard, trace status information is displayed only for resources that match the wildcard value, and not for subordinate resources. For more information about using wildcards, see “Using wildcard names” on page 11.

**Guideline:** Specifying a wildcard name might degrade performance because VTAM checks every major or minor node in the network.

If model application program definition names match the pattern you specify on the ID operand of the **DISPLAY TRACES** command when **TYPE** specifies **NODES**, those model application program names appear in your display output. In addition, any dynamic application programs built from those model application program definitions also appear in your display output. Similarly, any model CDRSCs and clone CDRSCs that match the pattern you specify on the ID operand appear in your display output. On message **IST1041I**, a model application program is identified as **MODEL APPL**, a dynamic (clone) application program is identified as **DYNAMIC APPL**, a model CDRSC is identified as **MODEL CDRSC**, and a clone CDRSC is identified as **CLONE CDRSC**.

For example, if you issue the command **DISPLAY NET,TRACES,ID=APPL\*,TYPE=NODES**, and model application programs and model CDRSCs have been defined using names that match the pattern specified on the ID operand (**APPL\***), you get the following output:

```
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TRACES,TYPE=NODES
IST075I NAME = APPL1A, TYPE = APPL SEGMENT
IST1041I NETA.APPL1 APPL
IST1042I BUF = ON - AMOUNT = PARTIAL - SAVED = NO
IST1041I NETA.APPL1V APPL
IST1042I IO = ON - AMOUNT = **NA** - SAVED = NO
IST924I -----
IST075I NAME = TESTAPPL, TYPE = APPL SEGMENT
IST1041I NETA.APPL1* MODEL APPL
IST1042I BUF = ON - AMOUNT = PARTIAL - SAVED = NO
IST1041I NETA.APPL1Q DYNAMIC APPL
IST1042I BUF = ON - AMOUNT = PARTIAL - SAVED = NO
IST924I -----
IST075I NAME = TESTCDRS, TYPE = CDRSC SEGMENT
IST1041I NETA.APPL2* MODEL CDRSC
IST1042I BUF = ON - AMOUNT = PARTIAL - SAVED = NO
IST1041I NETA.APPL2Q CLONE CDRSC
IST1042I BUF = ON - AMOUNT = PARTIAL - SAVED = NO
IST314I END
```

The wildcard character used in **APPL\*** on the ID operand of the **DISPLAY TRACES** command tells VTAM to display the trace status of any resource whose name begins with **APPL**, followed by zero to four valid characters. The name fields of the network-qualified names **NETA.APPL1\*** and **NETA.APPL2\***, even though they contain a wildcard character, begin with **APPL**, followed by zero to four valid characters [an asterisk (\*) and a question mark (?) are valid characters in an application program minor node name and CDRSC minor node name]. Therefore, they are included in the display output, as are the dynamic application program (**NETA.APPL1Q**) built from **APPL1\*** and the clone CDRSC (**NETA.APPL2Q**) built from **APPL2\***.

## DISPLAY TRACES

See the “MODIFY TRACE command” on page 467 for information about which trace types are applicable to various VTAM resource types.

- For **TYPE=CNM**, the ID operand is not valid.
- For **TYPE=EXIT**, ID=ISTEXCAA, ISTECCS, and ISTECDM are the only valid values for the ID operand. ID = must be specified.
- For **TYPE=MODULE**, the ID operand is not valid.
- For **TYPE=NETCTLR**, ID specifies the name of the 3710 physical unit that is to perform the trace. The ID operand is required and wildcard names are not valid for TYPE=NETCTLR.
- For **TYPE=SMS**, ID=VTAMBUF is the only valid value for the ID operand. ID=VTAMBUF can be specified or assumed by default.
- For **TYPE=STATE**, the ID operand is not valid.
- For **TYPE=TSO**, ID specifies the user IDs for which trace status is to be displayed. The ID operand is required with TYPE=TSO. User IDs that do not have an active TSO trace are not displayed. Network-qualified names are not allowed with TYPE=TSO.

Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand. For more information about using wildcards, see “Using wildcard names” on page 11.

**Attention:** Specifying a wildcard name might degrade performance because VTAM checks every TSO user ID in the network.

- For **TYPE=VTAM**, the ID operand is not valid.
- For **TYPE=ALL**, the ID operand is not valid.

### IDTYPE

Specifies the type of resource that the ID operand names. If several types of resources share the same name, IDTYPE identifies which resource the command should act on. The IDTYPE operand is valid only when TYPE=NODES is specified and the ID operand specifies a value other than an asterisk (\*).

#### IDTYPE=CP

Displays information for the CP with the name specified on the ID operand. The control point that is displayed can be the host CP or a CDRSC representing an adjacent CP.

#### IDTYPE=RESOURCE

Displays information for a CP, an SSCP, or another resource with the name specified on the ID operand. If both an SSCP and a CP are found, VTAM displays information for both of them.

#### IDTYPE=SSCP

Displays information for the SSCP with the name specified on the ID operand.

### TYPE

If TYPE is not specified, TYPE=VTAM is used by default.

#### TYPE=CNM

Displays information about communication network management (CNM) traces.

#### TYPE=EXIT

Displays information about the session management exit (SME) buffer trace.

### TYPE=MODULE

Displays information about a module trace.

### TYPE=NODES

Displays information about BUF, GPT, IO, LINE, QDIOSYNC, SIT, STATE, and TG traces for the resources named on the ID operand.

**BUF** Buffer contents trace

**GPT** Generalized PIU trace

**IO** Input/output trace

**LINE** NCP line trace

### QDIOSYNC

Queued Direct I/O diagnostic synchronization

**SIT** Scanner interface trace

### STATE

Resource state trace

**TG** Transmission group trace

### TYPE=NETCTLR

Displays information about a 3710 Network Controller line trace.

### TYPE=ROUTE

Displays the status of the APPN route selection trace.

### TYPE=SMS

Displays information about the Storage Management services (SMS) buffer use trace.

### TYPE=STATE

Displays information about the resource types being traced.

### TYPE=TSO

Displays trace information for the TSO user IDs specified on the ID operand. This function is similar to that provided by the "DISPLAY TSOUSER command" on page 326.

### TYPE=VTAM

Displays information about the VTAM internal trace (VIT).

### TYPE=ALL

Displays information for the following types of traces, if they are active:

- TYPE=CNM
- TYPE=EXIT
- TYPE=MODULE
- TYPE=NODES,ID=\*
- TYPE=SMS
- TYPE=STATE
- TYPE=TSO,ID=\*
- TYPE=VTAM

No information is displayed for the CNM, TSO, EXIT, MODULE, SMS, STATE, and VTAM traces if they are not active.

## DISPLAY TRACES

**Note:** Specifying TYPE=ALL might degrade performance because VTAM checks every major or minor node in the network. It may also temporarily delay subsequent VTAM operator commands.

### Resulting display

The resulting display shows information specific to the trace type and ID specified.

- For TYPE=CNM, the resulting display shows the status for session awareness and problem determination PIU buffer traces (on or off).
- For TYPE=EXIT, the resulting display shows the functions of the session management exit (SME) for which tracing is active.
- For TYPE=MODULE, the resulting display shows the types of modules for which tracing is active.
- For TYPE=NODES, the resulting display shows:
  - For ID=*major node name*, the resources subordinate to the named resource that have an active BUF, GPT, IO, LINE, QDIOSYNC, SIT, STATE, or TG trace.
  - For ID=*minor node name*, the status of BUF, GPT, IO, LINE, QDIOSYNC, SIT, STATE, or TG tracing for this resource.
  - For ID=\*, all resources that have an active BUF, GPT, IO, LINE, QDIOSYNC, SIT, STATE, or TG trace, along with the name of the resource's major node.
  - For ID=*wildcard name*, the status of BUF, GPT, IO, LINE, QDIOSYNC, SIT, STATE, or TG tracing for the resources that match the wildcard value.

**Note:** For ID=*name* in any form, the display also shows whether BUF, IO, QDIOSYNC, and STATE trace requests are saved, with saved trace requests for unknown resources.

- For TYPE=NETCTLR, the resulting display shows the name of the 3710 performing the trace, and the PU name and line name of each resource being traced.
- For TYPE=ROUTE, the resulting display shows the APPN route selection trace status (on or off) and the amount of storage currently allocated to the trace table.
- For TYPE=SMS, the resulting display shows the trace status (on or off).
- For TYPE=STATE, the resulting display shows the resource types for which resource state tracing is active.
- For TYPE=TSO, the resulting display shows:
  - For ID=*name*, the trace status for the named user ID (on or off).
  - For ID=\*, all user IDs that have an active trace.
- For TYPE=VTAM, the resulting display shows the mode (internal or both internal and external), the trace table size (applicable only to MODE=INT), and the **user-specified** trace options that are currently in effect. The default trace options are active, but are not displayed unless you explicitly specified them on the TRACE,TYPE=VTAM start option or the MODIFY TRACE command.
- For TYPE=ALL, the resulting display shows all of the information for the following traces, if they are active:
  - TYPE=CNM
  - TYPE=EXIT
  - TYPE=MODULE
  - TYPE=NODES,ID=\*
  - TYPE=SMS
  - TYPE=STATE

- TYPE=TSO,ID=\*
- TYPE=VTAM

### Examples

Displaying the status of communication network management (CNM) traces:

```
d net, traces, type=cnm
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TRACES,TYPE=CNM
IST655I PDPIUBUF TRACE STATUS = ON
IST655I SAWBUF TRACE STATUS = ON
IST314I END
```

Displaying the status of the session management exit (SME) buffer trace:

```
d net, traces, type=exit, id=istexcaa
IST097I DISPLAY ACCEPTED
IST075I NAME = ITEXCAA, TYPE = EXIT
IST199I OPTIONS = BEGIN INITAUTH SECAUTH ACCTING GWPATH XRF ADJSSCP
IST199I OPTIONS = ALIAS ALS REPL VRSEL HPRVRSEL HPRP_OLU HPRP_ANR
IST199I OPTIONS = HPRP_DLU END
IST314I END
```

Displaying the status for the exit trace for ITEXCCS:

```
d net, traces, type=exit, id=istexccs
IST097I DISPLAY ACCEPTED
IST075I NAME = ITEXCCS, TYPE = EXIT
IST199I OPTIONS = BEGIN CONNSTAT DYNA_XID PRED_XID END
IST314I END
```

Displaying the status of the module trace:

```
d net, traces, type=module
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TRACES,TYPE=MODULE
IST199I OPTIONS = COMMAND CONNECTION INTERFACES SESSION
IST314I END
```

Displaying node traces for a few resources with saved trace requests:

```
d net, traces, type=nodes, id=(app11,app12,netapp11,noapp1)
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TRACES,TYPE=NODES
IST075I NAME = APPL1A, TYPE = APPL SEGMENT
IST1041I NETA.APPL1      APPL
IST1042I  BUF          = ON      - AMOUNT = PARTIAL  - SAVED = YES
IST1042I  STATE        = ON      - AMOUNT = **NA**  - SAVED = YES
IST1041I NETA.APPL2      APPL
IST1042I  BUF          = ON      - AMOUNT = PARTIAL  - SAVED = NO
IST1042I  STATE        = ON      - AMOUNT = **NA**  - SAVED = NO
IST924I -----
IST075I NAME = CDRSC1A, TYPE = CDRSC SEGMENT
IST1041I NETA.NETAPPL1   CDRSC
IST1042I  IO           = ON      - AMOUNT = **NA**  - SAVED = YES
IST1042I  STATE        = ON      - AMOUNT = **NA**  - SAVED = YES
IST924I -----
IST1422I SAVED TRACE REQUESTS FOR NETA.NOAPP1
IST1041I NETA.NOAPP1     N/A
IST1042I  BUF          = SAVED - AMOUNT = PARTIAL
IST1042I  STATE        = SAVED - AMOUNT = **NA**
IST314I END
```

Displaying node traces for all resources:

## DISPLAY TRACES

```
d net, traces, type=nodes, id=*
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TRACES,TYPE=NODES
IST075I NAME = A50CDRMC, TYPE = CDRM SEGMENT
IST1041I C01N          CDRM
IST1042I  BUF          = ON    - AMOUNT = PARTIAL - SAVED = NO
IST924I -----
IST075I NAME = A0362ZC, TYPE = PU T4/5
IST1041I A03S16       LINE
IST1042I  LINE        = TRACT
IST924I -----
IST075I NAME = TRLHYDRA, TYPE = TRL MAJOR NODE
IST1041I TRLHYDRA     TRL MAJOR NODE
IST1042I  IO          = ON    - AMOUNT = **NA** - SAVED = NO
IST1041I NSQDI011    TRLE
IST1042I  IO          = ON    - AMOUNT = **NA** - SAVED = NO
IST2183I QDIOSYNC = ALLINOUT - SYNCID = NSQDI011 - SAVED = YES
IST314I END
```

Displaying node traces for a control point:

```
d net, traces, type=nodes, id=a500n, idtype=cp
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TRACES,TYPE=NODES
IST075I NAME = NETA.A500N, TYPE = APPL
IST1041I NETA.A500N   APPL
IST1042I  BUF          = ON    - AMOUNT = PARTIAL - SAVED = NO
IST314I END
```

Displaying node traces for an SSCP:

```
d net, traces, type=nodes, id=a500n, idtype=sscp
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TRACES,TYPE=NODES
IST075I NAME = A500N, TYPE = CDRM
IST1041I A500N        CDRM
IST1042I  BUF          = ON    - AMOUNT = PARTIAL - SAVED = NO
IST314I END
```

Displaying the status of the APPN route selection trace in a network node:

```
d net, traces, type=route
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TRACES,TYPE=ROUTE
IST2154I ROUTE SELECTION TRACE IS ACTIVE - BFRNUM = 100
IST2156I STORAGE ALLOCATED TO ROUTE SELECTION TRACE = 2000K
IST314I END
```

Displaying the status of the SMS trace:

```
d net, traces, type=sms
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TRACES,TYPE=SMS
IST655I SMS TRACE STATUS = OFF
IST314I END
```

Displaying the status of the resource state trace:

```
d net, traces, type=state
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TRACES,TYPE=STATE
IST199I OPTIONS = ADJCP APPL CDRM CDRSC GROUP LINE LU NCP PU
IST314I END
```

Displaying a TSO user trace:

```
d net,traces,type=tso,id=user1
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TRACES,TYPE=TSO
IST1200I USER1      TSO USERID  TRACE = OFF
IST314I END
```

Displaying the status of the VTAM internal trace:

```
d net,traces,type=vtam
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TRACES,TYPE=VTAM
IST315I VTAM INTERNAL TRACE ACTIVE - MODE = INT, SIZE = 0100 MB
IST199I OPTIONS = API APPC CFS CIO CMIP CSM ESC HPR LCS LOCK MSG NRM
IST199I OPTIONS = PIU PSS SMS SSCP TCP VCNS XBUF XCF
IST1730I SUBTRACE TREE ACTIVE UNDER TRACE OPTION SSCP
IST1730I SUBTRACE ARBP ACTIVE UNDER TRACE OPTION SSCP
IST314I END
```

Displaying all active traces:

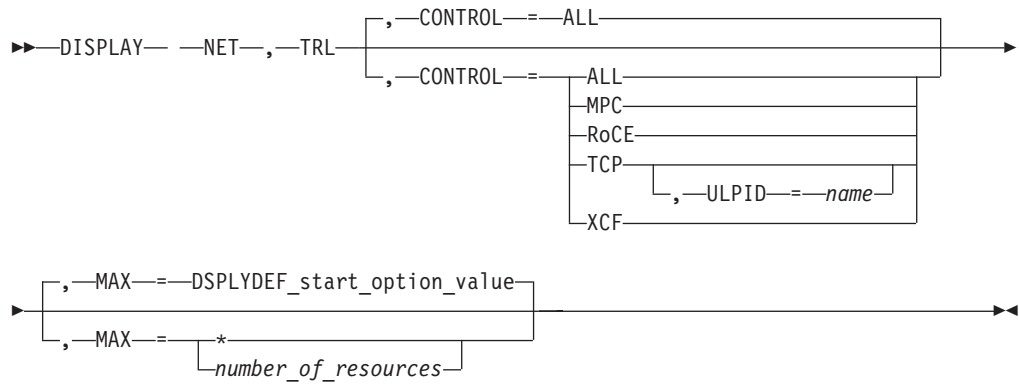
```
d net,traces,type=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TRACES,TYPE=NODES
IST075I NAME = A50CDRMC, TYPE = CDRM SEGMENT
IST1041I C01N          CDRM
IST1042I  BUF          = ON    - AMOUNT = PARTIAL
IST924I -----
IST075I NAME = A0362ZC, TYPE = PU T4/5
IST1041I A03S16        LINE
IST1042I  LINE         = TRACT
IST924I -----
IST075I NAME = TRLHYDRA, TYPE = TRL MAJOR NODE
IST1041I TRLHYDRA      TRL MAJOR NODE
IST1042I  IO           = ON    - AMOUNT = **NA** - SAVED = NO
IST1041I NSQDI011      TRLE
IST1042I  IO           = ON    - AMOUNT = **NA** - SAVED = NO
IST2183I  QDIOSYNC = ALLINOUT - SYNCID = NSQDI011 - SAVED = YES
IST924I -----
IST075I NAME = ISTECAA, TYPE = EXIT
IST199I OPTIONS = BEGIN INITAUTH VRSEL END
IST924I -----
IST075I NAME = ISTECCS, TYPE = EXIT
IST199I OPTIONS = BEGIN CONNSTAT DYNA_XID PRED_XID END
IST924I -----
IST350I DISPLAY TYPE = TRACES,TYPE=VTAM
IST315I VTAM INTERNAL TRACE ACTIVE - MODE = INT, SIZE = 0050 MB
IST199I OPTIONS = API APPC CFS CIO CMIP CSM ESC HPR LCS LOCK MSG NRM
IST199I OPTIONS = PIU PSS SMS SSCP TCP VCNS XBUF XCF
IST315I VTAM INTERNAL TRACE ACTIVE - MODE = EXT, SIZE = 0002 BUFFERS
IST199I OPTIONS = API APPC CFS CIO CMIP CSM ESC HPR LCS LOCK MSG NRM
IST199I OPTIONS = PIU PSS SMS SSCP TCP VCNS XBUF XCF
IST924I -----
IST350I DISPLAY TYPE = TRACES,TYPE=STATE
IST199I OPTIONS = ADJCP APPL CDRM CDRSC GROUP LINE LU NCP PU
IST924I -----
IST350I DISPLAY TYPE = TRACES,TYPE=MODULE
IST199I OPTIONS = COMMAND CONNECTION INTERFACES SESSION
IST314I END
```

---

## DISPLAY TRL command

Display the entries in the TRL major nodes:

## DISPLAY TRL



### Display information about a specific user-defined TRLE:

```

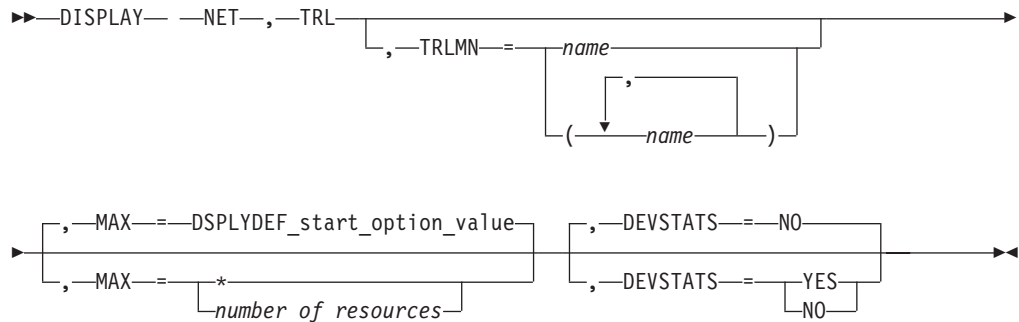
  DISPLAY NET, TRL, TRLE=trl_entry_name
  
```

### Display information about a dynamic XCF TRLE:

```

  DISPLAY NET, TRL, XCFCP=cp_name
  
```

### Display the entries in one or more specific TRL major nodes:



## Abbreviations

Operand	Abbreviation
DISPLAY	D
DEVSTATS=YES	DEVSTATS

## Purpose

The DISPLAY TRL (transport resource list) command provides information about the active TRL major nodes or about a single TRLE (transport resource list entry).

## Operands

### CONTROL

Specifies the type of connections to display.

#### CONTROL=ALL

Specifies that information is to be displayed about all TRLEs.



**CONTROL=MPC**

Specifies that information is to be displayed about user-defined TRLEs only.

**CONTROL=RoCE**

Specifies that information is to be displayed about RDMA over Converged Ethernet (RoCE) TRLEs only.

**CONTROL=TCP**

Specifies that information is to be displayed about dynamic TCP/IP TRLEs only.

**CONTROL=XCF**

Specifies that information is to be displayed about dynamic XCF TRLEs only.

**DEVSTATS**

Specifies whether statistics for RoCE TRLEs should be collected and displayed. This operand is meaningful only when the TRLE operand is also specified, and the value that is specified for the TRLE operand represents a RoCE TRLE; otherwise, the operand is ignored.

**DEVSTATS=YES**

Specifies that statistics should be collected for the RoCE TRLE.

**DEVSTATS=NO**

Specifies that statistics should not be collected for the RoCE TRLE. This is the default setting.

**MAX**

Specifies the maximum number of TRLEs that VTAM displays for this command.

If you specify the MAX operand, do not specify TRLE.

**MAX=\***

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

**MAX=number\_of\_resources**

Specifies the number of TRLEs to display for this command. The valid range is 1 - value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified. When that number is found, VTAM does not search any further. This saves processing time for the command and gives you control over the amount of display output generated by the command. If fewer TRLEs are found than you have specified on MAX, VTAM displays only the TRLEs that are found.

**TRLE=tr1\_entry\_name**

Specifies the name of the TRLE to be displayed.

**TRLMN=tr1\_major\_node\_name**

Specifies the name of one or more active TRL major nodes to be displayed.

**ULPID=name**

Specifies the name of a CS z/OS upper-layer protocol (ULP) to be displayed, for example, the TCP/IP procedure name. The ULPID operand is valid only with CONTROL=TCP.

### **XCFCP=cp\_name**

Specifies that information is to be displayed about the TRLE representing the connection to another VTAM in the XCF group. The value of *cp\_name* is the CP name or SSCP name of the other VTAM.

### **Resulting display**

The resulting display shows:

- The name and status of all TRLEs in the active TRL major nodes if the TRLE operand is not specified.
- The name and status of the TRLE specified on the TRLE operand. If the status is active and the TRLE is not associated with a 10 GbE RoCE Express interface, the display also includes the address and operational status of the READ, WRITE, and (OSA-Express and HiperSockets™ only) DATA subchannels. In addition, the following information may be displayed:
  - MPC level and usage (MPC header size, maximum MPC data size, inbound data storage medium)
  - Name of the CS z/OS upper-layer protocols (ULPs) using this TRLE
  - OSA portname, OSA adapter number, and OSA microcode level
  - OSA or HiperSockets channel path id (chpid) type and number
  - Peripheral Component Interconnect Express (PCIe) function ID (PFID) for the 10GbE RoCE Express feature
    - When the RoCE Express feature is operating in a dedicated RoCE environment, the 10GbE RoCE Express microcode level is displayed.
    - When the feature is operating in a shared RoCE environment, the virtual function number (VFN) is displayed.
  - I/O trace status
  - The capability of the connection to perform channel I/O directly to or from communications storage manager (CSM) buffers
  - Storage information about the inbound and outbound queues associated with the DATA subchannels
- For a dynamic TCP TRLE, an exclusively owned TRLE, only one message with a ULP ID is issued because only one ULP can use each of these TRLEs. For an OSA-Express adapter, one message with a ULP ID is issued for each datapath channel address that a ULP uses. For other TRLEs, more than one ULP ID message can be issued, depending on how many ULPs are using the TRLE.

**Rule:** Only one message with a ULP ID is generated for a 10GbE RoCE Express feature that operates in a shared RoCE environment.

- The ULP ID will be the jobname for TCP/IP ULPs, the SNA PU name for ANNC ULPs, and the XCA Major Node name for ATM or EE ULPs.
- Message group IST2396I is generated after the base TRL information is displayed when DEVSTATS=YES is specified and the TRLE that is specified on the TRLE operand represents a 10 GbE RoCE Express interface. See z/OS Communications Server: SNA Messages for specifics on the statistics reported in the IST2396I message group.

### **Examples**

Displaying all TRL entries:

```

d net,trl
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TRL
IST1954I TRL MAJOR NODE = ISTTRL
IST1314I TRLE = ISTT0001 STATUS = ACTIVE----E CONTROL = XCF
IST1454I 1 TRLE(S) DISPLAYED
IST924I -----
IST1954I TRL MAJOR NODE = TRL1
IST1314I TRLE = TRL1A STATUS = ACTIVE CONTROL = MPC
IST1314I TRLE = TRL1B STATUS = NEVAC CONTROL = MPC
IST1454I 2 TRLE(S) DISPLAYED
IST924I -----
IST1954I TRL MAJOR NODE = TRL2
IST1314I TRLE = TRL2A STATUS = NEVAC CONTROL = XCF
IST1314I TRLE = TRL2B STATUS = ACTIVE CONTROL = XCF
IST1454I 2 TRLE(S) DISPLAYED
IST314I END
  
```

Displaying two TRL major nodes:

```

d net,trl,trlmn=(trl1,trl2)
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = TRL
IST1954I TRL MAJOR NODE = TRL1
IST1314I TRLE = TRL1A STATUS = ACTIVE CONTROL = MPC
IST1314I TRLE = TRL1B STATUS = NEVAC CONTROL = MPC
IST1454I 2 TRLE(S) DISPLAYED
IST924I -----
IST1954I TRL MAJOR NODE = TRL2
IST1314I TRLE = TRL2A STATUS = NEVAC CONTROL = XCF
IST1314I TRLE = TRL2B STATUS = ACTIVE CONTROL = XCF
IST1454I 2 TRLE(S) DISPLAYED
IST314I END
  
```

Displaying an active TRL entry:

```

d net,trl,trle=trle1a
IST097I DISPLAY ACCEPTED
IST075I NAME = TOC01N, TYPE = TRLE
IST1954I TRL MAJOR NODE = TRL1
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = LEASED , CONTROL = MPC , HPDT = YES
IST1715I MPCLEVEL = HPDT MPCUSAGE = SHARE
IST1717I ULPID = AHCPU7 ULP INTERFACE = *NA*
IST1577I HEADER SIZE = 4092 DATA SIZE = 60 STORAGE = ***NA***
IST1221I WRITE DEV = 0CE6 STATUS = ACTIVE STATE = ONLINE
IST1221I WRITE DEV = 0CE7 STATUS = ACTIVE STATE = ONLINE
IST1221I WRITE DEV = 0CE8 STATUS = ACTIVE STATE = ONLINE
IST1221I WRITE DEV = 0CE9 STATUS = ACTIVE STATE = ONLINE
IST1577I HEADER SIZE = 4092 DATA SIZE = 60 STORAGE = DATASPACE
IST1221I READ DEV = 0CC6 STATUS = ACTIVE STATE = ONLINE
IST1221I READ DEV = 0CC7 STATUS = ACTIVE STATE = ONLINE
IST1221I READ DEV = 0CC8 STATUS = ACTIVE STATE = ONLINE
IST314I END
  
```

Displaying an active XCF TRL entry:

```

d net,trl,trle=istt1q2q
IST097I DISPLAY ACCEPTED
IST075I NAME = ISTT1Q2Q, TYPE = TRLE
IST1954I TRL MAJOR NODE = ISTTRL
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = LEASED , CONTROL = XCF , HPDT = *NA*
IST1715I MPCLEVEL = HPDT MPCUSAGE = SHARE
IST1717I ULPID = ISTP1Q2Q ULP INTERFACE = *NA*
IST1503I XCF TOKEN = 02000002001B0002 STATUS = ACTIVE
IST1502I ADJACENT CP = NETA.SSCP2A
IST314I END
  
```

## DISPLAY TRL

Displaying an active TCP TRL entry:

```
d net,trl,trle=iutx0d20
IST097I DISPLAY ACCEPTED
IST075I NAME = IUTX0D20, TYPE = TRLE
IST1954I TRL MAJOR NODE = ISTTRL
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = LEASED, CONTROL = TCP, HPDT = *NA*
IST1717I ULPID = TCPCS2 ULP INTERFACE = *NA*
IST1221I READ DEV = 0D20 STATUS = ACTIVE STATE = N/A
IST1221I WRITE DEV = 0D21 STATUS = ACTIVE STATE = N/A
IST314I END
```

Displaying an inactive TRL entry:

```
d net,trl,trle=trle1c
IST097I DISPLAY ACCEPTED
IST075I NAME = TRLE1C, TYPE = TRLE
IST1954I TRL MAJOR NODE = TRL1
IST486I STATUS= NEVAC, DESIRED STATE= INACT
IST087I TYPE = LEASED, CONTROL = MPC, HPDT = *NA*
IST1715I MPCLEVEL = NOHPDT MPCUSAGE = ***N/A***
IST1221I WRITE DEV = 0508 STATUS = RESET STATE = N/A
IST1221I WRITE DEV = 03F0 STATUS = RESET STATE = N/A
IST1221I READ DEV = 0408 STATUS = RESET STATE = N/A
IST1221I READ DEV = 02F0 STATUS = RESET STATE = N/A
IST314I END
```

Displaying an active OSA Express TRL entry:

```
d net,trl,trle=qdio101
IST097I DISPLAY ACCEPTED
IST075I NAME = QDIO101, TYPE = TRLE
IST1954I TRL MAJOR NODE = TRLCS
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = LEASED, CONTROL = MPC, HPDT = YES
IST1715I MPCLEVEL = QDIO MPCUSAGE = SHARE
IST2263I PORTNAME = QDIO4101 PORTNUM = 0 OSA CODE LEVEL = ABCD
IST2337I CHPID TYPE = OSD CHPID = C1 PNETID = NETWORK3
IST2184I QDIOSYNC = ALLINOUT - SYNCID = QDIO101 - SAVED = NO
IST1577I HEADER SIZE = 4096 DATA SIZE = 0 STORAGE = ***NA***
IST1221I WRITE DEV = 0E29 STATUS = ACTIVE STATE = ONLINE
IST1577I HEADER SIZE = 4092 DATA SIZE = 0 STORAGE = ***NA***
IST1221I READ DEV = 0E28 STATUS = ACTIVE STATE = ONLINE
IST924I -----
IST1221I DATA DEV = 0E2A STATUS = ACTIVE STATE = N/A
IST1724I I/O TRACE = OFF TRACE LENGTH = *NA*
IST1717I ULPID = TCPCS1 ULP INTERFACE = QDIO4101I
IST2310I ACCELERATED ROUTING DISABLED
IST2331I QUEUE QUEUE READ QUEUE
IST2332I ID TYPE STORAGE STATUS
IST2205I -----
IST2333I RD/1 PRIMARY 4.0M(64 SBALS) ACTIVE
IST2333I RD/2 BULKDATA 4.0M(64 SBALS) ACTIVE
IST2333I RD/3 SYSDIST 4.0M(64 SBALS) ACTIVE
IST2333I RD/4 EE 4.0M(64 SBALS) ACTIVE
IST2331I QUEUE QUEUE READ
IST2332I ID TYPE STORAGE
IST2205I -----
IST2333I RD/1 PRIMARY 1.0M(16 SBALS)
IST2333I RD/2 SYSDIST 1.0M(16 SBALS)
IST2305I NUMBER OF DISCARDED INBOUND READ BUFFERS = 0
IST1757I PRIORITY1: UNCONGESTED PRIORITY2: UNCONGESTED
IST1757I PRIORITY3: UNCONGESTED PRIORITY4: UNCONGESTED
IST2190I DEVICEID PARAMETER FOR OSAENTA TRACE COMMAND = 00-05-00-00
IST1801I UNITS OF WORK FOR NCB AT ADDRESS X'15AD0010'
IST1802I P1 CURRENT = 0 AVERAGE = 0 MAXIMUM = 0
IST1802I P2 CURRENT = 0 AVERAGE = 0 MAXIMUM = 0
```

```

IST1802I P3 CURRENT = 0 AVERAGE = 0 MAXIMUM = 0
IST1802I P4 CURRENT = 0 AVERAGE = 0 MAXIMUM = 0
IST924I -----
IST1221I TRACE DEV = 0E2B STATUS = ACTIVE STATE = N/A
IST1724I I/O TRACE = OFF TRACE LENGTH = *NA*
IST1717I ULPID = TCPCS1 ULP INTERFACE = QDIO6101I
IST2310I ACCELERATED ROUTING DISABLED
IST2331I QUEUE QUEUE READ QUEUE
IST2332I ID TYPE STORAGE STATUS
IST2205I -----
IST2333I RD/1 PRIMARY 4.0M(64 SBALS) ACTIVE
IST2331I QUEUE QUEUE READ
IST2332I ID TYPE STORAGE
IST2205I -----
IST2333I RD/1 PRIMARY 4.0M(64 SBALS)
IST2305I NUMBER OF DISCARDED INBOUND READ BUFFERS = 0
IST1757I PRIORITY1: UNCONGESTED PRIORITY2: UNCONGESTED
IST1757I PRIORITY3: UNCONGESTED PRIORITY4: UNCONGESTED
IST1801I UNITS OF WORK FOR NCB AT ADDRESS X'15A92010'
IST1802I P1 CURRENT = 0 AVERAGE = 0 MAXIMUM = 0
IST1802I P2 CURRENT = 0 AVERAGE = 0 MAXIMUM = 0
IST1802I P3 CURRENT = 0 AVERAGE = 0 MAXIMUM = 0
IST1802I P4 CURRENT = 0 AVERAGE = 0 MAXIMUM = 0
IST924I -----
IST1221I DATA DEV = 0E2C STATUS = RESET STATE = N/A
IST1724I I/O TRACE = OFF TRACE LENGTH = *NA*
IST314I END

```

Displaying a TRLE dynamically created for HiperSockets:

```

d net,trl,trle=iutiqdio
IST097I DISPLAY ACCEPTED
IST075I NAME = IUTIQDIO, TYPE = TRLE
IST1954I TRL MAJOR NODE = ISTTRL
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = LEASED , CONTROL = MPC , HPDT = YES
IST1715I MPCLEVEL = QDIO MPCUSAGE = SHARE
IST1716I PORTNAME = IUTIQDFE LINKNUM = 0 OSA CODE LEVEL = *NA*
IST2337I CHPID TYPE = IQD CHPID = FE PNETID = **NA**
IST2319I IQD NETWORK ID = 07B1
IST1577I HEADER SIZE = 4096 DATA SIZE = 16384 STORAGE = ***NA***
IST1221I WRITE DEV = 0E01 STATUS = ACTIVE STATE = ONLINE
IST1577I HEADER SIZE = 4092 DATA SIZE = 0 STORAGE = ***NA***
IST1221I READ DEV = 0E00 STATUS = ACTIVE STATE = ONLINE
IST924I -----
IST1221I DATA DEV = 0E02 STATUS = ACTIVE STATE = N/A
IST1724I I/O TRACE = OFF TRACE LENGTH = *NA*
IST1717I ULPID = TCPCS1 ULP INTERFACE = IUTIQDIO
IST2310I ACCELERATED ROUTING DISABLED
IST2331I QUEUE QUEUE READ
IST2332I ID TYPE STORAGE
IST2205I -----
IST2333I RD/1 PRIMARY 2.0M(126 SBALS)
IST2331I QUEUE QUEUE READ QUEUE
IST2332I ID TYPE STORAGE STATUS
IST2205I -----
IST2333I RD/1 PRIMARY 2.0M(126 SBALS) ACTIVE
IST2305I NUMBER OF DISCARDED INBOUND READ BUFFERS = 0
IST1757I PRIORITY1: UNCONGESTED PRIORITY2: UNCONGESTED
IST1757I PRIORITY3: UNCONGESTED PRIORITY4: UNCONGESTED
IST1801I UNITS OF WORK FOR NCB AT ADDRESS X'15B18010'
IST1802I P1 CURRENT = 0 AVERAGE = 0 MAXIMUM = 0
IST1802I P2 CURRENT = 0 AVERAGE = 0 MAXIMUM = 0
IST1802I P3 CURRENT = 0 AVERAGE = 0 MAXIMUM = 0
IST1802I P4 CURRENT = 0 AVERAGE = 0 MAXIMUM = 0
IST924I -----

```

## DISPLAY TRL

```
IST1221I DATA DEV = 0E03 STATUS = RESET      STATE = N/A
IST1724I I/O TRACE = OFF  TRACE LENGTH = *NA*
IST924I -----
IST314I END
```

Displaying a 10GbE RoCE Express TRLE in a dedicated RoCE environment:

```
d net,trl,trl=iut10005
IST097I DISPLAY ACCEPTED
IST075I NAME = IUT10005, TYPE = TRLE
IST1954I TRL MAJOR NODE = ISTTRL
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = *NA*           , CONTROL = ROCE, HPDT = *NA*
IST2361I SMCR PFID = 0005  PCHID = 0500  PNETID = NETWORK3
IST2362I PORTNUM = 1  RNIC CODE LEVEL = 2.11.1200
IST2389I PFIP = 01000300
IST924I -----
IST1717I ULPID = TCPIP1 ULP INTERFACE = EZARIUT10005
IST1724I I/O TRACE = OFF  TRACE LENGTH = *NA*
IST1866I TRLE = IUT10005  INOPDUMP = ON
IST924I -----
IST1717I ULPID = TCPIP2 ULP INTERFACE = EZARIUT10005
IST1724I I/O TRACE = OFF  TRACE LENGTH = *NA*
IST1866I TRLE = IUT10005  INOPDUMP = ON
IST314I END
```

Displaying a 10GbE RoCE Express TRLE in a shared RoCE environment:

```
d net,trl,trl=iut10011
IST097I DISPLAY ACCEPTED
IST075I NAME = IUT10011, TYPE = TRLE
IST1954I TRL MAJOR NODE = ISTTRL
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = *NA*           , CONTROL = ROCE, HPDT = *NA*
IST2361I SMCR PFID = 0011  PCHID = 0140  PNETID = PNETID1
IST2362I PORTNUM = 1  RNIC CODE LEVEL = **NA**
IST2389I PFIP = 01000300
IST2417I VFN = 0001
IST924I -----
IST1717I ULPID = TCPIP2 ULP INTERFACE = EZARIUT10011
IST1724I I/O TRACE = OFF  TRACE LENGTH = *NA*
IST314I END
```

---

## DISPLAY TSOUSER command

```
►►—DISPLAY— —NET—,—TSOUSER—,—ID—=—user_id—◄◄
```

### Abbreviations

Operand	Abbreviation
DISPLAY	D
TSOUSER	U

### Purpose

The DISPLAY TSOUSER (TSO user) command displays the status of a TSO user ID.

## Operands

### ID=user\_id

Specifies the TSO user ID about which information is to be displayed. Data for all address spaces started by a TSO user is shown if ID is specified.

**Tip:** Add the CODEPAGE parameter in TSOKEY00 (the PARMLIB member of the system) as follows:

```
CODEPAGE=YES
```

TSO/VTAM queries the device during the logon process to obtain the code page information if CODEPAGE=YES is coded in TSOKEY00. This enables the display code page function for the client.

## Resulting display

The resulting display shows:

- The name and status of the TSO user ID
- An indication of whether the TSO trace is active for this user ID
- The application program name associated with the TSO user space
- The secondary logical unit (SLU) the TSO user is using
- If the SLU is a Telnet client, the IP address, the IP port number, and (if it exists) the DNS name

## Examples

Displaying a TSO user ID:

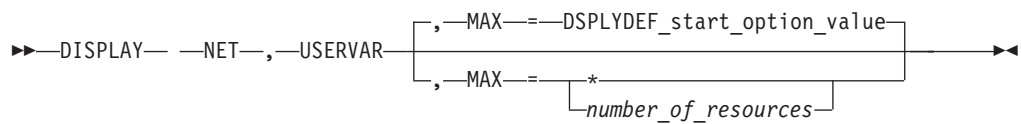
```
d net,tsouser,id=user1
IST097I DISPLAY ACCEPTED
IST075I NAME = USER1, TYPE = TSO USERID
IST486I STATUS= ACTIV, DESIRED STATE= N/A
IST576I TSO TRACE = OFF
IST1212I ACBNAME = TSO0001 STATUS = ACT/S
IST1212I LUNAME = NETA.A50A722 STATUS = ACT/S
IST314I END
```

Displaying a TSO user ID when the SLU is a Telnet client:

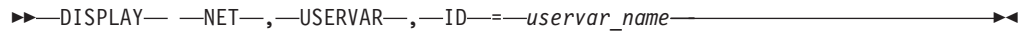
```
d net,tsouser,id=user1
IST097I DISPLAY ACCEPTED
IST075I NAME = USER1, TYPE = TSO USERID
IST486I STATUS= ACTIV, DESIRED STATE= N/A
IST576I TSO TRACE = OFF
IST262I ACBNAME = TSO0001, STATUS = ACT/S
IST262I LUNAME = TCPM1011, STATUS = ACT/S----Y
IST1727I DNS NAME: VIC127.TCP.RALEIGH.IBM.COM
IST1669I IPADDR..PORT 9.67.113.83..1027
IST2203I CHARACTER SET 0065 CODE PAGE 0025
IST314I END
```

## DISPLAY USERVAR command

### Display all USERVARs:



### Display a specific USERVAR:



## Abbreviations

Operand	Abbreviation
DISPLAY	D

## Purpose

The DISPLAY USERVAR command displays the VTAM application names associated with a specified USERVAR, or all known USERVARs and the application names associated with them.

Network-qualified USERVAR values can be displayed in the output of the DISPLAY USERVAR command. If the VALUE operand on the MODIFY USERVAR command is a network-qualified name, or if the class of USERVAR is automatic (VTAM-managed), the output from the DISPLAY USERVAR command for that USERVAR has the network-qualified name in it. If the VALUE operand on the MODIFY USERVAR command is a non-network-qualified name, the output from the DISPLAY USERVAR command for that USERVAR does not have the network-qualified name in it.

## Operands

### ID=uservar\_name

Specifies the name of a USERVAR.

If you specify the ID operand, do not specify MAX.

### MAX

Specifies the maximum number of application names that VTAM displays for this command.

If you specify the MAX operand, do not specify ID.

### MAX=\*

Specifies that the value of the DSPLYMAX start option is used to limit the display output.

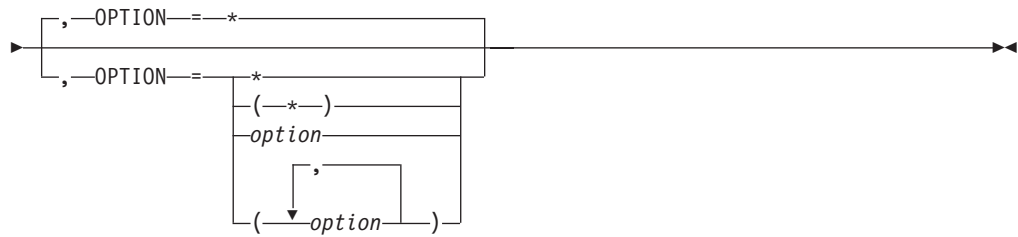
### MAX=number\_of\_resources

Specifies the number of application names to display for this command. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

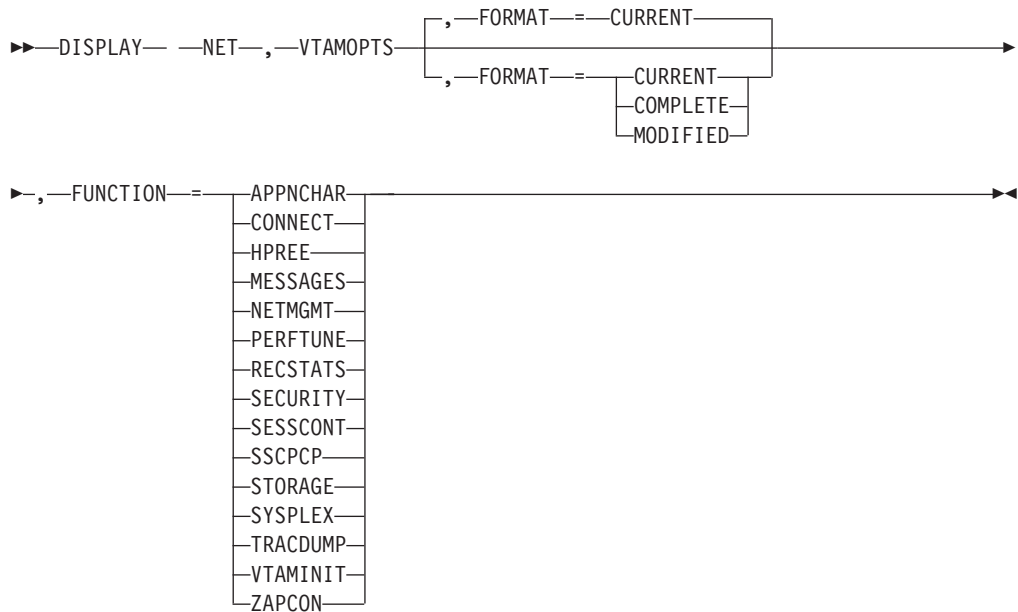




## DISPLAY VTAMOPTS



### Display a group of related start options:



## Abbreviations

Operand	Abbreviation
DISPLAY	D
FORMAT=COMPLETE	COMP
FORMAT=CURRENT	CUR
FORMAT=MODIFIED	MOD
OPTION	OPT

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for FORMAT=CURRENT, code only CUR. Do not code FORMAT=CUR.

## Purpose

The DISPLAY VTAMOPTS (VTAM start options) command displays information about VTAM start options. The VTAM version and release, the date and time when VTAM was started, the component ID, and VTAM's node type are also displayed.

## Operands

### FORMAT

Specifies the type of information to be displayed.

#### FORMAT=CURRENT

Displays the current value of one or more start options.

#### FORMAT=COMPLETE

Displays detailed information about one or more start options. For each start option, VTAM displays the current value, the value that VTAM initialized with, and the source of the value that VTAM initialized with. The source can be a value specified in an ATCSTRxx start option list, a value entered by the operator during VTAM start, or a default value used in the absence of any other specification.

#### FORMAT=MODIFIED

Displays information about start options that have been modified since VTAM initialization. If an option has not been modified, it is not displayed.

For each modified start option, VTAM displays the current value, the value that VTAM initialized with, and the source of the value that VTAM initialized with. The source can be a value specified in an ATCSTRxx start option list, a value entered by the operator during VTAM start, or a default value used in the absence of any other specification.

### FUNCTION

Specifies a group of related start options to display. If you specify FUNCTION, do not specify OPTION on the same command.

#### FUNCTION=APPNCHAR

Displays the start options that define APPN characteristics. The start options displayed using FUNCTION=APPNCHAR are also displayed using other specifications for FUNCTION. The start options displayed using FUNCTION=APPNCHAR are:

APPNCOS	BN	BNDYN
BNORD	CDSERVR	CDSREFER
CONNTYPE	CPCP	DIRSIZE
DIRTIME	DLURSAW	DUPDEFS
DYNADJCP	EEHPRANR	EPORTCK
EEVERIFY	GVBKDLY	HOSTNAME
HPR	HPRARB	HPRCLKRT
HPRNCPBF	HPRPSDLY	HPRPST
HPRSESLM	HPRSTALL	INITDB
IOPURGE	IPADDR	MAXLOCAT
MULTPATH	NETID	NNSPREF
NODETYPE	NUMTREES	PMTUD
PSRETRY	PSWEIGHT	RESUSAGE
ROUTERES	SACONNS	SAVERSCV
SECLVLCF	SNVC	SORDER
SRCHRED	SRCOUNT	SRTIMER
SSCPNAME	SSEARCH	TCPNAME
TDUDIAG	TOPOTIME	UNRCHTIM
VERIFYCP	VFYRED	VFYREDTI
VRTG	VRTGCPCP	XCFINIT

## DISPLAY VTAMOPTS

### FUNCTION=CONNECT

Displays the start options that affect connectivity. The start options displayed using FUNCTION=CONNECT are:

ALSREQ	AUTHLEN	CONNTYPE
CPCP	DISCNTIM	DYNHPPFX
DYNPUPFX	DYNNVPFX	ENSEMBLE
HPR	HPRNCPBF	IQDCHPID
MPCACT	NNSPREF	SACONNS
SLOWVAL	SNVC	SSDTMOUT
VRTG	VRTGCPCP	XCFGRPID
XCFINIT	XNETALS	

### FUNCTION=HPREE

Displays the start options that affect High Performance Routing (HPR) and Enterprise Extender (EE). The start options displayed using FUNCTION=HPREE are also displayed using other specifications for FUNCTION. The following start options are displayed using FUNCTION=HPREE:

DYNHPPFX	EEHPRANR	EPORTCK
EEVERIFY	GVBKDLY	HOSTNAME
HPR	HPRARB	HPRCLKRT
HPRITMSG	HPRNCPBF	HPRPSDLY
HPRPSMSG	HPRPST	HPRSESLM
HPRSTALL	IPADDR	MAXEETST
MAXHNRES	MULTPATH	PMTUD
PSRETRY	PSWEIGHT	TCPNAME
UNRCHTIM		

### FUNCTION=MESSAGES

Displays the start options that affect messages. The start options displayed using FUNCTION=MESSAGES are:

ASIRFMSG	CNMTAB	CNNRTMSG
DSIRFMSG	DSPLYDEF	DSPLYMAX
DSPLYWLD	ESIRFMSG	FLDTAB
FSIRFMSG	HPRITMSG	HPRPSMSG
JOINT	IOMSGLIM	LSIRFMSG
MSGLEVEL	MSGMOD	PLUALMSG
PPOLOG	RSIRFMSG	SIRFMSG
SLOWVAL	VARYWLD	

### FUNCTION=NETMGMT

Displays the start options that affect network management. The start options displayed using FUNCTION=NETMGMT are also displayed using other specifications for FUNCTION. The following start options are displayed using FUNCTION=NETMGMT:

CNMTAB	DLURSAW	IPINFO
MXSAWBUF	NMVTLOG	OSIEVENT
OSIMGMT	OSITOP	PDTRCBUF
SAWMAXDS	SAWMXQPK	SNAMGMT
UPDELAY		

**FUNCTION=PERFTUNE**

Displays the start options that affect performance and tuning. The start options displayed using FUNCTION=PERFTUNE are:

AUTOTI	BSCTMOUT	CACHETI
CDRSCTI	CINDXSIZ	DIRSIZE
DIRTIME	HNTSIZE	HPRARB
HPRCLKRT	HPRITMSG	HPRPSDLY
HPRPSMSG	HPRPST	HPRSESLM
HSRTSIZE	IOINT	IOPURGE
IQDIOSTG	MAXEETST	MAXHNRES
MAXLOCAT	MAXLURU	MIHTMOUT
MULTPATH	MXSAWBUF	MXSSCPRU
NCPBUFSZ	NSRTSIZE	NUMTREES
OSIEVENT	OSITOP	OSRTSIZE
PDTRCBUF	PIUMAXDS	PMTUD
PSRETRY	PSWEIGHT	QDIOSTG
SAWMAXDS	SAWMXQPK	SONLIM
SRCHRED	SRCOUNT	SRTIMER
UPDDELAY	VFYRED	VFYREDTI
VOSDEACT	VTAMEAS	

**FUNCTION=RECSTATS**

Displays the start options that affect recording and statistics. The start options displayed using FUNCTION=RECSTATS are:

BSCMDRS	NMVTLOG	PPOLOG
SDLCMDRS	TNSTAT	

**FUNCTION=SECURITY**

Displays the start options that affect session security. The start options displayed using FUNCTION=SECURITY are:

ENCRPREF	ENCRYPTN	IPINFO
SECLVLCF	VERIFYCP	

**FUNCTION=SESSCONT**

Displays the start options that affect session control. The start options displayed using FUNCTION=SESSCONT are:

AFFDELAY	APPNCOS	ASYDE
AUTORTRY	BNDYN	BNORD
CDRDYN	CMPMIPS	CMPVTAM
CPCDRSC	DIALRTRY	DLRORDER
DUPDEFS	DYNADJCP	DYNASSCP
DYNDLGMD	DYNLU	DYNMODTB
EXPFLTRM	HOTIOTRM	HPRSESLM
ISTCOSDF	RESUSAGE	ROUTERES
SMEAUTH	SORDER	SSCPDYN
SSCPORD	SSEARCH	SWNORDER
UNRCHTIM		

**FUNCTION=SSCPCP**

Displays the start options that define SSCP or CP characteristics. The start options displayed using FUNCTION=SSCPCP are:

## DISPLAY VTAMOPTS

BN	CDSERV	DATEFORM
ENHADDR	GWSSCP	HOSTPU
HOSTSA	LIMINTCP	MAINTLVL
MAXSSCPS	MAXSUBA	MXSUBNUM
NETID	NNSPREF	NODETYPE
NQNMODE	SSCPID	SSCPNAME
STRGR	STRMNPS	TRANSLAT
USSTAB		

### FUNCTION=STORAGE

Displays the start options that define storage usage, except for the buffer pool start options. The start options displayed using FUNCTION=STORAGE are:

API64R	CSALIMIT	CSA24
DLRTCB	IRNSTRGE	MAXHNRES
VTAMEAS		

### FUNCTION=SYSPLEX

Displays the start options that affect coupling facility and the sysplex. The start options displayed using FUNCTION=SYSPLEX are also displayed using other specifications for FUNCTION. The following start options are displayed using FUNCTION=SYSPLEX:

AFFDELAY	STRGR	STRMNPS
XCFGRPID	XCFINIT	

### FUNCTION=TRACDUMP

Displays the start options that affect traces and dumps. The start options displayed using FUNCTION=TRACDUMP are:

INOPDUMP	NACPROBE	PSSTRACE	SNAPREQ
----------	----------	----------	---------

### FUNCTION=VTAMINIT

Displays the start options that affect VTAM initialization. The start options displayed using FUNCTION=VTAMINIT are:

COLD	CONFIG	INITDB
LIST	NODELST	OSIMGMT
SNAMGMT	WARM	

### FUNCTION=ZAPCON

Displays the start options that once were zappable constants. The start options displayed using FUNCTION=ZAPCON are also displayed using other specifications for FUNCTION. The start options displayed using FUNCTION=ZAPCON are:

ASIRFMSG	BSCTMOUT	CINDXSIZ
ESIRFMSG	FSIRFMSG	HNTSIZE
HSRTSIZE	INOPDUMP	IOMSGLIM
IRNSTRGE	MAXLURU	MAXSSCPS
MIHTMOUT	MXSAWBUF	MXSSCPRU
MXSUBNUM	NCPBUFSZ	OSRTSIZE
PDTRCBUF	PIUMAXDS	PLUALMSG
PSSTRACE	SAWMAXDS	SAWMXQPK

SDLCMDRS	SIRFMSG	SLUALMSG
SNAPREQ	SSDTMOUT	TRANSLAT
VTAMEAS		

**OPTION=option**

Specifies one or more start options to display. If you specify OPTION, do not specify FUNCTION on the same command. If OPTION=\* is specified or assumed by default, VTAM displays information about all start options except INOPCODE, PROMPT, NOPROMPT, LISTBKUP, and the trace and buffer pool start options. The “DISPLAY INOPCODE command” on page 188 can be used to display the current dump attributes. The “DISPLAY TRACES command” on page 311 and the “DISPLAY BFRUSE command” on page 44 can be used to display trace and buffer pool information. See the z/OS Communications Server: SNA Resource Definition Reference for a description of each start option.

For OPTION=LIST, VTAM displays the name of the start option list used during start processing. The value can be a supplemental list, such as LIST=1A. However, if the supplemental list contains errors and VTAM reverts to using defaults during start processing because LISTBKUP=DEFAULTS is in effect, the user-defined default list will be displayed. You can also issue a D NET,VTAMOPTS,FORMAT=COMPLETE command to find out the origin of the start option values.

For OPTION=CNMTAB, VTAM displays \*BLANKS\* if a user-defined table was not loaded. You can issue a D NET,VTAMOPTS,FORMAT=COMPLETE command to find out the origin of the start option value.

For OPTION=ENCRYPTN, the display might not exactly match the value specified for the ENCRYPTN start option.

The following list shows the values that can be displayed for ENCRYPTN for each value specified on the start option:

Start value	Display value
NO	NO
YES, 24, or 31	24 or 31
CCA	CCA_24 or CCA_31
CUSP	CUSP_24 or CUSP_31

For OPTION=OSIMGMT, VTAM displays only the value of the OSIMGMT start option. It does not indicate whether CMIP services is active.

For OPTION=STRGR or OPTION=STRMNPS, if no coupling facility is in use, this command shows the value as \*\*\*NA\*\*\*. See z/OS MVS Setting Up a Sysplex for more information about coupling facilities and CFRM.

See the z/OS Communications Server: SNA Network Implementation Guide for more information about the sources of start options and which source takes precedence.

## DISPLAY VTAMOPTS

### Resulting display

The resulting display shows:

- The VTAM version and release
- The time and date that VTAM was started
- The component ID
- The node type
- Information about the specified start options

If a start option is not applicable to your configuration, it is displayed with **\*\*\*NA\*\*\***. For example, ROUTERES is applicable only when VTAM is a network node. At an end node, it would be displayed as ROUTERES=**\*\*\*NA\*\*\***.

### Examples

Displaying start options that have been modified:

```
d net,vtamopts,opt=(sscpid,dsplydef,cmpvtam,cpcp,tnstat,hostname),format=modified
IST097I DISPLAY ACCEPTED
IST1188I ACF/VTAM CSV2R10 STARTED AT 11:54:32 ON 03/23/00
IST1349I COMPONENT ID IS 5695-11701-10A
IST1348I VTAM STARTED AS INTERCHANGE NODE
IST1309I START OPTION  CURRENT VALUE      ORIGINAL VALUE  ORIGIN
IST1310I CMPVTAM      2                  0              DEFAULT
IST1310I CPCP         NO                  YES            ATCSTR1A
IST1310I DSPYDEF      32767             65535         ATCSTR00
IST1310I TNSTAT      OFF                 CNSL,TIME=1   OPERATOR
IST924I -----
IST1905I START OPTION  = HOSTNAME
IST1906I CURRENT VALUE = NODENAME.NETID.REALLYLONGDOMAIN.COM
IST1907I ORIGINAL VALUE = NODENAME.NETID.SHORTDOMAIN.COM
IST1908I ORIGIN        = OPERATOR
IST314I END
```

Displaying complete information about selected start options:

```
d net,vtamopts,opt=(dynlu,dsplydef,list,cmpvtam,supp,cpcp,tnstat,hostname),
format=complete
IST097I DISPLAY ACCEPTED
IST1188I ACF/VTAM CSV2R10 STARTED AT 11:54:32 ON 03/23/00
IST1349I COMPONENT ID IS 5695-11701-10A
IST1348I VTAM STARTED AS INTERCHANGE NODE
IST1309I START OPTION  CURRENT VALUE      ORIGINAL VALUE  ORIGIN
IST1310I CMPVTAM      2                  0              DEFAULT
IST1310I CPCP         NO                  YES            ATCSTR1A
IST1310I DSPYDEF      32767             65535         ATCSTR00
IST1310I DYNLU       YES                  YES            ATCSTR1A
IST1310I LIST        1A                  1A            OPERATOR
IST1310I SUPP        NOSUP              NOSUP         ATCSTR00
IST1310I TNSTAT      OFF                 CNSL,TIME=1   OPERATOR
IST924I -----
IST1905I START OPTION  = HOSTNAME
IST1906I CURRENT VALUE = NODENAME.NETID.REALLYLONGDOMAIN.COM
IST1907I ORIGINAL VALUE = NODENAME.NETID.SHORTDOMAIN.COM
IST1908I ORIGIN        = OPERATOR
IST314I END
```

Displaying all VTAM start options:

```
d net,vtamopts
IST097I DISPLAY ACCEPTED
IST1188I VTAM CSV2R1 STARTED AT 15:36:35 ON 11/09/12
IST1349I COMPONENT ID IS 5695-11701-210
IST1348I VTAM STARTED AS INTERCHANGE NODE
```



## DISPLAY VTAMOPTS

IST1189I	AFFDELAY	=	600		ALSREQ	=	NO	
IST1189I	API64R	=	YES		APPNCOS	=	NONE	
IST1189I	ASIRFMSG	=	OLUSSCP		ASYDE	=	TERM	
IST1189I	AUTHLEN	=	YES		AUTORTRY	=	AUTOCAP	
IST1189I	AUTOTI	=	0		BN	=	NO	
IST1189I	BNDYN	=	***NA***		BNORD	=	***NA***	
IST1189I	BSCMDRS	=	(STATS,INOPS)		BSCTMOUT	=	286	
IST1189I	CACHETI	=	8		CDRDYN	=	YES	
IST1189I	CDRSCTI	=	480S		CDSERVR	=	NO	
IST1189I	CDSREFER	=	1		CINDXSIZ	=	8176	
IST1189I	CMPMIPS	=	100		CMPTAM	=	0	
IST1189I	CNMTAB	=	*BLANKS*		CNNRTMSG	=	SUPPRESS	
IST1189I	COLD	=	YES		CONFIG	=	1A	
IST1189I	CONNTYPE	=	APPN		CPCDRSC	=	NO	
IST1189I	CPCP	=	YES		CSALIMIT	=	946461K	
IST1189I	CSA24	=	NOLIMIT		DATEFORM	=	MDY	
IST1189I	DIALRTRY	=	YES		DIRSIZE	=	0	
IST1189I	DIRTIME	=	691200S		DISCNTIM	=	(15,0)	
IST1189I	DLRORDER	=	(STATNID,FIRST)		DLRTCB	=	10	
IST1189I	DLURSAW	=	YES		DSIRFMSG	=	NONE	
IST1189I	DSPLYDEF	=	65535		DSPLYMAX	=	65535	
IST1189I	DSPLYWLD	=	FULLWILD		DUPDEFS	=	ALL	
IST1189I	DYNADJCP	=	YES		DYNASSCP	=	YES	
IST1189I	DYNDLGMD	=	NONE		DYNHPPFX	=	CNR	
IST1189I	DYNLU	=	YES		DYNMODTB	=	NONE	
IST1189I	DYNPUPFX	=	CN		DYNVNPFX	=	CNV	
IST1189I	EEPORCTK	=	NO		EEVERIFY	=	ACTIVATE	
IST1189I	ENCRPREF	=	NONE		ENCRYPTN	=	31	
IST1189I	ENHADDR	=	YES		ENSEMBLE	=	***NA***	
IST1189I	ESIRFMSG	=	ALLSSCP		EXPFLTRM	=	0	
IST1189I	FLDTAB	=	ISTMSFLD		FSIRFMSG	=	OLUSSCP	
IST1189I	GWSSCP	=	YES		HNTSIZE	=	4080	
IST1189I	HOSTNAME	=	*BLANKS*		HOSTPU	=	ISTPUS	
IST1189I	HOSTSA	=	1		HOTIOTRM	=	0	
IST1189I	HPR	=	(RTP,RTP)		HPRARB	=	RESPMODE	
IST1189I	HPRCLKRT	=	STANDARD		HPRITMSG	=	BASE	
IST1189I	HPRNCPBF	=	NO		HPRPSDLY	=	0	
IST1189I	HPRPMSG	=	ALL		HPRPST	=	LOW	480S
IST1189I	HPRPST	=	MEDIUM	240S	HPRPST	=	HIGH	120S
IST1189I	HPRPST	=	NETWRK	60S	HPRSESLM	=	NOLIMIT	
IST1189I	HPRSTALL	=	0		HSRTSIZE	=	9973	
IST1189I	INITDB	=	ALL		INOPDUMP	=	OFF	
IST1189I	IOINT	=	180		IOMSGLIM	=	100	
IST1189I	IOPURGE	=	0		IPADDR	=	0.0.0.0	
IST1189I	IPINFO	=	SENDALL		IQDCHPID	=	***NA***	
IST1189I	IQDIOSTG	=	7.8M(126 SBALS)		IRNSTRGE	=	0	
IST1189I	ISTCOSDF	=	INDLU		LIMINTCP	=	***NA***	
IST1189I	LIST	=	1A		LSIRFMSG	=	NONE	
IST1189I	MAINTLVL	=	*BLANKS*		MAXEETST	=	500	
IST1189I	MAXHNRES	=	100		MAXLOCAT	=	5000	
IST1189I	MAXLURU	=	6144		MAXSSCPS	=	10	
IST1189I	MAXSUBA	=	255		MIHTMOUT	=	1800	
IST1189I	MPCACT	=	WAIT		MSGLEVEL	=	BASE	
IST1189I	MSGMOD	=	NO		MULTPATH	=	NO	
IST1189I	MXSAWBUF	=	10000		MXSSCPRU	=	4096	
IST1189I	MXSUBNUM	=	511		NACPROBE	=	NODUMP	
IST1189I	NCPBUFSZ	=	512		NETID	=	NETA	
IST1189I	NMVTLOG	=	NPDA		NNSPREF	=	***NA***	
IST1189I	NODELST	=	*BLANKS*		NODETYPE	=	NN	
IST1189I	NQNMODE	=	NAME		NSRTSIZE	=	*BLANKS*	
IST1189I	NUMTREES	=	100		OSIEVENT	=	PATTERNS	
IST1189I	OSIMGMT	=	NO		OSITOP0	=	ILUCDRSC	
IST1189I	OSRTSIZE	=	43		PDTRCBUF	=	2	
IST1189I	PIUMAXDS	=	200		PLUALMSG	=	NOSUPP	
IST1189I	PMTUD	=	TCPVALUE		PPOLOG	=	NO	
IST1189I	PSRETRY	=	LOW	0S	PSRETRY	=	MEDIUM	0S
IST1189I	PSRETRY	=	HIGH	0S	PSRETRY	=	NETWRK	0S

## DISPLAY VTAMOPTS

```

IST1189I PSRETRY = SCHED
IST1189I PSWEIGHT = LESSTHAN
IST1189I RESUSAGE = 100
IST1189I RSIRFMSG = ALLSSCP
IST1189I SAVERSCV = (NO,KEEP)
IST1189I SAWMXQPK = 0
IST1189I SECLVLCP = ***NA***
IST1189I SLOWVAL = (0,0)
IST1189I SMEAUTH = DISCARD
IST1189I SNAPREQ = 1000
IST1189I SONLIM = (60,30)
IST1189I SRCHRED = OFF
IST1189I SRTIMER = 30S
IST1189I SSCPID = 1
IST1189I SSCPORD = PRIORITY
IST1189I SSEARCH = YES
IST1189I STRMNPS = ***NA***
IST1189I SWNORDER = (CPNAME,FIRST)
IST1189I TDUDIAG = 1000
IST1189I TOPOTIME = 15:37
IST1189I UNRCHTIM = (0,0)
IST1189I USSTAB = *BLANKS*
IST1189I VERIFYCP = NONE
IST1189I VFYREDTI = OFF
IST1189I VRTG = NO
IST1189I VTAMEAS = 32001
IST1189I XCFGRPID = ***NA***
IST1189I XNETALS = NO
IST314I END

PSSTRACE = NORB
QDIOSTG = 4.0M(64 SBALS)
ROUTERES = 1
SACONNS = YES
SAWMAXDS = 100
SDLCMDRS = (STATS,INOPS)
SIRFMSG = ALLSSCP
SLUALMSG = NOSUPP
SNAMGMT = NO
SNVC = ***NA***
SORDER = APPN
SRCOUNT = 10
SSCPDYN = YES
SSCPNAME = SSCP1A
SSDTMOUT = 30
STRGR = ***NA***
SUPP = NOSUP
TCPNAME = *BLANKS*
TNSTAT = OFF
TRANSLAT = (0,1,2,3,4,5,6,7)
UPPDELAY = 60S
VARYWLD = FULLWILD
VFYRED = YES
VOSDEACT = NO
VRTGCPCP = YES
WARM = NO
XCFINIT = ***NA***

```

---

## DISPLAY VTAMSTOR command

**Display storage contents associated with a storage address:**

```

▶▶ DISPLAY —NET—, —VTAMSTOR—, —ADDRESS—== storage_address —————▶

```

```

┌, —LENGTH—== 32 ───────────────────────────────────────────────────────────▶
└, —LENGTH—== decimal_number_of_bytes ───────────────────────────────────▶
└, —XLENGTH—== hex_number_of_bytes ───────────────────────────────────▶

```

**Display storage contents associated with a module:**

```

▶▶ DISPLAY —NET—, —VTAMSTOR—, —MODULE—== module_name —————▶▶

```

**Display storage contents associated with a network address:**

```

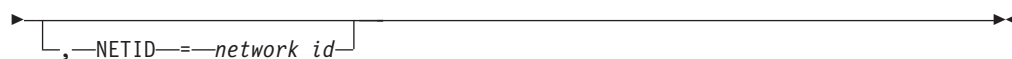
▶▶ DISPLAY —NET—, —VTAMSTOR— —————▶

```

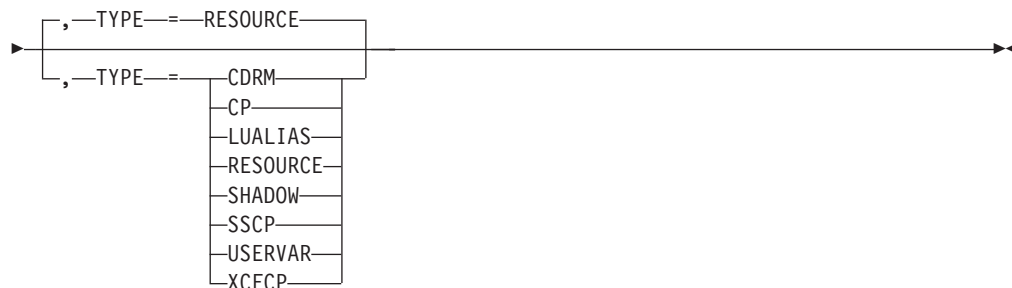
```

▶, —NETADDR—== ( ───────────────────, —element_address— ┌, —X—
└, —subarea_address— ─────────────────── └, —D—
└, —X— ─────────────────── ) —————▶

```



**Display storage contents associated with a resource name:**



**Abbreviations**

Operand	Abbreviation
ADDRESS	ADDR
DISPLAY	D
LENGTH	LEN
MODULE	MOD
RESOURCE	RSC
XLENGTH	XLEN

**Purpose**

The DISPLAY VTAMSTOR command displays storage contents associated with VTAM modules and resources.

**Operands**

**ADDRESS=storage\_address**

Specifies the address (in hexadecimal). The storage address must be in the range of 0-7FFFFFFF.

**LENGTH=decimal\_number\_of\_bytes**

Specifies the number of bytes in decimal to display. The valid range is 1-value of DSPLYMAX multiplied by 16.

**MODULE=module\_name**

Specifies a module name (or CSECT name). The module name must be eight characters in length and begin with the VTAM prefixes ACY, IST, IUT, or IVT.

**NETADDR**

Specifies the network address of a resource. The following notes apply to subarea\_address and element\_address:

**subarea\_address**

Specifies the subarea portion of the network address. Leading zeros are

## DISPLAY VTAMSTOR

acceptable but not required. If omitted, *subarea\_address* defaults to the subarea number of the host. Acceptable values are 1–FFFF in hexadecimal; 1–65535 in decimal. If the value is greater than the host's MXSUBNUM start option, the command will be rejected.

### **element\_address**

Specifies the element portion of the network address. Leading zeros are acceptable but not required. Acceptable values range from 0–FFFF in hexadecimal; 0–65535 in decimal.

- D** Indicates that the subarea and element addresses are specified in decimal.
- X** Indicates that the subarea and element addresses are specified in hexadecimal.

### **Note:**

1. To display an Enhanced network address, you must incorporate the index into either the *subarea\_address* or the *element\_address*. Leading zeros are acceptable but not required. If omitted, the index defaults to 0. Acceptable values are 1-1FA in hexadecimal and 1-506 in decimal.
2. To incorporate the index into either the *subarea\_address* or the *element\_address*, perform the following actions:
  - In hexadecimal format, concatenate the index in front of the 2-byte subarea or element. For example, subarea 2, index 1, element 3 can be entered as NETADDR=(10002,3) or NETADDR=(2,10003).
  - In decimal format, multiply the index by 65536 and add it to the subarea or element. For example, subarea 2, index 1, element 3 can be entered as NETADDR=(65538,3,d) or NETADDR=(2,65539,d).

### **NETID=network\_id**

Specifies the network identifier. If omitted, the network identifier of the host is used.

### **RESOURCE=resource\_name**

Specifies the network-qualified name of the resource for which the resource definition table entry is to be displayed. If the network identifier is omitted, the network of the host is used.

**Tip:** If you are specifying a model resource (APPL or CDRSC), you can use wildcard characters in the name you specify. The use of wildcard characters on the RESOURCE operand does not depend on the value of the DSPLYWLD start option.

### **TYPE**

Specifies the type of resource that the RESOURCE operand identifies. This operand is valid only when used with the RESOURCE operand. If several types of resources share the same name, TYPE can be used to identify which resource the command should act on.

#### **TYPE=CDRM**

Displays the resource definition table entry for the SSCP (represented as a CDRM).

#### **TYPE=CP**

Displays the resource definition table entry for the host CP (represented as an application) or an adjacent CP (represented as a CDRSC)

#### **TYPE=LUALIAS**

Displays the resource definition table entry for the CDRSC whose name is

associated with the LUALIAS. If a network-qualified name is specified, VTAM does not search for an LUALIAS with that resource name. For more information about CDRSCs that are defined with an LUALIAS, see the *z/OS Communications Server: SNA Resource Definition Reference*.

**TYPE=RESOURCE**

Displays the resource definition table entry for the resource named on the RESOURCE operand. VTAM searches for the resource in the following order:

1. VTAM searches for an SSCP (CDRM), a host CP (application), or an adjacent CP (CDRSC) by the name specified on the RESOURCE operand and displays the resource definition table entry for the first resource found.
2. If VTAM does not find an SSCP, a host CP, or an adjacent CP, it searches for a resource with the name specified on the RESOURCE operand and displays the resource definition table entry for the resource, if it finds it.
3. If VTAM does not find a resource by that name, it searches for a USERVAR with the name specified on the RESOURCE operand and displays the resource definition table entry for the resource, if it finds it.
4. If VTAM does not find a USERVAR by that name, or a USERVAR is found but the resource defined as the value of the USERVAR is not found, it searches for an LUALIAS with the name specified on the RESOURCE operand and displays the resource definition table entry for the CDRSC, if it finds it.

**TYPE=SHADOW**

Displays the resource definition table entry for a shadow resource, if it exists. Included in the information displayed is the real resource that caused the displayed resource to become a shadow resource.

For more information about shadow resources, see the *z/OS Communications Server: SNA Network Implementation Guide*.

**TYPE=SSCP**

Displays the resource definition table entry for the SSCP (represented as a CDRM).

**TYPE=USERVAR**

Displays the resource definition table entry for the resource whose name is associated with the USERVAR.

**TYPE=XCFCP**

For an APPN node, this displays the resource definition table entry (RDTE) for the dynamic XCF local SNA PU representing the connection to another VTAM in the XCF group, when the RESOURCE operand specifies the CP name or SSCP name of the other VTAM. For a pure subarea node, this displays the RDTE of the dynamic XCF TRLE representing the connectivity to another VTAM node in the XCF group, when the RESOURCE operand specifies the CP name or SSCP name of the other VTAM.

**XLENGTH=hex\_number\_of\_bytes**

Specifies the number of bytes in hexadecimal to display. The valid range is 1–value of DSPLYMAX multiplied by 16, converted to hexadecimal.

**Resulting display**

The resulting display differs depending on the operands specified.

## DISPLAY VTAMSTOR

- If the ADDRESS operand is specified, the command displays the contents of storage at the specified address.
- If the MODULE operand is specified, the command displays:
  - The entry point address of the module
  - The service level of the module
  - The first 32 bytes of the module
- If the NETADDR operand is specified, the command displays:
  - The name of the associated resource
  - The resource definition table entry
- If the RESOURCE operand is specified, the command displays:
  - The resource definition table entry

### Examples

Displaying storage contents associated with a storage address:

```
d net,vtamstor,address=8756000,length=128
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = VTAMSTOR
IST1573I STORAGE DISPLAY BEGINS AT LOCATION 08756000
IST1574I  -010 0881E120 00000000 E3406000 000C8010 *.A.....T -.....
IST1574I  +000 00000000 00000000 B376630A 68184202 *.....
IST1574I  +010 B3765E66 C27F6007 0878C580 0881DFE0 *.;.B"-...E..A..
IST1574I  +020 D9C5D3E2 1A240000 08926B90 0886F010 *RELS.....K,..F0.
IST1574I  +030 88F11578 00000000 0886F010 00000000 *H1.....F0....
IST1574I  +040 E4D72342 1A000000 006F6318 006F6320 *UP.....?..?..
IST1574I  +050 006F6450 000000D4 04000004 00000000 *..?..&...M.....
IST1574I  +060 D9C5D3E2 1A150000 08926B90 08D631F0 *RELS.....K,..0.0
IST1574I  +070 88DE40D8 00000000 006F6318 00000000 *H. Q.....?.....
IST314I END
```

Displaying storage contents associated with a module:

```
d net,vtamstor,module=istinm01
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = VTAMSTOR
IST1571I ISTINM01 ENTRY POINT IS 01EA00E8 LEVEL IS 96.184
IST1574I  +000 47F0F014 0FC9E2E3 C9D5D4F0 F140F9F6 *.00..ISTINM01 96
IST1574I  +010 4BF1F8F4 90ECD00C 18CF41B0 CFFF50D0 *.184.....&.
IST314I END
```

Displaying storage contents associated with a network address:

```
d net,vtamstor,netaddr=(10001,A)
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = VTAMSTOR
IST075I NAME = NETA.SSCP2A, TYPE = ADJACENT CP
IST1863I SUBAREA INDEX ELEMENT
IST1864I X'0001' ( 1) X'0001' ( 1) X'000A' ( 10)
IST1573I RDTE STORAGE DISPLAY BEGINS AT LOCATION 06EDB0D0
IST1574I  +000 E2E2C3D7 F2C14040 86ECB02C 00830700 *SSCP2A F....C..
IST1574I  +010 00000000 00000000 00200000 06EDB180 *.....
IST1574I  +020 06EDB138 00000000 FFAC1088 00000000 *.....H....
IST1574I  +030 0741A048 00000000 00000000 05050505 *.....
IST1574I  +040 00090001 10000000 00000000 00000000 *.....
IST1574I  +050 00000000 00000000 C06D0100 00800000 *....._.....
IST1574I  +060 00000000 00000000 06E0C188 06E0C010 *.....AH....
IST1574I  +070 06E0C188 06E0C010 00000002 00000000 *..AH.....
IST1574I  +080 02010101 24700033 38000000 00000000 *.....
IST1574I  +090 00000000 00000000 00000000 00000000 *.....
IST1574I  +0A0 00000000 06DFE010 06EDD070 00000000 *.....
IST1574I  +0B0 B776A13C E49F1B88 01000000 20000000 *....U..H.....
IST1574I  +0C0 00000000 06DF7010 E2E2C3D7 F1C14040 *.....SSCP1A
```

```

IST1574I +0D0 00000000 00000000 D5C5E3C1 40404040 *.....NETA
IST1574I +0E0 E2E2C3D7 F2C14040 40404040 40404040 *SSCP2A
IST1574I +0F0 00000000 00000000 00000000 00000000 *.....
IST1574I +100 00009004 00F00000 06E00010 00000000 *.....0.....
IST1574I +110 00000000 E2E2C3D7 F2C14040 D5C5E3C1 *....SSCP2A NETA
IST1574I +120 40404040 00000000 00000000 00000000 * .....
IST1574I +130 00000000 *....
IST924I -----
IST1573I RDTE PROFILE STORAGE DISPLAY BEGINS AT LOCATION 06EDD070
IST1574I +000 00000001 00000000 00000000 00000000 *.....
IST1574I +010 00000000 00000000 00000000 00000000 *.....
IST1574I +020 00000000 40404040 40404040 40404040 *....
IST1574I +030 40404040 00000000 00000000 00000000 * .....
IST1574I +040 00000000 00000000 00000000 00000000 *.....
IST1574I +050 00000000 00000000 *.....
IST314I END

```

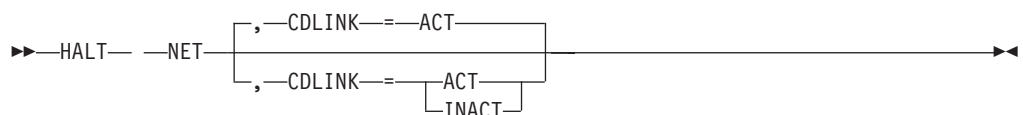
Displaying storage contents associated with a resource name:

```

d net.vtamstor,resource=neta.appl8
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = VTAMSTOR
IST075I NAME = NETA.APPL8, TYPE = APPL
IST1863I SUBAREA INDEX ELEMENT
IST1864I X'0001' ( 1) X'0001' ( 1) X'0055' ( 85)
IST1573I RDTE STORAGE DISPLAY BEGINS AT LOCATION 06ED34A4
IST1574I +000 C1D7D7D3 F8404040 80000000 00550200 *APPL8 .....
IST1574I +010 00000001 00010055 00000000 06ED3554 *.....
IST1574I +020 06ED350C 00000124 00000124 00000000 *.....
IST1574I +030 06ED1C08 00000000 00000000 02000200 *.....
IST1574I +040 00010008 10010010 00000000 00E030A8 *.....Y
IST1574I +050 800219E6 00000000 C06D0000 00800000 *...W...._.....
IST1574I +060 00000000 00000000 00000000 00000000 *.....
IST1574I +070 00000000 00000000 00000000 00000000 *.....
IST1574I +080 07010701 00750000 08800000 06ED3380 *.....
IST1574I +090 06ED35C8 00000000 00000000 20000400 *...H.....
IST1574I +0A0 00000000 00000000 06EDD010 00000000 *.....
IST1574I +0B0 00000000 00000000 00000000 00000000 *.....
IST1574I +0C0 01FD0000 00000000 0000A000 0001C000 *.....
IST1574I +0D0 C1D7D7D3 F8404040 40404040 40404040 *APPL8
IST1574I +0E0 00000000 00000000 00000000 00000000 *.....
IST1574I +0F0 00000000 00000000 00000000 00000000 *.....
IST1574I +100 00000000 00000000 00000000 00000000 *.....
IST1574I +110 40404040 40404040 000F4240 00000000 * ...
IST1574I +120 00000000 *....
IST924I -----
IST1573I RDTE PROFILE STORAGE DISPLAY BEGINS AT LOCATION 06EDD010
IST1574I +000 00000046 00000000 00000000 00000000 *.....
IST1574I +010 00000000 00000000 00000000 00000000 *.....
IST1574I +020 00000000 00000000 00000000 00000000 *.....
IST1574I +030 00000000 00000000 00000000 00000000 *.....
IST1574I +040 00000000 00000000 00000000 00000000 *.....
IST1574I +050 00000000 00000000 *.....
IST314I END

```

## HALT command



# HALT

## Abbreviations

Operand	Abbreviation
HALT	Z

## Purpose

The HALT command requests a normal halt of VTAM without disrupting active LU-LU sessions. (See also the "HALT CANCEL command" and the "HALT QUICK command" on page 345.)

CS z/OS upper layer protocol (ULP) service access points (SAPs) will also not be disrupted.

When normal HALT is issued for a VTAM, none of the sessions on that VTAM will be able to be recovered using the MNPS function.

If VTAM was defined as a network node or interchange node and a checkpoint data set is available, VTAM takes checkpoints of the directory database and the topology database during normal HALT processing.

## Operands

### CDLINK

Specifies whether any active, leased, cross-domain SDLC links between NCPs are to remain active after the NCPs have been deactivated.

This operand is effective only on the first HALT command. Any CDLINK specifications on subsequent HALT commands are ignored.

### CDLINK=ACT

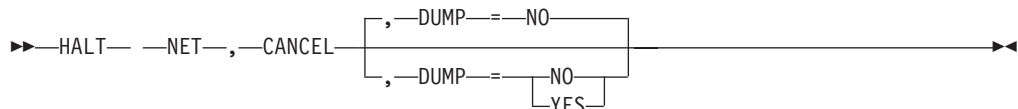
Specifies that any active cross-domain SDLC links are to remain active after the NCP major nodes are deactivated, so that information being routed through the NCPs can continue to be so routed. That is, any cross-domain sessions that use the NCPs as transit nodes can continue.

### CDLINK=INACT

Specifies that cross-domain SDLC links are to be deactivated, along with the rest of the domain. This disrupts any sessions through those cross-domain links.

---

## HALT CANCEL command



## Abbreviations

Operand	Abbreviation
HALT	Z



### Purpose

The HALT CANCEL command should be used if the HALT and HALT QUICK commands do not terminate VTAM. This command depends only on the proper functioning of the operating system's abnormal termination facilities.

CS z/OS upper layer protocol (ULP) service access points (SAPs) will be abnormally terminated.

This command does not terminate multinode persistent sessions; therefore, the sessions are recoverable.

The HALT CANCEL command results in an abend of VTAM with a system completion code of X'0A9'. No further I/O operations are performed. VTAM application programs having a TPEND exit are notified of a VTAM shutdown, and data in the process of being transmitted might be lost. If the TPEND exit cannot be scheduled, the application program is abnormally terminated. In extraordinary circumstances, the operator might have to cancel some application programs. It is a good idea to shut down application programs (have them close their VTAM ACB) before you issue the HALT CANCEL command.

It is possible that the MVS operator console might be hung after you issue a HALT CANCEL command, for example if a message group is truncated before it can be displayed. You can clear the console by issuing the MVS command **K Q**.

VTAM does **not** take checkpoints of the directory database and the topology database during HALT CANCEL processing.

### Operands

#### DUMP

Specifies whether a console dump is to be written to a SYS1.DUMP data set before VTAM is terminated.

#### DUMP=YES

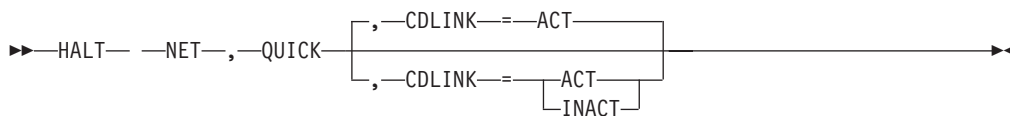
Specifies that a console dump is to be written before VTAM is terminated.

#### DUMP=NO

Specifies that a console dump is not to be written before VTAM is terminated.

---

## HALT QUICK command



### Abbreviations

Operand	Abbreviation
HALT	Z

## HALT QUICK

### Purpose

You can use the HALT QUICK command to halt VTAM more quickly than with a normal HALT command. However, HALT QUICK disrupts LU-LU sessions. In a session using multiple resources, you must wait for any deactivation requests to complete before you issue this command. Otherwise, you will have to issue the VARY INACT command to force deactivation of the session. (See the **TYPE** operand of the "VARY INACT command" on page 568 for more information about forced deactivation.)

VTAM will initiate deactivation of Communications Server z/OS upper layer protocol (ULP) service access points (SAPs).

This command causes sessions to terminate. Multinode persistent sessions are not recoverable.

If a VTAM dump, load, or restart subtask is active when a HALT QUICK command is issued, the subtask is detached and a system completion code of X'13E' or X'33E' results. VTAM termination continues.

**Rule:** You must reply to any VTAM operator messages that are outstanding before HALT QUICK can complete.

If VTAM was defined as a network node or interchange node and a checkpoint data set is available, VTAM takes checkpoints of the directory database and the topology database during HALT QUICK processing.

### Operands

#### CDLINK

Specifies whether any active cross-domain SDLC links between NCPs are to remain active after the NCPs have been deactivated.

This operand is effective only on the first HALT QUICK command. Any CDLINK specifications on subsequent HALT QUICK commands are ignored.

#### CDLINK=ACT

Specifies that any active, leased, cross-domain SDLC links are to remain active after the NCP major nodes are deactivated, so that information being routed through the NCPs can continue to be so routed. That is, any cross-domain sessions that use the NCPs as transit nodes can continue.

#### CDLINK=INACT

Specifies that cross-domain SDLC links are to be deactivated, along with the rest of the domain. This disrupts any sessions through these cross-domain links.

---

## MODIFY ALSLIST command

### Add an entry to an adjacent link station list:

```
►►—MODIFY— —procname—, —ALSLIST—, —ACTION—=—ADD—►►
►, —ID—=—*——cdrsc_major_node—
—cdrsc_name—, —NEWALS—=—adjacent_link_station_name—►►
```

**Delete an entry from an adjacent link station list:**

```

▶▶ MODIFY procname, ALSLIST, ACTION=DELETE
▶, ID=*cdrsc_major_node, OLDALS=adjacent_link_station_name
      |cdrsc_name

```

**Replace an entry in an adjacent link station list:**

```

▶▶ MODIFY procname, ALSLIST, ACTION=REPLACE
▶, ID=*cdrsc_major_node, NEWALS=adjacent_link_station_name
      |cdrsc_name
▶, OLDALS=adjacent_link_station_name

```

**Create a clone CDRSC or a dynamic CDRSC and add entry in adjacent link station list:**

```

▶▶ MODIFY procname, ALSLIST, ACTION=CREATE
▶, ID=cdrsc_name, NEWALS=adjacent_link_station_name

```

**Abbreviations**

Operand	Abbreviation
MODIFY	F
ACTION=CREATE	ACTION=CRE
ACTION=DELETE	ACTION=DEL
ACTION=REPLACE	ACTION=REP
NEWALS	NEW
OLDALS	OLD

**Purpose**

The MODIFY ALSLIST (adjacent link station list) command enables you to create or change an entry in the default adjacent link station list for an independent LU. A change to the adjacent link station list affects only sessions established after the change is made. It does not affect active or pending active sessions.

**Operands**

**procname**

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

## MODIFY ALSLIST

### **ACTION**

Specifies whether VTAM is to create a dynamic or clone cross-domain resource, add a PU to the adjacent link station list, delete a PU from the list, or replace a PU currently named in the adjacent link station list with another PU.

### **ACTION=ADD**

Adds a PU to the adjacent link station list for the existing independent LU specified. Specify the name of the PU on the NEWALS operand.

**Tip:** You can code NEWALS=ISTAPNPU instead of a real adjacent link station name. ISTAPNPU is a generic representation for any APPN-capable adjacent link station. If VTAM finds ISTAPNPU in the adjacent link station list for an independent LU, VTAM treats ISTAPNPU as if it were any active APPN-capable adjacent link station when trying to determine whether to attempt routing through the APPN network.

### **ACTION=CREATE**

Creates a clone cross-domain resource or a dynamic cross-domain resource for the independent LU specified on the ID operand. The dynamic cross-domain resource is created only if the independent LU does not exist and a clone CDRSC cannot be created from an active model CDRSC. If the independent LU exists or if it is dynamically created (from a model CDRSC or in ISTCDRDY), the adjacent link station list for the independent LU is updated to include the specified adjacent link station (ALS).

If the specified independent LU is dynamic (that is, it was created as a dynamic cross-domain resource and ACTION=ADD or ACTION=CREATE added an ALS to the list, or ACTION=CREATE created the resource), but the ALS (PU) has DYNLU=NO specified on its definition statement, the ALS is added to the ALS list but it is not usable for sessions with the dynamically defined independent LU.

The CDRSCTI start option determines how long the newly created dynamic cross-domain resource can remain without active sessions before it is deleted. The CDRSCTI start option has no effect on newly created clone CDRSCs; they remain active until some other action on them occurs, such as a VARY INACT operator command.

Specify the name of the PU to be created on the NEWALS operand.

### **ACTION=DELETE**

Deletes an existing PU from the adjacent link station list. Specify the name of the PU to be deleted on the OLDALS operand.

**Tip:** You can code OLDALS=ISTAPNPU instead of a real adjacent link station name. ISTAPNPU is a generic representation for any APPN-capable adjacent link station. If VTAM finds ISTAPNPU in the adjacent link station list for an independent LU, VTAM treats ISTAPNPU as if it were any active APPN-capable adjacent link station when trying to determine whether to attempt routing through the APPN network. This command does *not* delete any real PU names that are APPN-capable; it deletes only the ISTAPNPU entry.

### **ACTION=REPLACE**

Adds a PU to the adjacent link station list and deletes an existing PU from that list. Specify the name of the PU to be added on the NEWALS operand and the name of the PU to be deleted on the OLDALS operand. Both the NEWALS and the OLDALS operands are required if ACTION=REPLACE.

**Tip:** You can code NEWALS=ISTAPNPU or OLDALS=ISTAPNPU instead of a real adjacent link station name. ISTAPNPU is a generic representation for any APPN-capable adjacent link station. If VTAM finds ISTAPNPU in the adjacent link station list for an independent LU, VTAM treats ISTAPNPU as if it were any APPN-capable adjacent link station when trying to determine whether to attempt routing through the APPN network.

**ID** Specifies the cross-domain resources that are to be changed.

**ID=cdrsc\_major\_node**

Specifies that this command applies to all cross-domain resources that apply to that major node.

**ID=cdrsc\_name**

Specifies that this command applies to the specified cross-domain resource (independent LU) that is to be created or changed. You can specify a network-qualified name for the independent LU.

**Tip:** If you are specifying a model CDRSC, you can use wildcard characters in the name you specify. The use of wildcard characters on the ID operand does not depend on the value of the DSDPLYWLD start option.

**Restriction:** A model CDRSC cannot be specified when ACTION=CREATE is specified.

**ID=\***

Specifies that this command applies to all cross-domain resources.

**NEWALS=adjacent\_link\_station\_name**

Specifies the name of the new adjacent link station (PU) for the independent LU specified. You use this operand to add a PU or to identify a new PU that will replace an existing one in the adjacent link station list.

**OLDALS=adjacent\_link\_station\_name**

Specifies the name of the existing adjacent link station (PU) for the independent LU specified. You use this operand to delete a PU or to identify an existing PU that is to be replaced by another PU in the adjacent link station list.

## MODIFY APINGDTP command

►►—MODIFY— —*procname*—,—APINGDTP—,—INSTANCE—=—UNLIMITED  
*value*—►►

### Purpose

Using the MODIFY APINGDTP command, you can change the number of APINGD transaction programs permitted to run concurrently for responding to APING requests from other nodes.

See the z/OS Communications Server: SNA Network Implementation Guide for more information about APING.

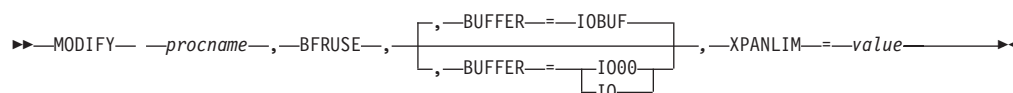
### Operands

**procname**

The procedure name for the command. If *procname* in the START command



## MODIFY BFRUSE command



### Abbreviations

Operand	Abbreviation
MODIFY	F
BUFFER	BUF

### Purpose

Using the MODIFY BFRUSE command, you can dynamically change the total amount of common service area (CSA) storage that VTAM is allowed to use for the IO buffer pool. See *z/OS Communications Server: SNA Resource Definition Reference* for information about the *xpanlim* parameter of IOBUF buffer pool start option.

#### Note:

1. This command can be used to increase the IO buffer pool expansion limit by selecting a value greater than the current total storage used for the IO buffer pool. It can also be used to set the value to 0, which removes the expansion limit. This means that the IO buffer pool has no expansion limit. It will be set to the current CSALIMIT value.
2. This command fails if a value of 0 is coded for the *xpanno* parameter for the IOBUF operand at VTAM startup (indicating static buffering specified).
3. If the XPANLIM value is less than the current allocated total IO buffer pool storage, the expansion limit will be set to the current allocated IO buffer pool storage.
4. If the XPANLIM value is greater than the current CSALIMIT value, the expansion limit will be set to the current CSALIMIT value.

### Operands

#### procname

The procedure name for the command. If *procname* in the START command is specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

#### BFRUSE

Specifies that the command is to modify a VTAM buffer pool value.

#### BUFFER=IOBUF | I000 | IO

This parameter is optional, as the XPANLIM parameter applies only to the IOBUF pool.

## MODIFY BFRUSE

### XPANLIM=value

Specifies the new total size for the IO buffer pool including the base allocation and expansions.

*Value* can be specified in any of the following forms:

*n* or *nk*

The number of 1024-byte increments to be used. The value of *n* is rounded up to the next multiple of 4.

*qM* The number of 1 MB increments that are to be used.

Though the range for *value* is 0 - 2097152 KB, the valid range is between the current pool allocation and the VTAM CSALIMIT value. If a value is specified less than that currently in use (except 0), the current in-use value will become the expansion limit. If a value is specified greater than the current VTAM CSA limit, the expansion limit will be set to the VTAM CSA limit.

A value of 0 is also valid and is used to remove the IO buffer pool expansion limit.

See "DISPLAY BFRUSE command" on page 44 for information about how to use that command to determine the current CSALIMIT value and the current IOBUF storage usage.

The current VTAM CSALIMIT setting is contained in message IST449I.

The current total IO buffer pool allocation is obtained by multiplying the Max Total value from message IST923I by the BUFSIZE value in message IST920I. This is an approximate value, as the IO buffer size selected may result in unused space in a 4K page. This unused space is added to the total space calculation for expansion limit.

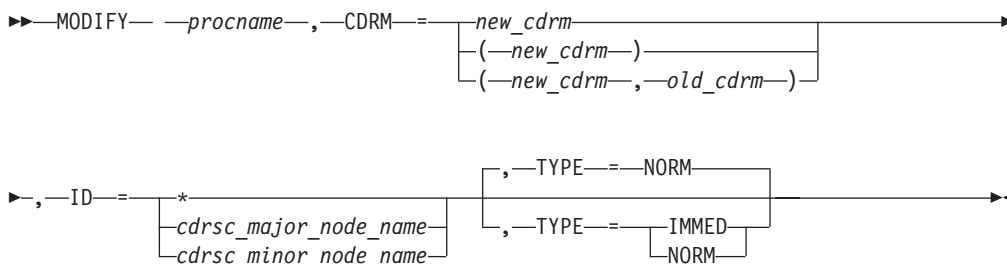
You can also determine whether dynamic buffering is in effect for the IOBUF pool by checking to see whether the EXP INCREMENT field in message IST920I contains a numeric value. (A value of \*NA\* indicates that xpanno=0 was coded on the IOBUF start option at VTAM startup, and that static buffering is to be used.)

### Examples

```
Modify vtam,bfruse,buf=iobuf,xpanlim=2400K
IST097I  MODIFY ACCEPTED
IST495I  XPANLIM HAS BEEN SET TO 2400K
IST223I  MODIFY BFRUSE COMMAND COMPLETED
IST314I  END
```

---

## MODIFY CDRM command





## Abbreviations

Operand	Abbreviation
MODIFY	F
TYPE=IMMED	IMMED or I or TYPE=I
TYPE=NORM	NORM or N or TYPE=N

## Purpose

The MODIFY CDRM (cross-domain resource manager) command tells VTAM which SSCP (CDRM) is the owner of a particular cross-domain resource (CDRSC) or set of CDRSCs. Ongoing sessions of CDRSCs affected by this command are not disrupted. The command changes only the name of the external CDRM responsible for all future session setups with these CDRSCs.

DISPLAY commands issued before a new name takes effect show the old owner CDRM name.

If the cross-domain resource affected by the MODIFY CDRM command was predefined with a CDRM coded on the CDRSC definition statement, the MODIFY CDRM command changes the CDRM that owns the CDRSC for the current and subsequent sessions. If the CDRSC was not predefined with CDRM coded, the change is temporary. After such new or existing sessions terminate, the CDRM is changed back to having no predefined CDRM coded.

## Operands

### procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

### CDRM

Specifies the new CDRM to be associated with the CDRSCs, and the CDRM that it replaces.

**Note:** For a CDRM, you can specify a network-qualified name, but this does not remove the restriction that the non-network-qualified CDRM name must be unique across networks.

### CDRM=new\_cdrm

Specifies the name of the new CDRM to associate with the CDRSCs.

### CDRM=(new\_cdrm,old\_cdrm)

Specifies both the new CDRM to associate with the CDRSCs and the CDRM that was previously associated with the CDRSCs. If *old\_cdrm* is specified, only the CDRM names that match this *old\_cdrm* name are changed.

**ID** Identifies the CDRSC major or minor node for which the owning CDRM name is to be changed.

## MODIFY CDRM

### ID=cdrsc\_major\_node\_name

Changes the owning CDRM for all CDRSCs in the hierarchy under the major node. The major node name can be specified as a network-qualified name.

### ID=cdrsc\_minor\_node\_name

Changes the owning CDRM for only the specified minor node. The minor node name must be specified as a network-qualified name, if the CDRSC represents a real cross network resource.

**Tip:** If you are specifying a model CDRSC, you can use wildcard characters in the name you specify. The use of wildcard characters on the ID operand does not depend on the value of the DSPLYWLD start option.

### ID=\*

Changes the owning CDRM for all CDRSCs known to VTAM.

### TYPE

Indicates whether CDRM takeover occurs without waiting for any sessions that are present to end.

#### TYPE=IMMED

Indicates that the CDRM is to be changed immediately, regardless of the presence of sessions.

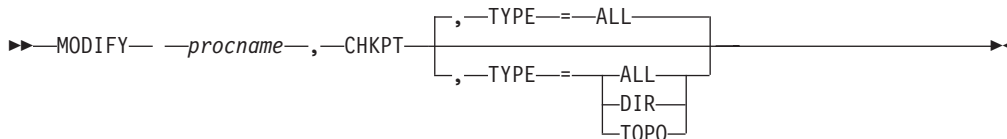
#### TYPE=NORM

Indicates that the MODIFY CDRM command waits until all sessions have ended before changing the CDRM. If no session exists for a CDRSC affected by the MODIFY CDRM command, the CDRM is changed immediately (as with TYPE=IMMED).

If sessions are active or queued for a specific CDRSC affected by a MODIFY CDRM command, the current owning CDRM remains in effect until all active and queued sessions with the resource have been terminated. At that time, the owning CDRM name is changed and the new CDRM name takes effect.

---

## MODIFY CHKPT command



### Abbreviations

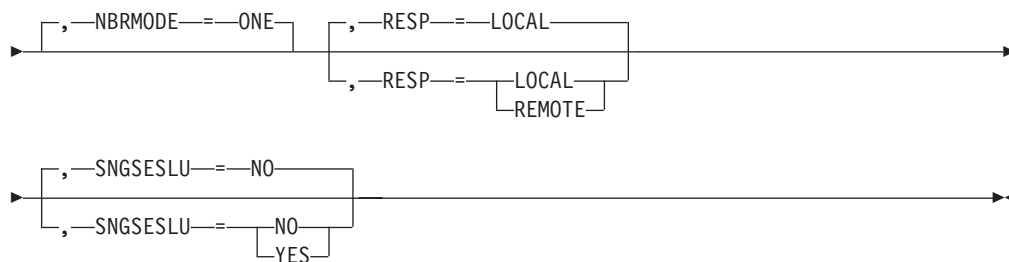
Operand	Abbreviation
MODIFY	F

### Purpose

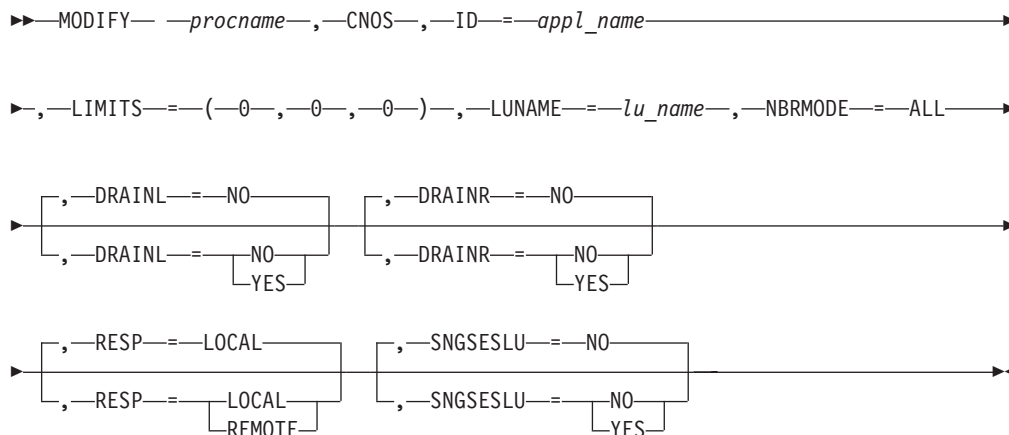
The MODIFY CHKPT (checkpoint) command saves a copy of the directory database or the topology database (or both) to a checkpoint data set. During a VTAM recycle, you can restart VTAM with a current list of resources. (VTAM also takes checkpoints during HALT and HALT QUICK processing, but not during HALT CANCEL.) As the checkpoint for each affected data set is completed, a



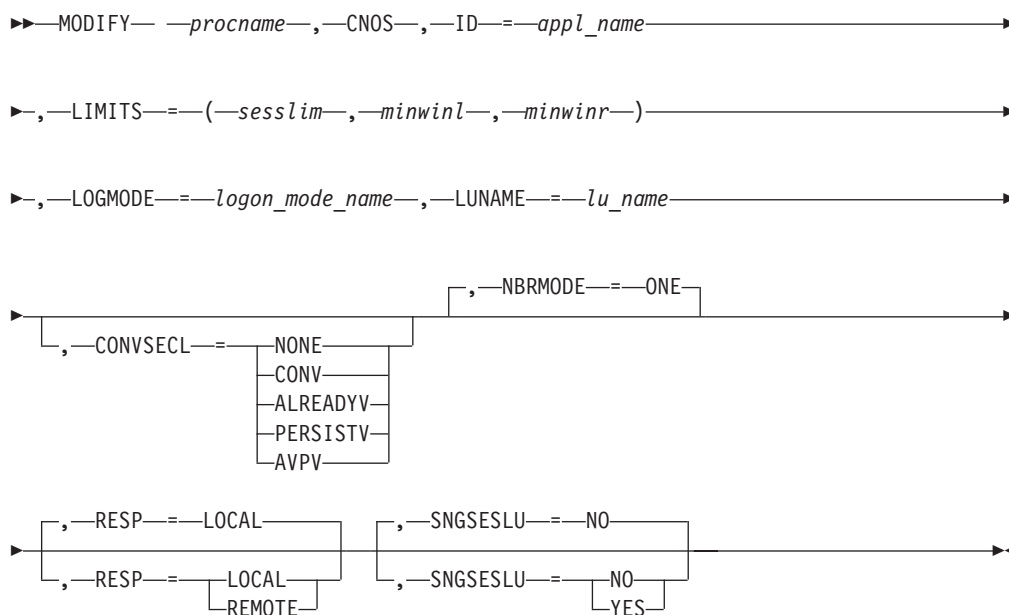
## MODIFY CNOS



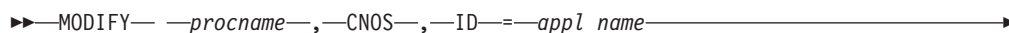
### Set session limits to zero for all logon modes:

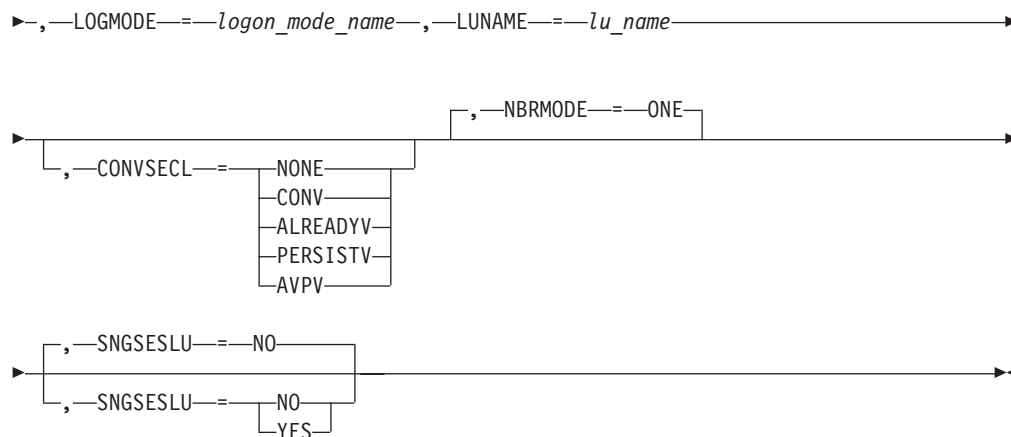


### Set session limits to nonzero:



### Use existing session limits:





### Abbreviations

Operand	Abbreviation
MODIFY	F
CONVSECL=ALREADYV	CONVSECL=A or CSECL=ALREADYV or CSECL=A
CONVSECL=AVPV	CONVSECL=V or CSECL=AVPV or CSECL=V
CONVSECL=CONV	CONVSECL=C or CSECL=CONV or CSECL=C
CONVSECL=NONE	CONVSECL=N or CSECL=NONE or CSECL=N
CONVSECL=PERSISTV	CONVSECL=P or CSECL=PERSISTV or CSECL=P
DRAINL=NO	DRAINL=N or DRL=NO or DRL=N
DRAINL=YES	DRAINL=Y or DRL=YES or DRL=Y
DRAINR=NO	DRAINR=N or DRR=NO or DRR=N
DRAINR=YES	DRAINR=Y or DRR=YES or DRR=Y
LOGMODE	LOG
LUNAME	LU
NBRMODE=ALL	NBRMODE=A or NBM=ALL or NBM=A
NBRMODE=ONE	NBRMODE=O or NBM=ONE or NBM=O
RESP=LOCAL	RESP=L or RSP=LOCAL or RSP=L
RESP=REMOTE	RESP=R or RSP=REMOTE or RSP=R
SNGSESLU=NO	SNGSESLU=N or SNG=NO or SNG=N
SNGSESLU=YES	SNGSESLU=Y or SNG=YES or SNG=Y

### Purpose

The MODIFY CNOS (change number of sessions) command initiates a CNOS transaction with a partner LU for the specified application program.

Using this command, you can modify session limits, request a partner LU to drain its queue of allocation requests, or request a partner LU to be responsible for

## MODIFY CNOS

deactivating the session. The MODIFY CNOS command does the same thing as the APPCCMD CONTROL=OPRCNTL,QUALIFY=CNOS macro, which is described in the z/OS Communications Server: SNA Programmer's LU 6.2 Reference.

**Note:** For operands that are optional and that do not have a default value, the default values used are obtained from a value already established for the specified LU-mode pair or from the APPL definition of the application specified.

### Operands

#### **procname**

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

#### **CONVSECL**

Specifies the conversation security level that the local LU accepts.

The CONVSECL field is used only for a CNOS request that initializes session limits to a non-zero value for a partner LU. Subsequent CNOS requests for the same partner LU ignore this setting.

There are four sources for CONVSECL:

1. Security manager profile
2. CNOS
3. User BIND
4. SECACPT operand on APPL definition statement

The order of this list indicates the selection hierarchy if no security manager profile is provided. If a security manager profile exists, the value in that profile sets the upper limit of conversation-level security that can be specified by the other three sources. If no security manager profile exists, the value in the CNOS takes precedence over any other sources of conversation security level. If no value was specified in the CNOS, and a user BIND is provided, then the value from the BIND is used.

If no conversation-level security value is available in either the CNOS or user BIND, then the default that is used is derived from the SECACPT parameter on the APPL statement.

#### **CONVSECL=NONE**

Indicates that the LU does not accept conversation-level security (FMH-5s that include security subfields).

#### **CONVSECL=CONV**

Indicates that the LU accepts conversation-level security (FMH-5s that include security subfields).

#### **CONVSECL=ALREADYV**

Indicates that the LU accepts conversation-level security (FMH-5s that include security subfields) and that the application program accepts the "already verified" indicator on conversation requests it receives from the partner LU.

#### **CONVSECL=PERSISTV**

Indicates that the LU supports conversation-level security (FMH-5s that

include security subfields) and accepts the “persistent verification” indicators on conversation requests it receives from the partner LU.

**CONVSECL=AVPV**

Indicates that the LU supports conversation-level security (FMH-5s that include security subfields) and accepts both the “persistent verification” indicators and the “already verified” indicator on conversation requests it receives from the partner LU.

**DRAINL**

Specifies whether the source side can drain its allocation requests. This operand is valid only if the session limits are being reset to zero.

**DRAINL=YES**

Specifies that the source side can drain its allocation requests.

**DRAINL=NO**

Specifies that the source side cannot drain its allocation requests.

**DRAINR**

Specifies whether the target side can drain its allocation requests. This operand is valid only if the session limits are being reset to zero.

**DRAINR=YES**

Specifies that the target side can drain its allocation requests.

**DRAINR=NO**

Specifies that the target side cannot drain its allocation requests.

**ID=appl\_name**

Specifies the name of the LU 6.2 application program to which the change in the session limit and contention-winner polarity values apply. This value cannot be a network-qualified name.

**LIMITS=(sesslim,minwinl,minwinr)**

Overrides all other sources of session limits. VTAM performs negotiation if necessary.

**sesslim**

Specifies the maximum number of parallel sessions between the source side and the target side. It uses the logon mode name specified in the LOGMODE operand. The valid range is 0–32767.

**minwinl**

Specifies the minimum number of parallel sessions for which the source side is guaranteed to be the contention winner. It uses the logon mode name specified in the LOGMODE operand. The valid range is 0–32767.

**minwinr**

Specifies the minimum number of parallel sessions for which the partner LU is guaranteed to be the contention winner. It uses the logon mode name specified in the LOGMODE operand. The valid range is 0–32767.

**LOGMODE=logon\_mode\_name**

Specifies the name of the logon mode entry for which session limit and polarity values are to be changed. When NBRMODE=ONE is specified or assumed by default, LOGMODE is required. When NBRMODE=ALL is specified, LOGMODE is not needed, and it is ignored if you specify it.

**LUNAME=lu\_name**

Specifies the name of the partner LU to which the change in the session limit and contention-winner polarity values apply. The name can be a network-qualified name in the form of *netid.luname*.

## MODIFY CNOS

If *lu\_name* is an ACB name, and the ACB name matches the name on the APPL definition statement, then you can use a network-qualified ACB name.

If PARM5=(NQNAMES=NO) is coded on the ACB macro, and a network-qualified name is specified, the network identifier is ignored.

If PARM5=(NQNAMES=YES) is coded on the ACB macro, *luname* **must be a network-qualified name**.

### NBRMODE

Specifies whether the setting of the session limit and the contention-winner polarity values applies only for the specified logon mode name or for all logon mode names that apply to the partner LU.

#### NBRMODE=ONE

Specifies that the session limit and contention-winner polarity values for only the logon mode name specified in the LOGMODE operand are to be set.

#### NBRMODE=ALL

Specifies that the session limit and contention-winner polarity values for all logon mode names that apply to the partner LU are to be reset to zero, except for SNASVCMG, which remains unchanged. NBRMODE=ALL is valid only when LIMITS=(0,0,0) is specified.

### RESP

Specifies which LU is responsible for deactivating the sessions as a result of resetting the session limit or for changing the contention-winner polarity values for parallel session connections.

#### RESP=LOCAL

Specifies the local LU is responsible for deactivating the sessions as a result of resetting the session limit or changing the contention-winner polarity values for parallel session connections.

#### RESP=REMOTE

Specifies the remote LU is responsible for deactivating the sessions as a result of resetting the session limit or changing the contention-winner polarity values for parallel session connections.

### SNGSESLU

Specifies whether the partner LU is a single-session LU, which does not support parallel sessions. VTAM uses the value specified on this operand to determine the indication of parallel-session support and CNOS support it specifies in the BIND requests. This operand is examined by VTAM only when the partner LU parallel-session capability has not been established.

#### SNGSESLU=YES

Specifies that the partner LU is a single-session LU which does not support parallel sessions.

#### SNGSESLU=NO

Specifies that the partner LU supports parallel sessions.

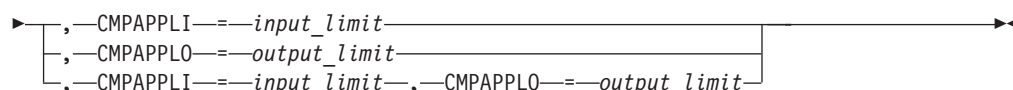
---

## MODIFY COMPRESS command

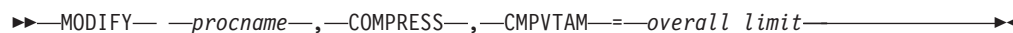
**Change the compression levels set by the APPL definition statement:**

►►—MODIFY— —*procname*—,—COMPRESS—,—ID—=—*appl\_name*—►►





**Change the compression level set by start option:**



**Abbreviations**

Operand	Abbreviation
MODIFY	F

**Purpose**

Using the MODIFY COMPRESS command, you can change the value of the data compression levels originally set by the CMPVTAM start option or by an APPL definition statement.

The levels of compression available are in the range 0–4:

- 0 No compression
- 1 Run-length encoding (RLE)
- 2 Small adaptive compression table
- 3 Medium adaptive compression table
- 4 Large adaptive compression table

See the z/OS Communications Server: SNA Network Implementation Guide for additional information about compression.

**Note:** You can use the “MODIFY VTAMOPTS command” on page 498 (CMPVTAM operand) to change the compression level set by the start option.

**Operands**

**procname**

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

**CMPAPPLI=input\_limit**

Specifies the input compression limit for the application. This operand allows compression-level limits for a specific application to be set lower than the overall limit specified by the CMPVTAM start option.

The valid range is 0–4. Zero specifies no compression.

The valid range is 0–1. Zero specifies no compression.

## MODIFY COMPRESS

The limit specified by this operand is in effect only during sessions for which the application acts as the PLU and when the limit is lower than that specified by the CMPVTAM start option.

### **CMPAPPLO=output\_limit**

Specifies the output compression limit for the application. This operand allows compression-level limits for a specific application to be set lower than the overall limit specified by the CMPVTAM start option.

The valid range is 0–4. Zero specifies no compression.

The valid range is 0–1. Zero specifies no compression.

The limit specified by this operand is in effect only during sessions for which the application acts as the PLU and when the limit is lower than that specified by the CMPVTAM start option.

### **CMPVTAM=overall\_limit**

Specifies the overall compression limit for VTAM sessions. The new compression limit takes effect on new sessions that are started after you issue this command. Sessions that were started before this command are not changed.

The valid range is 0–4. Zero specifies no compression.

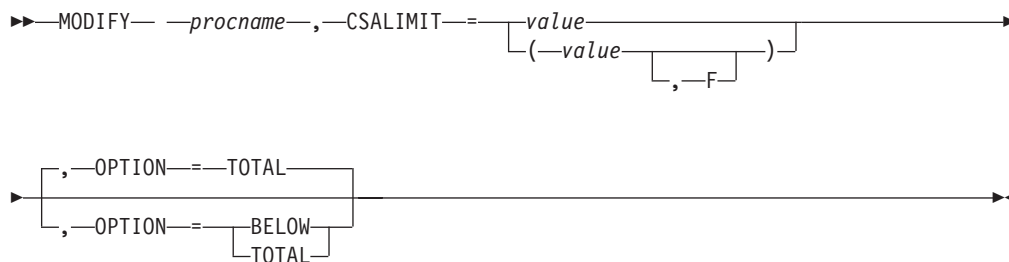
The valid range is 0–1. Zero specifies no compression.

### **ID=appl\_name**

Specifies the name of the application to which compression applies. This allows modification of the compression limit for the session as set in the APPL definition statement. The ID operand is required when either CMPAPPLI or CMPAPPLO is specified.

---

## MODIFY CSALIMIT command



### Abbreviations

Operand	Abbreviation
MODIFY	F
OPTION=BELOW	OPT=BELOW
OPTION=TOTAL	OPT=TOTAL

### Purpose

Using the MODIFY CSALIMIT command, you can dynamically change the amount of common service area (CSA) storage that VTAM is allowed to use.

**Note:**

1. You can use the “MODIFY VTAMOPTS command” on page 498 (CSALIMIT and CSA24 operands) to perform the same function as this command. Use CSALIMIT for OPTION=TOTAL and CSA24 for OPTION=BELOW.
2. MODIFY CSALIMIT may not function if VTAM's available CSA is exhausted to the point that the LPBUF buffer pool cannot expand.
3. Unless CSA24 is indicated, all references to CSA mean CSA plus ECSA.

**Operands**

**procname**

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

**CSALIMIT**

The *value* operand specifies the maximum amount of common service area (CSA) storage to be used by VTAM and whether VTAM is to be forced to use that value (F). The actual amount of storage used by VTAM for the CSA can be less than or equal to the CSALIMIT. Use the “DISPLAY BFRUSE command” on page 44 to display the current CSALIMIT setting, VTAM CSA usage, system CSA limit, and system CSA storage remaining.

**CSALIMIT=value**

Specifies the maximum amount of CSA storage to be used by VTAM. The *value* operand can be specified in any of the following forms:

- 0 When OPTION=BELOW, specifies that no limit is enforced on the amount of CSA used by VTAM. When OPTION=TOTAL, specifies the maximum amount of CSA used by VTAM is to be set to the system CSA limit. To find out what the system CSA limit is for your system, use the DISPLAY BFRUSE command.

**n or nK**

*n* is a decimal integer that specifies VTAM's CSA usage limit in units of K (1024 bytes). For example, if CSALIMIT=4 or CSALIMIT=4K is specified, a CSA limit of 4096 is assigned. The maximum *value* that can be specified is 2097152K bytes.

If the value specified for *n* is not a multiple of 4, it is rounded to the next page-size multiple (4K bytes).

**Note:**

1. If the number you code is greater than the system CSA limit (of all CSA + ECSA defined in the system) CSALIMIT is set to 90% of the system CSA limit (which is the default). If the value specified is less than 25 MB and the ,F modifier is used on the command, a message will be issued. See the DISPLAY BFRUSE command for information about displaying the current CSALIMIT setting, VTAM CSA usage, system CSA limit, and available system CSA.
2. If CSALIMIT is specified (but without the ,F modifier) and VTAM CSA usage reaches this specified CSALIMIT value with 25% or more of system CSA storage remaining available for use, a warning message will be issued. VTAM will continue to run until only 25%

## MODIFY CSALIMIT

of CSA storage remains available for use. If you want to prevent VTAM from using additional CSA beyond the specified CSALIMIT value, issue a MODIFY CSALIMIT or MODIFY VTAMOPTS,CSALIMIT command with the required CSALIMIT value and the,F operand specified.

3. If the number specified is greater than the available CSA, no limit is enforced.

**qM** *q* is a decimal integer that specifies VTAM's CSA usage limit in units of M (1048576 bytes, or 1024K bytes). For example, if CSALIMIT=4M is specified, a CSA limit of 4194304 bytes is assigned. The maximum *value* that can be specified is 2048M.

**Note:** If the number specified is greater than the available CSA, no limit is enforced.

### **CSALIMIT=(value, F)**

Forces the specified value, *n*, *nK*, or *qM*, to be used as the CSA usage limit, regardless of how much CSA storage is currently allocated to VTAM. If VTAMs current CSA value is greater than a newly specified CSALIMIT value, all subsequent CSA requests by VTAM components are rejected until the current CSA value falls below the CSALIMIT value.

If F is not specified, and the operator has specified a limit smaller than the amount of CSA storage currently allocated to VTAM, a request to change the CSA limit will be allowed if there is more than 25% of the system CSA storage available for use. If F is specified, the request to change the CSA will be successful but VTAM will not use more CSA than the CSALIMIT specified.

**Attention:** If a CSA limit is specified that is too low and the operator forces this limit to take effect (by using F), the operator is prevented from using VTAM commands until the CSA usage falls below the specified limit, because CSA storage is needed to process all VTAM operator commands except HALT CANCEL. If the CSA usage does not fall below the specified CSA limit, VTAM must be canceled and restarted with a more appropriate CSALIMIT value specified.

### **OPTION**

Specifies the area to be limited.

#### **OPTION=TOTAL**

Designates the maximum amount of 24-bit or 31-bit addressable CSA storage VTAM can use.

#### **OPTION=BELOW**

Specifies that the MODIFY CSALIMIT command designates the maximum amount of 24-bit addressable storage VTAM can use. OPTION=BELOW corresponds to the CSA24 start option.

**Note:** OPTION=BELOW limits only the amount of explicitly requested 24-bit addressable storage (for example, GETMAIN LOC=BELOW). If VTAM is not specific about the location of the storage desired (for example, GETMAIN LOC=ANY), and the operating system returns 24-bit addressable storage, that storage is not subject to OPTION=BELOW limitations. Instead, it is treated as 31-bit addressable storage in DISPLAY command output.



## MODIFY CSDUMP

- Set a trigger that invokes a dump of the current address space when a particular sense code is issued. The trigger invokes a dump of the VTAM address space if the current address space is not the VTAM address space.
- Set a trigger that invokes a dump of the current address space and possibly a dump of a remote VTAM address space, when a particular message is issued. The trigger invokes a dump of the VTAM address space if the current address space is not the VTAM address space.

You can set only one sense code and one message trigger simultaneously. You cannot set two different message or sense code triggers at the same time. If you have previously set a message trigger using the MODIFY CSDUMP or the CSDUMP start option, and then you enter a different message trigger, the previous message trigger is overwritten.

**Tip:** You can use the CSDUMP start option to set either a CSDUMP message trigger or a sense code trigger or both. See z/OS Communications Server: SNA Resource Definition Reference for information about the CSDUMP start option.

### Remove the CSDUMP trigger:

Using the MODIFY CSDUMP,DELETE command, the user can delete the triggers set previously.

## Operands

### procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

### Set the CSDUMP trigger:

#### MATCHLIM=matchlim\_value

Specifies that the CSDUMP trigger is to be disabled after *matchlim\_value* matches. The *matchlim\_value* is an integer in the range 1-255. The default is 1.

#### MESSAGE=message\_id\_number

Specifies the ID number of the message that will trigger a dump. Message numbers must be of the format ISTxxxI, ISTxxxxI, or IVTxxxxI.

**Rule:** If start option MSGLEVEL=BASE has been specified, or if MSGLVL=BASE has been specified in a USS operator message table, the message displayed on the console is the pre-version 4 message. CSDUMP with a message trigger checks the *message\_id\_number* before it has been swapped to the base *message\_id\_number*. Therefore, the *message\_id\_number* used with the CSDUMP command must be the version 4 message number for CSDUMP to match on the *message\_id\_number* and take the dump. See z/OS Communications Server: SNA Messages for a list of the base messages and their corresponding version 4 numbers.

#### MESSAGE=(message\_id\_number,message\_value\_field,...)

This parameter specifies the message variable text that can be used to trigger a dump. Instead of just matching on a message number, this allows the trigger to be more specific. If variable text is specified, then a dump will be taken only if the message and variable text match. If a variable text field is left blank, then it

is considered a wildcard. See z/OS Communications Server: SNA Messages for more information about message text for VTAM operator messages.

**Note:** Use an underscore as a substitute for a space in the variable text value of the message operand.

**Rules:**

1. Each message has the fixed number of message\_value\_fields. Each message\_value\_field has the maximum length.
2. The specified number of message\_value\_fields must be less than or equal to the number of message\_value\_fields in the specified message.
3. The specified length of the message\_value\_field must be less than or equal to the maximum length of the specified message\_value\_field.
4. The leading message\_value\_field can be skipped using a comma (, ) for each message\_value\_field. The trailing message\_value\_field is not required.
5. See z/OS Communications Server: SNA Messages to determine the number of message value fields and their maximum lengths.

**REMOTE**

Specifies whether to request a dump of the remote VTAM when an XCF link that connects the two VTAMs becomes inoperative. This operand can be specified only when MESSAGE=IST1504I is also specified.

**REMOTE=NO**

A dump of the remote VTAM is not requested when an XCF link becomes inoperative. This is the default behavior.

**REMOTE=YES**

A dump of the remote VTAM is requested when an XCF link becomes inoperative. The remote VTAM must be z/OS V1R9 or later for the dump to be taken.

**RNICTRLE**

Specifies that a diagnostic dump of an IBM 10GbE RoCE Express feature needs to be taken under certain conditions. The RNICTRLE operand can be used only with the MESSAGE trigger or as part of an immediate dump.

**RNICTRLE=MSGVALUE**

MSGVALUE is valid only when the MESSAGE operand is used and specifies either message IST2391I or IST2406I. Specifying the MSGVALUE keyword allows VTAM to collect diagnostic dump information for the 10GbE RoCE Express feature that is identified in these messages.

**RNICTRLE=RNIC\_TRLEName**

The format of *RNIC\_TRLEName* must be IUTyxxxx, where xxxx is the Peripheral Component Interconnect Express (PCIe) function ID (PFID) that identifies the IBM 10GbE RoCE Express feature, and y is the port number that is used on the 10GbE RoCE Express interface. The value of y can be 1 or 2.

**Usage**

The 10GbE RoCE Express diagnostic dump is taken in addition to any other dumps that CSDUMP produces. After the 10GbE RoCE Express diagnostic dump is produced, recovery of the 10GbE RoCE Express feature is attempted.

**Notes:** No 10GbE RoCE Express diagnostic dump is taken in either of the following cases:



## MODIFY CSDUMP

- The 10GbE RoCE Express TRLE is not active when CSDUMP produces the dump.
- A specific RNIC\_TRLEName is specified for RNICTRLE but the TRLE is not an RDMA over Converged Ethernet (RoCE) TRLE.

### Rules:

- When the 10GbE RoCE Express feature operates in a dedicated RoCE environment, the diagnostic dump deactivates the 10GbE RoCE Express feature, and causes an inoperative condition for all users.
- When the 10GbE RoCE Express feature operates in a shared RoCE environment, the diagnostic dump only affects the TCP/IP stack that configured the PFID value included in the value of RNIC\_TRLEName. Other TCP/IP stacks that use the same RoCE Express feature are not affected.

**Guideline:** Ensure that multiple 10GbE RoCE Express interfaces are active with the same physical network ID to avoid loss of connections during a CSDUMP operation. For more information, see High availability considerations in *z/OS Communications Server: IP Configuration Guide*.

### RU=**ru\_code**

Specifies the response unit code that will carry the sense code specified. The RU operand can be used only in combination with the SENSE operand. If the RU operand is used, then the dump will be triggered only if the RU and SENSE codes occur together. The RU code must be 2, 4, or 6 characters in length.

See *z/OS Communications Server: SNA Data Areas Volume 1* for valid RU codes or *SNA Formats*.

### SENSE=**sense\_code**

Specifies the sense code that will trigger a dump. It must be 8 characters in length.

See *z/OS Communications Server: IP and SNA Codes* for the valid sense codes.

### TCPNAME=*TCPIP\_Jobname*

Specifies to take a dump of the TCPIP job, along with the current address space. The job name must be 1 - 8 characters in length.

### Remove the CSDUMP trigger:

#### DELETE=ALL

Specifies to delete both the message and the sense triggers.

#### DELETE=MESSAGE

Specifies to delete the message trigger.

#### DELETE=SENSE

Specifies to delete the sense trigger.

## Examples

Using the default option to take the dump now:

```
f vtam,csdump
IST097I MODIFY ACCEPTED
IST223I MODIFY CSDUMP COMMAND COMPLETED
```

Using the default option and tcpname to take the dump of the current address space and the dump of the TCPIP Job now:



```
f vtam,csdump,tcpname=tcpcs
IST097I MODIFY ACCEPTED
IST223I MODIFY CSDUMP COMMAND COMPLETED
```

Using the default option, TCPNAME parameter, and RNICTRLE parameter to take an immediate dump of the current address space, the specified TCP/IP address space, and a 10GbE RoCE Express diagnostic dump of the specified 10GbE RoCE Express feature:

```
f vtam,csdump,tcpname=tcpcs,rnictrle=iut10001
IST097I MODIFY ACCEPTED
IST223I MODIFY CSDUMP COMMAND COMPLETED
```

Using the message option and RNICTRLE parameter to automatically trigger a dump of the current address space and a 10GbE RoCE Express diagnostic dump the next time when message IST2406I is issued. The diagnostic dump of the 10GbE RoCE Express feature associated with the TRLE name in message IST2406I will be taken.

```
f vtam,csdump,message=ist2406i,rnictrle=msgvalue
IST097I MODIFY ACCEPTED
IST223I MODIFY CSDUMP COMMAND COMPLETED
```

Using the message to take the dump:

```
f vtam,csdump,message=ist1386i
IST097I MODIFY ACCEPTED
IST223I MODIFY CSDUMP COMMAND COMPLETED
```

Using the message and tcpname to take the dump of the current address space and the dump of the TCPIP Job:

```
f vtam,csdump,message=ist1386i,tcpname=tcpcs
IST097I MODIFY ACCEPTED
IST223I MODIFY CSDUMP COMMAND COMPLETED
```

Using the message and the first message\_value\_field to take the dump:

```
f vtam,csdump,message=(ist169i,react)
IST097I MODIFY ACCEPTED
IST223I MODIFY CSDUMP COMMAND COMPLETED
```

Using the message and the first two message\_value\_fields:

```
f vtam,csdump,message=(ist169i,react,pua)
IST097I MODIFY ACCEPTED
IST223I MODIFY CSDUMP COMMAND COMPLETED
```

Using the message and the second message\_value\_field to take the dump:

```
f vtam,csdump,message=(ist169i,,pua)
IST097I MODIFY ACCEPTED
IST223I MODIFY CSDUMP COMMAND COMPLETED
```

Using the message and the REMOTE operand to take a dump of this VTAM and of the remote VTAM when an XCF link becomes inoperative:

```
f vtam,csdump,message=ist1504i,remote=yes
IST097I MODIFY ACCEPTED
IST223I MODIFY CSDUMP COMMAND COMPLETED
```

Using the sense code to take the dump:

```
f vtam,csdump,sense=08090000
IST097I MODIFY ACCEPTED
IST223I MODIFY CSDUMP COMMAND COMPLETED
```

## MODIFY CSDUMP

Using the sense code and RU code to take the dump:

```
f vtam,csdump,sense=08090000,ru=818641
IST097I MODIFY ACCEPTED
IST223I MODIFY CSDUMP COMMAND COMPLETED
```

Using the sense code, RU code, and matchlim to take the dump 12 times:

```
f vtam,csdump,sense=08090000,ru=818641,matchlim=12
IST097I MODIFY ACCEPTED
IST223I MODIFY CSDUMP COMMAND COMPLETED
```

Using the sense code, RU code, and tcpname to take the dump of the current address space and the dump of the TCPIP Job:

```
f vtam,csdump,sense=08090000,ru=818641,tcpname=tcpcs
IST097I MODIFY ACCEPTED
IST223I MODIFY CSDUMP COMMAND COMPLETED
```

---

## MODIFY CSM command

**MODIFY CSM command to update CSM storage value or to activate CSM PARMLIB member values:**

```
►►—MODIFY— —procname—,—CSM— [,—ECSA—==—maxecsa—] [,—FIXED—==—maxfix—] ►►
```

**MODIFY CSM command to activate or deactivate CSM Buffer Monitoring or request the dynamic CSM Buffer Monitoring:**

```
►►—MODIFY— —procname—,—CSM—,—MONITOR—== [—DYNAMIC—] [—YES—] [—NO—] ►►
```

### Abbreviations

Operand	Abbreviation
MODIFY	F

### Purpose

**MODIFY CSM command to update CSM storage value or to activate CSM PARMLIB member values:**

The MODIFY CSM command is used to dynamically change the amount of storage used by the communications storage manager (CSM). It can also be used to activate changes made to the CSM parmlib member without requiring an IPL.

- To temporarily change the amount of storage used by CSM, issue this command and specify the parameters you want to change on the ECSA and FIXED operands.
- To permanently change the amount of storage used by CSM or tuning parameters for CSM buffer pools, edit the CSM parmlib member and issue this command without specifying any operands.

**Note:** Changing a parameter that decreases the specification of a limit may not take effect immediately. Reducing the usage of the resource to comply to the new

limit may require users to free buffers to contract a storage pool's size. This type of change could also result in a CSM constraint condition being indicated to users that are monitoring CSM resource usage.

For more information about the CSM parmlib member, see the z/OS Communications Server: New Function Summary.

**MODIFY CSM command to activate or deactivate CSM Buffer Monitoring or request the dynamic CSM Buffer Monitoring:**

Using the Modify CSM command, the operator can start or stop dynamic CSM buffer monitoring. For more information about CSM Monitoring, see z/OS Communications Server: New Function Summary.

**Operands**

**procname**

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

**ECSA=maxecsa**

Specifies the maximum number of bytes of extended common system area (ECSA) storage to be dedicated for use by CSM. The *maxecsa* value is a decimal integer; specify the value in either kilobytes (K) or megabytes (M) ranging from 1024K-2048M.

**Guideline:** The *maxecsa* value should be less than 90% of the ECSA available on the z/OS system. CSM adjusts the *maxecsa* value to 90% of the system ECSA value and issues message IVT5590I when the *maxecsa* value is greater than 90% of the ECSA available on the system.

**FIXED=maxfix**

Specifies the maximum number of bytes of fixed storage to be dedicated for use by CSM. *maxfix* is a decimal integer and must be specified in either kilobytes (K) or megabytes (M) ranging from 1024K to 30720M.

**Guideline:** CSM ECSA and CSM data space can be requested to be fixed. z/OS ensures the real frame that is backing the storage matches the CSM data space type of request. For example: CSM DSPACE64 buffers are backed with a real frame that is above the 2G line.

**MONITOR=YES**

Specifies that CSM Buffer Monitoring will be activated. It provides the component IDs of the users of CSM buffers in CSM buffer headers.

**MONITOR=NO**

Specifies that CSM Buffer Monitoring will be deactivated.

**MONITOR=DYNAMIC**

Specifies that CSM Buffer Monitoring will be dynamically activated and deactivated. CSM dynamically activates CSM buffer Monitoring when CSM storage usage approaches the critical level. It will dynamically deactivate CSM buffer monitoring when CSM storage returns to a level slightly lower than the normal level. The default value is DYNAMIC.

## MODIFY CSM

### Note:

1. It is recommended that users review their CSM usage and IVTPRM00 parmlib specifications for ECSA and fixed CSM storage. CSM uses these values to determine the activation and deactivation points of Dynamic CSM buffer Monitoring. See z/OS MVS Initialization and Tuning Reference for details.
2. When the CSM comes up, CSM Monitor status is dynamic by default. The operator can modify the status of CSM Monitor active, inactive, or dynamic. This status does not change when VTAM or TCP/IP goes down or comes up. It will stay the same until the system is re-IPL'd, or another MODIFY command is issued.

---

## MODIFY DEFAULTS command

### Modify the DLOGMOD value for a resource:

```
►►—MODIFY— —procname—,—DEFAULTS—,—ID—==—resource_name—►►
►,—DLOGMOD—==—logon_mode_name—►►
```

### Change the delay timer for disconnection of a switched PU:

```
►►—MODIFY— —procname—,—DEFAULTS—,—ID—==—resource_name—►►
►,—DISCNTIM—==—time_period—►►
```

## Abbreviations

Operand	Abbreviation
MODIFY	F
DLOGMOD	DLOG

## Purpose

Using the MODIFY DEFAULTS command, you can change the current value of the DLOGMOD operand of a definition statement for an LU, application program, or cross-domain resource without deactivating the entire major node.

Using the MODIFY DEFAULTS command, you can also change the delay timer for disconnection of a switched PU.

When VTAM receives the MODIFY DEFAULTS command, it overlays the existing value for the specified operand with the new value.

### Note:

1. If you use the MODIFY DEFAULTS command to change the DLOGMOD specification, be aware that later use of a VARY ACT,UPDATE=ALL command for dynamic reconfiguration can undo the effects of the MODIFY DEFAULTS command. This is because the DLOGMOD value in the definition file overrides the value that was established with the MODIFY DEFAULTS command. Even if no DLOGMOD is coded in the definition file, VTAM assumes a null value for DLOGMOD and the null value overrides the MODIFY DEFAULTS value. To

prevent the new DLOGMOD specification from being deleted unintentionally, code the DLOGMOD definition statement with the required value.

2. You can use the to perform the same function as this command.

## Operands

### procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

### DISCNTIM=time\_period

Specifies the amount of time that VTAM delays deactivation of the SSCP-PU session when there are no outstanding LU-LU session requests.

You can specify the time in seconds (S). Specify the number of seconds as an integer in the range 5–65535.

DISCNTIM is valid only for PU types 2 and 2.1 that have DISCNT=DELAY specified on the PU definition statement.

### DLOGMOD=logon\_mode\_name

Specifies the new value for the logon mode. If DLOGMOD is specified with a null value (left blank), the predefined DLOGMOD value is deleted.

**Note:** If DLOGMOD is specified with an unknown logon mode, a warning message is issued indicating that it is unknown and the change is accepted.

### ID=resource\_name

Specifies the name of the resource to which the command applies. The name can be a network-qualified name. If the name specified on the ID operand is network-qualified, this name is considered to be the real name of the resource.

**Tip:** If you are specifying a model resource (APPL or CDRSC), you can use wildcard characters in the name you specify. The use of wildcard characters on the ID operand does not depend on the value of the DSPLYWLD start option.

**Note:** If the resource name is a cross-network CDRSC which is defined with NQNMODE=NQNAME (either by definition statement or start option), be sure to use its network-qualified name on this command.

---

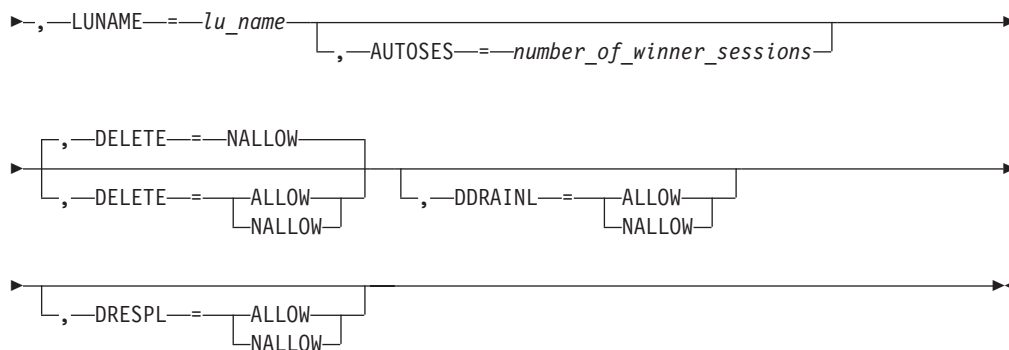
## MODIFY DEFINE command

### Set session limits to zero:

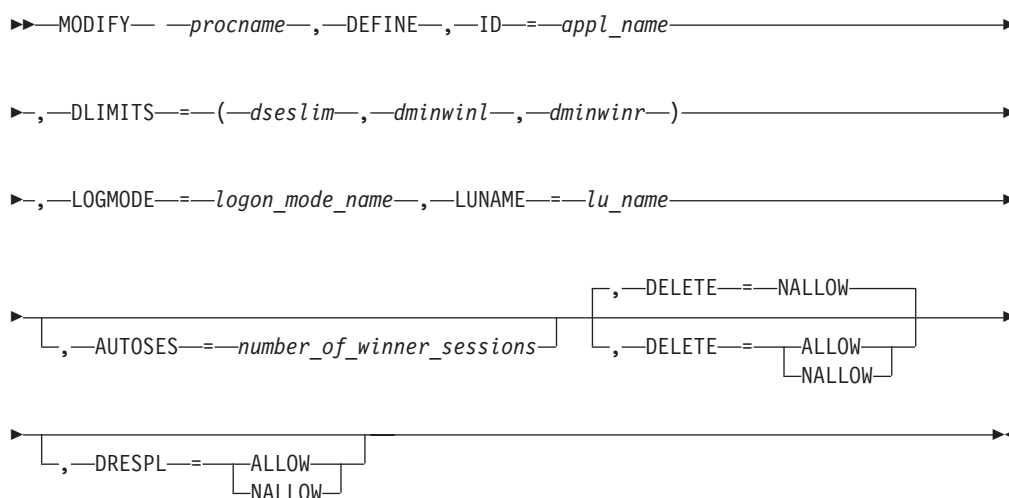
►—MODIFY— —*procname*—,—DEFINE—,—ID—==—*appl\_name*—————►

►,—DLIMITS—==—(—0—,—0—,—0—)—,—LOGMODE—==—*logon\_mode\_name*—————►

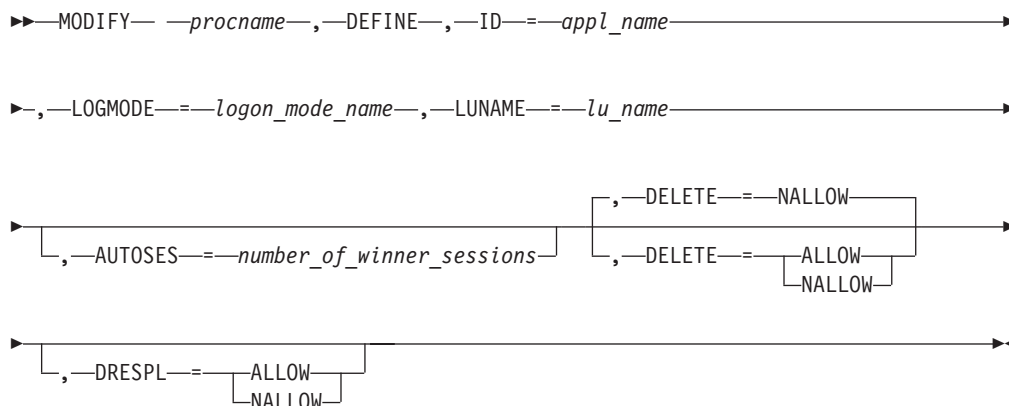
## MODIFY DEFINE



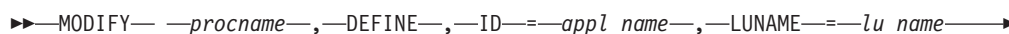
### Set session limits to nonzero:



### Use existing session limits:



### Delete an unusable LU-mode entry:



▶, —DELETE— = —UNUSE—▶

## Abbreviations

Operand	Abbreviation
MODIFY	F
AUTOSES	AUTO
DELETE=ALLOW	DELETE=A or DEL=ALLOW or DEL=A
DELETE=NALLOW	DELETE=N or DEL=NALLOW or DEL=N
DELETE=UNUSE	DELETE=U or DEL=UNUSE or DEL=U
DDRAINL=ALLOW	DDRAINL=A or DDRL=ALLOW or DDRL=A
DDRAINL=NALLOW	DDRAINL=N or DDRL=NALLOW or DDRL=N
DRESPL=ALLOW	DRESPL=A or DRSP=ALLOW or DRSP=A
DRESPL=NALLOW	DRESPL=N or DRSP=NALLOW or DRSP=N
LOGMODE	LOG
LUNAME	LU

## Purpose

The MODIFY DEFINE command establishes new entries, modifies existing entries, or deletes unusable entries in the LU-mode table for the specified application program. The DEFINE values stored in the LU-mode table are used when VTAM processes a CNOS transaction originated by the partner LU or when a CNOS request is issued from the application program (local LU) without a CNOS structure.

When VTAM receives the MODIFY DEFINE command, it overlays the existing entry with the values specified.

**Note:** For operands that are optional and that do not have a default value, the default values used are obtained from a value already established for the specified LU-mode pair or from the APPL definition statement of the application program specified.

## Operands

### procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

### AUTOSES=number\_of\_winner\_sessions

Specifies the number of contention-winner sessions to activate automatically, rather than by allocation requests from the application program. The valid range is 0–32767. If AUTOSES is not coded on the APPL statement, the default is zero.

## MODIFY DEFINE

### **DDRAINL**

Specifies whether the source side can drain its allocation requests when the application program is a target of a CNOS request that resets the session limits to zero. This operand is valid only if the session limits are being reset to zero.

#### **DDRAINL=ALLOW**

Specifies that the application program is allowed to drain its allocation requests when the application program is the target of a CNOS request that resets the session limits to zero.

#### **DDRAINL=NALLOW**

Specifies that the application program is not allowed to drain its allocation requests.

### **DELETE**

Specifies whether a mode name entry can be deleted from the LU-mode table.

#### **DELETE=ALLOW**

Specifies that a mode name entry can be deleted from the LU-mode table.

#### **DELETE=NALLOW**

Specifies that a mode name entry cannot be deleted from the LU-mode table.

#### **DELETE=UNUSE**

Specifies that an unusable mode name entry is to be deleted from the LU-mode table.

**Note:** DELETE=UNUSE is valid only for applications programs defined with OPERCNOS=ALLOW and APPC=YES on the APPL definition statement in the application program major node.

### **DLIMITS=(dseslim,dminwinl,dminwinr)**

Specifies the negotiation limits that are allowed between the source side and target side. If DLIMITS is not coded on the APPL statement, the default is (2,1,1).

#### **dseslim**

Specifies the maximum number of sessions between the source side and the target side. This number applies uniquely to each logon mode name for which sessions can be established with a partner LU. The valid range is 0–32767.

#### **dminwinl**

Specifies the minimum number of parallel sessions for which the source side is guaranteed to be the contention winner. This number applies uniquely to each logon mode name for which sessions can be established with a partner LU. The valid range is 0–32767.

#### **dminwinr**

Specifies the minimum number of parallel sessions for which the partner LU is guaranteed to be the contention winner. This number applies uniquely to each logon mode name for which sessions might be established with a partner LU. The valid range is 0–32767.

### **DRESPL**

Specifies whether the LU is allowed to assume responsibility for deactivating sessions if a CNOS request is received identifying the LU as the responsible LU.



**DRESPL=ALLOW**

Specifies that VTAM accepts a CNOS request specifying that the LU is responsible for deactivating sessions.

**DRESPL=NALLOW**

Specifies that VTAM does not accept a CNOS request specifying that the LU is responsible for deactivating sessions.

**ID=appl\_name**

Specifies the name of the LU 6.2 application program to which the command applies. *appl\_name* cannot be a network-qualified name.

**LOGMODE=logon\_mode\_name**

Specifies the name of the logon mode entry for which session limit and contention-winner polarity values are to be changed. The SNASVCMG LOGMODE name is not allowed in the operand. The SNASVCMG LOGMODE is managed internally by VTAM.

**LUNAME=lu\_name**

Specifies the name of the partner LU to which the change in the session limit and contention-winner polarity values apply. The name can be a network-qualified name in the form of *netid.luname*.

If *lu\_name* is an ACB name, and the ACB name matches the name on the APPL definition statement, then you can use a network-qualified ACB name.

If PARM=(NQNAMES=NO) is coded on the ACB macro, and a network-qualified name is specified, the network identifier is ignored.

If PARM=(NQNAMES=YES) is coded on the ACB macro, *luname* **must** be a network-qualified name.

## MODIFY DIRECTORY command

**Change the ownership of APPN resources in the directory database:**

```

▶▶—MODIFY— —procname—,—DIRECTORY—,—FUNCTION—==—UPDATE—————▶
▶,—ID—==—cdrsc_major_node_name—————▶
      └resource_name┘
▶,—CPNAME—==—new_cp_name—————▶
      └(—new_cp_name—,—old_cp_name—)┘
▶,—NETSRVR—==—server_name—————▶
      └,—CPNAME—==—new_cp_name—————▶,—NETSRVR—==—server_name
        └(—new_cp_name—,—old_cp_name—)┘

```

**Delete a resource from the directory database:**

```

▶▶—MODIFY— —procname—,—DIRECTORY—,—FUNCTION—==—DELETE—————▶
▶,—ID—==—cdrsc_major_node_name—————▶
      └resource_name┘

```

### Abbreviations

Operand	Abbreviation
MODIFY	F
FUNCTION=DELETE	DELETE

## MODIFY DIRECTRY

Operand	Abbreviation
FUNCTION=UPDATE	UPDATE

### Purpose

The MODIFY DIRECTRY (directory) command performs the following functions for the directory database:

- Changes the ownership of APPN resources in the directory database. Logical units are owned by control points. (Both end nodes and network nodes can be control points.) End nodes are owned or served by network nodes. You can specify a new end node or network node as the owner of a logical unit, or you can specify a new network node as the owner of an end node. You can even specify a new end node as the owner of an LU and a new network node as the owner of that end node on a single command, in which case all of the logical units under the end node also are associated with the new network node.

The information in the directory database is updated automatically when VTAM receives new information about a resource. For example, if you specify a new end node as the owner of an LU, and then VTAM finds that the LU has moved to a different location, the database is updated with the LU's new location.

**Note:** If you change the network node server for an LU, all the other LUs under the same end node will also have their network node server changed.

You cannot change the resource type with this command. For example, you cannot turn a network node into an end node. If the resource specified by CPNAME or NETSRVR has a resource type that conflicts with the resource specified by ID, the update fails and an error message is issued.

The CPNAME and NETSRVR operands can specify the same resource name. For example, a logical unit can be owned by a network node, in which case the network node serves as both the control point and the network node server for the logical unit.

- Deletes resources from the directory database.

This command has no effect on corresponding CDRSC major nodes or minor nodes that have the same name as the resource specified by the ID operand. That is, the directory representation of the resource is changed, but the subarea representation of the resource is not changed.

This command is valid only when it is issued at a network node or an interchange node.

### Operands

#### procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

#### CPNAME

Specifies the new owning control point for the resource or resources named in

the ID operand and the old owner that it replaces. The CPNAME operand is valid only when FUNCTION=UPDATE is specified. The owning CP can be either a network node or an end node.

You can specify network-qualified names on the CPNAME operand. If you do not, the host's network ID will be used as the network qualifier.

### **CPNAME=new\_cp\_name**

Specifies the name of the new control point that owns the resources.

### **CPNAME=(new\_cp\_name,old\_cp\_name)**

Specifies the name of the control point that previously owned the resources and the new owning control point. If *old\_cp\_name* is specified, only those resources whose owning control point matches *old\_cp\_name* are changed. If *old\_cp\_name* is not specified, the owning control point name for the specified resources is changed to *new\_cp\_name*, regardless of the previous value.

### **FUNCTION**

Specifies the function to be performed by this command. The FUNCTION operand is required.

#### **FUNCTION=UPDATE**

Updates the database to reflect a new owning end node (CPNAME), or network node (NETSRVR), or both for the resource named in the ID operand.

#### **FUNCTION=DELETE**

Deletes the resource named in the ID operand from the directory database. If ID specifies the name of a CDRSC major node, this command deletes the directory representation of each minor node that was predefined with a CPNAME in the major node.

### **ID=resource\_name**

Specifies the name of the resource (either an individual APPN resource or a CDRSC major node) that is to be updated or deleted.

The name specified on CPNAME or NETSRVR cannot match the name specified on ID, unless ID is a major node. If ID is a major node, then the name specified for ID can match the name specified for CPNAME or NETSRVR; however, if there is a minor node with the same name as the major node, the update will fail for that minor node.

If the resource specified on the ID operand is not found in the database, an error message is issued.

You can specify a network-qualified name on the ID operand. If you do not, the host's network ID is used as the network qualifier.

### **ID=cdrsc\_major\_node\_name**

If the resource is a CDRSC major node, this command affects the directory representation of each minor node that was predefined with a CPNAME in the major node. For example, you could enter:

```
F procname,DIRECTRY,UPDATE,ID=CDRSC2A,CPNAME=SSCP2A
```

where CDRSC2A is the name of a CDRSC major node that contains several resources that are now owned by control point SSCP2A. Model CDRSCs do not have a directory representation, but any model CDRSC in a CDRSC major node will be updated so that future clone CDRSCs built from that model CDRSC will be affected by this command.

## MODIFY DIRECTRY

### NETSRVR=server\_name

Specifies the new network node server for the resource or resources named in the ID operand. The NETSRVR operand is valid only when FUNCTION=UPDATE is specified.

You can specify a network-qualified name on the NETSRVR operand. If you do not, the host's network ID is used as the network qualifier.

## MODIFY DR command

### Delete a logical unit from a physical unit, or a physical unit from a line:

```

▶▶ MODIFY —procname—, —DR—, —TYPE—=DELETE————▶
▶ {,—ID—=—lu_name—, —FROM—=—pu_name—}————▶
▶ {,—ID—=—pu_name—, —FROM—=—line_name—}————▶
  
```

### Move a physical unit:

```

▶▶ MODIFY —procname—, —DR—, —TYPE—=MOVE—, —ID—=—pu_name—▶
▶,—FROM—=—line_name—, —TO—=—line_name— {,—ACTIVATE—=—NO—}▶
▶,—ACTIVATE—=—NO— }▶
▶,—ACTIVATE—=—YES— }▶
▶ {,—ADDR—=—link_station_address—}————▶
  
```

## Abbreviations

Operand	Abbreviation
MODIFY	F
ACTIVATE=NO	ACT=NO
ACTIVATE=YES	ACT=YES

## Purpose

The MODIFY DR (dynamic reconfiguration) command dynamically reconfigures an NCP or a local peripheral node. You can use this command to delete or move type 1, 2, and 2.1 PUs along with their associated LUs, or to delete LUs.

See the z/OS Communications Server: SNA Network Implementation Guide for information about dynamically reconfiguring VTAM peripheral nodes and for information about dynamic NCP reconfiguration.

The MODIFY DR command cannot dynamically add a physical unit or logical unit. To add a physical or logical unit, use the VARY DRDS command with a DR file or use the VARY ACT command with the UPDATE operand. You can also use the VARY DRDS command or the VARY ACT command with the UPDATE operand to perform the same functions as the MODIFY DR command.

**Note:** See the “MODIFY ALSLIST command” on page 346 for information about how to update the list of PUs (adjacent link stations) associated with an independent LU.

**Dynamic reconfiguration for an NCP:**

For an NCP, this command performs the following functions without regenerating the NCP:

- Moves a nonswitched PU and its subordinate LUs from one line to another
- Changes a nonswitched PU link station address
- Deletes a nonswitched PU and its subordinate LUs from a line
- Deletes an LU from a nonswitched PU
- Deletes a type 2.1 PU on an NCP ESCON channel
- Deletes an independent LU on an NCP ESCON channel
- Deletes frame relay type 1 PUs

An NCP must be active and must be capable of dynamic reconfiguration before it can be dynamically reconfigured. The active and inactive requirements for the reconfiguration operations are shown in Table 3 and Table 4 on page 382.

*Table 3. Active and inactive status requirements for MODIFY DR for an NCP*

Operation/ resource	Major node	LINE	PU	LU
Delete PU	Active	Either	Inactive	Inactive
Delete LU	Active	Either	Either	Inactive
Move PU	Active	Either	Inactive	Inactive

In order to modify a frame relay switching equipment set (FRSESET), you need to know whether the FRSESET was statically or dynamically defined. If you are not sure, you can issue a DISPLAY NET, ID=*frseset\_name* command to find out. Statically means that the FRSESET was included in the NCP generation. Dynamically means that the FRSESET was not included in the NCP generation. Statically and dynamically defined PUs cannot be specified in the same FRSESET; the PUs must be all static or all dynamic.

If the FRSESET was dynamically defined, you can dynamically add and delete PUs from the set. You can delete PUs with the MODIFY DR, VARY DRDS, or VARY ACT, UPDATE=ALL commands. You can add PUs only with the VARY ACT, UPDATE=ADD or VARY ACT, UPDATE=ALL command.

If the FRSESET was statically defined, you can delete PUs from the set, but you cannot add PUs. In practical terms, this means you need to delete the entire FRSESET and then add it back dynamically in order to change. For example, if you have a statically defined FRSESET containing two primary PUs and you want to add two backup PUs, follow these steps:

1. Delete the two primary PUs, deleting the FRSESET itself (because it is empty).
2. Edit the VTAMLST source file to add the PU definitions for the backup PUs and add the backup PUs to the FRSESET.
3. Use the VARY ACT command with UPDATE=ADD or UPDATE=ALL. The VARY ACT command causes the FRSESET to be dynamically defined.

## MODIFY DR

If you delete one or more PUs (using MODIFY DR or VARY DRDS) from a statically defined FRSESET without deleting the whole FRSESET, VARY ACT will cause the deleted PUs to be added back, but they will not be part of the FRSESET.

The first PU under a frame relay line (the LMI) cannot be deleted and it cannot be part of an FRSESET.

For more information about how to define frame relay lines, frame relay PUs, and FRSESETs, see the z/OS Communications Server: SNA Resource Definition Reference.

### Dynamic reconfiguration for local peripheral nodes:

For a VTAM local peripheral node, this command performs the following functions:

- Deletes a logical unit from a VTAM nonswitched peripheral node. This is possible only for local SNA major nodes. The MODIFY DR command cannot move resources in a VTAM peripheral node, and it cannot delete physical units or lines in a VTAM peripheral node.
- Removes a PU from an independent LU's adjacent link station list.

**Note:** You cannot use MODIFY DR to move an independent LU.

Table 4. Active and inactive status requirements for MODIFY DR for local peripheral nodes

Operation/ resource	Major node	LINE	PU	LU
Delete LU	N/A	Either	Either	Inactive

## Operands

### procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

### ACTIVATE

Applies only if TYPE=MOVE. It specifies whether the physical unit and its associated logical units are activated automatically after a successful move.

#### ACTIVATE=YES

VTAM activates the physical unit and its associated logical units after the move completes successfully. This is equivalent to entering VARY ACT,ID=*pu\_name*,SCOPE=ONLY after the MODIFY DR,ID=*pu\_name*,TYPE=MOVE command has successfully completed.

#### Note:

1. If the line to which the PU is being moved is inactive before the move, ACTIVATE=YES does not activate the line.
2. If the system programmer has defined the initial status of a logical unit subordinate to the moved physical unit (ISTATUS) as inactive, ACTIVATE=YES does not activate the logical unit. The logical unit must be explicitly activated.

3. If the line to which the PU is being moved is active, and the PU's ISTATUS is active, the PU and associated LUs are activated even if ACTIVATE=YES is not specified.

**ACTIVATE=NO**

VTAM does not activate the physical unit and its associated logical units after the move completes.

**ADDR=link\_station\_address**

Applies only if TYPE=MOVE. It specifies the physical unit's link station address. Using this operand, you can change the physical unit's link station address.

To change the address, use both the TO and FROM operands. The address value must be a 2-digit hexadecimal number that is unique for each physical unit on the same line.

You can use the ADDR operand to change a physical unit's SDLC link station address regardless of whether the physical unit is being moved to a new line. (It is acceptable to code the same line on the TO and FROM operands associated with a TYPE=MOVE command.)

If you use the ADDR operand to assign link station addresses, be careful when using an address that a resource previously used. NCP is not informed of dynamic moves or additions until the resource is activated; therefore, activate resources in the order in which the dynamic reconfiguration requests were made.

**FROM**

Specifies the line name or physical unit in the dynamic reconfiguration.

**FROM=line\_name**

If TYPE=MOVE, identifies the line from which the physical unit and its subordinate LUs are to be moved.

If TYPE=DELETE, identifies the name of the line from which the physical unit and all associated logical units are to be deleted.

The line must be nonswitched. The line can be active or inactive.

**FROM=pu\_name**

Identifies the physical unit from which the logical units identified in the ID operand are to be deleted. The physical unit must be nonswitched.

If ID specifies an independent logical unit, the logical unit must not have any session over the physical unit (adjacent link station) named in the FROM operand.

- ID** Specifies the physical unit or logical unit in the dynamic reconfiguration. When TYPE=DELETE is specified, the name can be a network-qualified name.

**ID=pu\_name**

Identifies the physical unit to be deleted or moved (as specified in the TYPE operand) and its associated logical units. The physical unit must be inactive and nonswitched.

**ID=lu\_name**

Applies only if TYPE=DELETE. It identifies the logical unit to be deleted. The logical unit must be inactive and under a nonswitched physical unit. If the specified logical unit is an independent LU, it must not have any session over the physical unit (adjacent link station) specified in the FROM operand.



## MODIFY DR

### TO=line\_name

Applies only if TYPE=MOVE. It identifies the line to which the physical unit and its associated logical units are to be moved. The line must be attached to the same NCP as the physical unit and be nonswitched. The line can be active or inactive.

This operand is required with TYPE=MOVE.

### TYPE

Specifies the type of dynamic reconfiguration to be performed.

The MODIFY DR command is valid only for nonswitched PUs and LUs and type 2.1 PUs on ESCON channels. MODIFY DR is not supported for cross-domain resources. You cannot move or delete a PU that has PUDR=NO coded in its NCP definition, and you cannot delete a dependent LU that has LUDR=NO coded in its NCP definition.

The MODIFY DR command can be used to delete PUs from an independent LU's adjacent link station list if the independent LU has no active sessions over the PU; however, the MODIFY ALSLIST command is recommended for adding and deleting PUs from an adjacent link station list.

### TYPE=MOVE

Moves the physical unit identified in the ID operand, and all logical units associated with the physical unit, from the line identified in the FROM operand to the line identified in the TO operand. You can move a physical unit from one line to another only if both lines are attached to the same NCP.

### TYPE=DELETE

Deletes the physical unit identified in the ID operand and all logical units associated with the physical unit from the line identified in the FROM operand, or deletes the logical unit identified in the ID operand from its physical unit identified in the FROM operand.

---

## MODIFY DUMP command

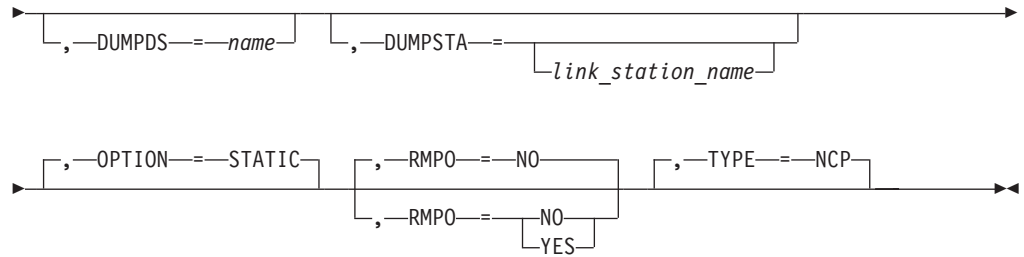
### Static dump of remote NCP (via link station) to host:

```
►► MODIFY —procname—, —DUMP—, —ID—=—link_station_name—►
►, —DUMPDS—=—name— [ , —ACTION—=—COMP ] [ , —OPTION—=—STATIC ]►
► [ , —RMPO—=—NO ] [ , —TYPE—=—NCP ]►
► [ , —RMPO—=—NO ]
  [ , —RMPO—=—YES ]
```

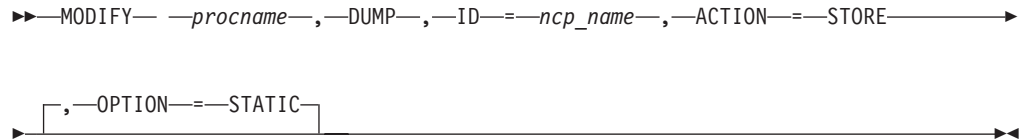
### Static dump of NCP to host:

```
►► MODIFY —procname—, —DUMP—, —ID—=—ncp_name— [ , —ACTION—=—COMP ]►
```

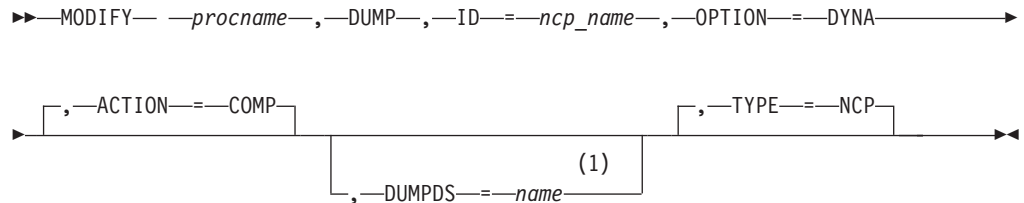




**Static dump of NCP to hard disk:**



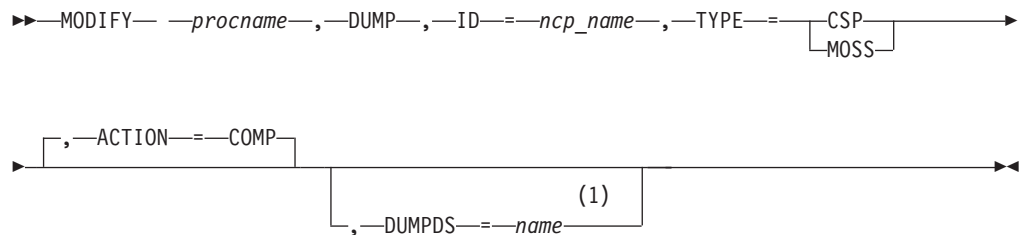
**Dynamic dump of NCP to host:**



**Notes:**

1 If the NCP has been acquired before activation, DUMPDS is required.

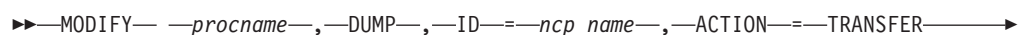
**Transfer CSP or MOSS dump from hard disk to host:**



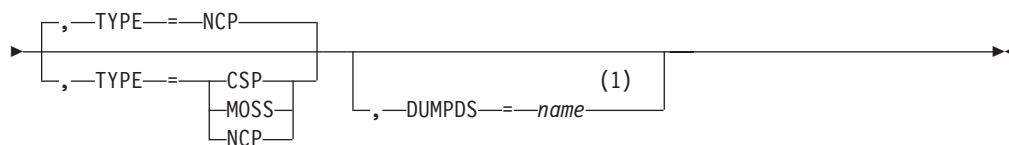
**Notes:**

1 If the NCP has been acquired before activation, DUMPDS is required.

**Transfer NCP, CSP, or MOSS dump from hard disk to host:**



## MODIFY DUMP



### Notes:

1 If the NCP has been acquired before activation, DUMPDS is required.

### Purge dump from hard disk:

►► MODIFY --procname--, --DUMP--, --ID==--ncp\_name--, --ACTION==--PURGE►►



## Abbreviations

Operand	Abbreviation
MODIFY	F
ACTION=TRANSFER	ACTION=TRANS
DUMPDS	DS
DUMPSTA	DST
OPTION=DYNA	OPT=DYNA or DYNA
OPTION=STATIC	OPT=STATIC
RMPO=YES	RMPO or RMPO=Y
RMPO=NO	RMPO=N

## Purpose

The MODIFY DUMP (dump of an NCP) command is used to control NCP, communication scanner processor (CSP), and maintenance and operator subsystem (MOSS) dumps. Some functions use the IBM 3720 or 3745 Communication Controller's hard disk. The functions that can be performed are:

- Dump the NCP from the communications control unit (CCU) to the host
- Dump the NCP from the CCU and store the dump on the hard disk
- Transfer an NCP, CSP, or MOSS dump from the hard disk to the host
- Purge an NCP, CSP, or MOSS dump from the hard disk

## Operands

### procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

**ACTION**

Specifies what is to be done to the dump. ACTION=STORE requires NCP Version 5 Release 3 or later.

**ACTION=TRANSFER**

VTAM stores the dump in a host data set, using SSP as the interface to the dump data set.

If TYPE=CSP or TYPE=MOSS, VTAM transfers the CSP or MOSS dump (taken automatically when the CSP or MOSS fails) from the controller's hard disk or diskette to the host. When the transfer is complete, MOSS purges the dump from the controller's hard disk.

If TYPE=NCP, VTAM transfers the dump from the IBM 3720 or the 3745 Communication Controller hard disk to the host. The dump is not purged.

ACTION=TRANSFER and TYPE=NCP are valid only if an NCP dump is on the controller's hard disk from a previous VARY ACT DUMpload=YES command or because DUMPLD=YES is coded on the PCCU definition statement.

**ACTION=PURGE**

VTAM purges the dump from the disk.

If TYPE=CSP or TYPE=MOSS, VTAM purges the CSP or MOSS dump (taken automatically when the CSP or MOSS fails) from the controller's hard disk.

If TYPE=NCP, VTAM purges an NCP dump previously stored on the IBM 3720 or 3745 Communication Controller hard disk. VTAM does not transfer the dump to the host.

ACTION=PURGE and TYPE=NCP are valid only if an NCP dump is on the controller's hard disk from a previous VARY ACT DUMpload=YES command or because DUMPLD=YES is coded on the PCCU definition statement.

**ACTION=COMP**

Specifies the compatibility mode of operations for this command with previous releases of VTAM.

If TYPE=CSP or TYPE=MOSS, VTAM transfers the CSP or MOSS dump (taken automatically when the CSP or MOSS fails) from the controller's hard disk to the host.

If TYPE=NCP, VTAM dumps the NCP and stores the results at the host. The type of NCP dump (static or dynamic) to be taken is specified on the OPTION operand.

**ACTION=STORE**

VTAM causes the NCP to be dumped to the controller's hard disk only if DUMpload=YES is specified on the VARY ACT command or DUMPLD=YES is specified on the PCCU definition statement and the dump slot for this CCU on the controller's hard disk is empty. Use the DISPLAY DISK command to see that these conditions are met. If either one of these conditions is not met, a dump to disk will not take place and the NCP will be deactivated.

Only OPTION=STATIC and ID=*ncp\_name* are allowed if ACTION=STORE is specified. No other operands are allowed.

## MODIFY DUMP

ACTION=STORE requires NCP Version 5 Release 3 or later.

### **DUMPDS=name**

Identifies the file that is to contain this dump. The specified file should be large enough to contain the dump. The contents of the file are overwritten by the dump. *name* must be the data definition name on the DD statement that defines the file to receive the dump.

If ID=*link\_station\_name*, this operand must be specified.

If ID=*ncp\_name*, the DUMPDS operand (if specified) overrides any file specification in the PCCU definition statement. If this operand is omitted, VTAM uses the file specified in the PCCU definition statement. If the dump file is not specified on either the MODIFY DUMP command or the PCCU definition statement, the command fails.

If the NCP has been acquired before activation, the DUMPDS operand is required for all non-static dump types including CSP, MOSS, and NCP dump transfers and an NCP dynamic dump. VTAM does not allow static dumps of NCPs that have been acquired before activation.

### **DUMPSTA=link\_station\_name**

Specifies the name of a link station (channel or SDLC link station within another NCP) in a node adjacent to the NCP to be dumped, through which a static dump operation is to be performed. The link station must be active at the time of the dump. The VTAM-generated link station name (a 3-digit or 4-digit hexadecimal device number followed by -S) can be specified.

DUMPSTA applies only when all of the following conditions are met:

- ID=*ncp\_name* is specified.
- OPTION=STATIC is specified (or assumed by default).
- TYPE=NCP is specified (or assumed by default).

If the DUMPSTA operand is specified, any previous DUMPSTA specifications (from the VARY ACT command or from the NCP definition) are overridden for this one dump operation. If a null value is specified (that is, if DUMPSTA= is specified), VTAM selects an available link station, giving preference to a channel link station over any SDLC link stations.

If the DUMPSTA operand is omitted, the current dump station name from the VARY ACT command or from the NCP definition (in that order) is used. If the current dump station name is null, VTAM selects an available link station as described above.

**ID** Specifies the NCP to be dumped or the link station through which a remote NCP is to be dumped.

#### **ID=ncp\_name**

Specifies an active NCP

#### **ID=link\_station\_name**

Specifies an SDLC link station within an NCP that is adjacent to the communication controller containing the NCP to be dumped. The associated SDLC link must be active. If ID=*link\_station\_name* is specified, the DUMPDS operand is required, and the DUMPSTA and OPTION=DYNA operands are not allowed.

**Note:** CSP and MOSS dumps cannot be taken by specifying a link station name. Specify the NCP name to take CSP and MOSS dumps.

**OPTION**

Provides additional specifications for an NCP dump. The OPTION operand applies if TYPE=NCP is specified or assumed by default, and if ACTION=COMP or ACTION=STORE.

**OPTION=DYNA**

Applies only when the ID operand specifies the name of an active NCP. OPTION=DYNA specifies that the NCP is to be dumped dynamically. That is, NCP processing continues while the NCP's contents are dumped. The NCP is not deactivated. VTAM requests multiple storage images from the NCP, and the resulting output reflects the storage contents of the communication controller over the period required to complete the dump.

The following two commands produce identical results:

```
F NET,DUMP,ID=ncp_name,DYNA
```

```
F NET,DUMP,ID=ncp_name,OPTION=DYNA
```

**OPTION=STATIC**

Specifies that the NCP is to be dumped statically. That is, NCP processing stops and the NCP is deactivated. The resulting output reflects the storage contents of the communication controller at the time the dump was started.

When TYPE=NCP and OPTION=STATIC, VTAM checks for the availability of the NCP dump data set. If this data set is not available, the command fails and the NCP remains active.

When ACTION=STORE, issue the DISPLAY DISK command to determine that the automatic dump switch in the controller is set on (DUMpload=YES on VARY ACT command or DUMPLD=YES on the PCCU definition) and that the dump slot for this CCU on the controller's hard disk is empty. If either one of these conditions is not met, no dump to disk will take place, and the NCP will be deactivated.

**RMPO**

Specifies whether the communication controller containing the NCP is to be powered off after a static dump and deactivation of the NCP.

**RMPO=YES**

Specifies that the communication controller is to be powered off. RMPO=YES is valid only for a static NCP dump (OPTION=STATIC is specified or assumed by default). Also, RMPO=YES should be entered only for an NCP that is in a communication controller with the remote power-off facility.

Note that RMPO can be entered instead of RMPO=YES.

**RMPO=NO**

Specifies that the communication controller is not to be powered off.

**TYPE**

Specifies the type of dump.

If ACTION=TRANSFER and either TYPE=CSP or TYPE=MOSS, the box event record (BER) log, configuration data file (CDF), token-ring interface coupler (TIC) dump, and channel adapter (CA) dump are transferred automatically from the hard disk with the CSP or MOSS dump. If the CSP or MOSS dump is not present, the BER log, CDF, TIC dump, and CA dump are transferred; however, after they are transferred, the MODIFY DUMP command will fail because the specified dump is not present.

## MODIFY DUMP

### TYPE=CSP

If ACTION=TRANSFER or COMP, transfers a dump of the NCP's communication scanner processor (taken automatically when the CSP fails) from the controller's hard disk to the host data set using SSP as the interface to the dump data set. From the host data set, it can be formatted and printed.

The file to contain this dump can be specified by the operator with the DUMPDS operand of the MODIFY DUMP command, or it can be specified by the system programmer on the CDUMPDS operand of the PCCU definition statement. If neither the DUMPDS operand nor the CDUMPDS operand are specified, VTAM uses the dump file specified by the DUMPDS operand of the PCCU definition statement.

If ACTION=PURGE, purges the CSP dump from the hard disk or diskette in the controller.

### TYPE=MOSS

If ACTION=TRANSFER or COMP, transfers a dump of the maintenance operator subsystem (taken automatically when the MOSS fails) from hard disk or diskette in the controller to the host data set using SSP as the interface to the dump data set.

The file to contain this dump can be specified by the operator with the DUMPDS operand of the MODIFY DUMP command, or it can be specified by the system programmer on the MDUMPDS operand of the PCCU definition statement. If neither the DUMPDS operand nor the MDUMPDS operand are specified, VTAM uses the dump file specified by the DUMPDS operand of the PCCU definition statement.

If ACTION=PURGE, purges the MOSS dump from the hard disk or diskette in the controller.

### TYPE=NCP

If ACTION=COMP, TYPE=NCP specifies a normal dump of the NCP. If ACTION=TRANSFER, the resulting dump is sent to the host from the IBM 3720 or 3745 Communication Controller hard disk. If ACTION=PURGE, the dump is purged from the IBM 3720 or 3745 Communication Controller hard disk.

If ACTION=TRANSFER or PURGE, the OPTION operand does not apply. If ACTION=TRANSFER, the host file to contain the transferred dump can be specified by the operator with the DUMPDS operand of the MODIFY DUMP command, or it can be specified by the system programmer on the DUMPDS operand of the PCCU definition statement.

If TYPE=NCP and ACTION=COMP, the OPTION operand can be used to specify whether this is to be a dynamic or static dump.

---

## MODIFY ENCR command

►►—MODIFY— —*procname*—,—ENCR—=—

COND
OPT
REQD

—,—ID—=—*lu\_name*—►►

## Abbreviations

Operand	Abbreviation
MODIFY	F

## Purpose

With the MODIFY ENCR (encryption) command, you can change the cryptography specifications for logical units. Logical units (application programs, independent LUs, and device type logical units) can be defined as having one of several cryptography specifications. These specifications define the cryptographic capabilities or user session requirements involving the logical units and are described in the z/OS Communications Server: SNA Network Implementation Guide.

**Note:** The only way to modify ENCRTYPE is to use the MODIFY SECURITY command.

## Operands

### procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

### ENCR

Specifies the new cryptography specifications of the logical unit. The level of the cryptography specification can be only raised. Any attempt to lower the level is rejected. The new level is effective for all future sessions involving the logical unit; existing active or pending sessions are not affected.

#### ENCR=OPT

Raises the level of the logical unit's cryptography specification from no cryptography to optional (capable of cryptography).

#### ENCR=COND

Raises the level of the logical unit's cryptography specification from no cryptography or optional to required (that is, all user sessions must be encrypted) if both sides support encryption. If the session partner does not support encryption, the session does not fail; instead, a session is established with no encryption of data.

#### ENCR=REQD

Raises the level of the logical unit's cryptography specification from no cryptography or optional (or selective or conditional for application programs) to required (that is, all user sessions must be encrypted).

### ID=lu\_name

Specifies the name of the logical unit whose cryptography specification is to be changed. The logical unit can be either an application program, a device-type logical unit, or an independent LU.

**Tip:** If you are specifying a model resource (APPL or CDRSC), you can use wildcard characters in the name you specify. The use of wildcard characters on

## MODIFY ENCR

the ID operand does not depend on the value of the DSPLYWLD start option. For model resources, any current clone resources are unaffected by this command, but future clone resources and their sessions will be affected.

The name can be a network-qualified name. It cannot be a USERVAR or LUALIAS name. If the name specified on the ID operand is network-qualified, this name is considered to be the real name of the resource. The name can be an ACB name or an alias name, so long as it is not network-qualified.

The following example of an APPL major node definition shows how application names can be network qualified:

```
x      APPL ACBNAME=y,...
```

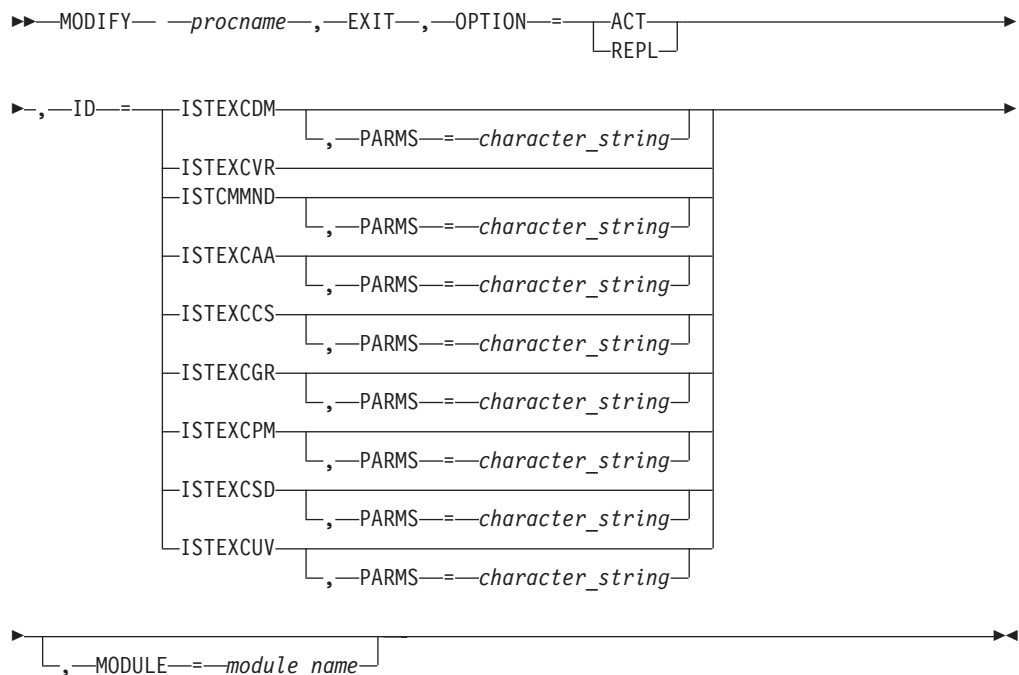
In this example, *x* (the application name) can always be network-qualified. The value *y* (the ACB name) can be network-qualified only if *y* is the same as *x*.

**Note:** If ID specifies the name of an LU 6.2 application program, you should use the MODIFY ENCR command only when no sessions exist for logon modes other than SNASVCMG. If sessions are active on logon modes other than SNASVCMG, and you use the MODIFY ENCR command to change the encryption level, any attempt to establish a new session with these logon modes is rejected until all existing sessions on that mode that use the previous encryption level have ended.

---

## MODIFY EXIT command

### Activate or replace an exit routine:



### Activate a multiple instance of ISTECPM:





►, —ID—==ISTEXCPM—. —instance\_name— [ , —PARMS—==character\_string ]

**Replace a multiple instance of ISTECPM:**

►► —MODIFY— —procname—, —EXIT—, —OPTION—== —REPL—

►, —ID—==ISTEXCPM—. —instance\_name— [ , —MODULE—==module\_name ]

[ , —PARMS—==character\_string ]

**Deactivate an exit routine:**

►► —MODIFY— —procname—, —EXIT—, —OPTION—== [ INACT ] [ FORCE ]

►, —ID—== ISTECDM [ , —PARMS—==character\_string ]

ISTEXCVR

ISTCMMND [ , —PARMS—==character\_string ]

ISTEXCAA [ , —PARMS—==character\_string ]

ISTEXCCS [ , —PARMS—==character\_string ]

ISTEXCGR [ , —PARMS—==character\_string ]

ISTEXCPM [ , —PARMS—==character\_string ]

ISTEXCSD [ , —PARMS—==character\_string ]

ISTEXCUV [ , —PARMS—==character\_string ]

**Deactivate a multiple instance of ISTECPM:**

►► —MODIFY— —procname—, —EXIT—, —OPTION—== [ INACT ] [ FORCE ]

►, —ID—==ISTEXCPM—. —instance\_name— [ , —PARMS—==character\_string ]

**Abbreviations**

Operand	Abbreviation
MODIFY	F
MODULE	MOD
OPTION	OPT

## MODIFY EXIT

### Purpose

The MODIFY EXIT command enables you to activate, deactivate, or replace a specified installation-wide exit. Using this command, you can modify the state of an installation-wide exit that was loaded during initialization or activated, replaced, or deactivated with an earlier MODIFY EXIT command.

**Note:** To modify an ISTECPM exit, the MODIFY EXIT command must be issued from a program operator application (POA) program, unless OPTION=FORCE is specified.

### Operands

#### procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

**ID** Specifies the installation-wide exit to be activated, deactivated, or replaced.

#### ID=exit\_name

Specifies the name of the installation-wide exit routine to be activated, deactivated, or replaced.

For further information about valid installation-wide exit routines, see z/OS Communications Server: SNA Customization.

*exit\_name* can be one of the following values:

#### ISTEXCAA

Session management exit routine

#### ISTEXCCS

Configuration services XID exit routine

#### ISTEXCDM

Directory management exit routine

#### ISTEXCPM

Performance monitor exit routine

**Note:** Only a program operation application (POA) program can issue the MODIFY EXIT command for ISTECPM, unless OPTION=FORCE is specified.

#### ISTEXCSD

Selection of definitions for dependent logical units (SDDL) exit routine

#### ISTEXCVR

Virtual route selection exit routine

#### ISTCMMND

Command verification exit routine

#### ISTEXCGR

Generic resource resolution exit routine

**ISTEXCUV**

USERVAR exit routine

**ID=ISTEXCPM.instance\_name**

Specifies the instance of ISTECPM to be activated, deactivated, or replaced. The *instance\_name* is the name of the load module containing the exit.

**Note:** Only a program operation application (POA) program can issue the MODIFY EXIT command for ISTECPM.*instance\_name*, unless OPTION=FORCE is specified.

An *instance\_name* being activated cannot have the same load module name as one that is already active.

**MODULE=module\_name**

Specifies the load module name containing the exit to be activated, or the load module name containing an alternate exit to replace an active exit.

*module\_name* cannot have the same load module name as any other currently active exit.

The MODULE operand is valid only with OPTION=ACT and OPTION=REPL.

**Note:** The MODULE operand is not valid when ID=ISTEXCPM.*instance\_name* and OPTION=ACT are both specified.

**OPTION**

Specifies whether the installation-wide exit is to be activated, deactivated, or replaced.

**OPTION=ACT**

Specifies that the installation-wide exit is to be invoked where the installation-wide exit routine is indicated within VTAM. The invocation points cannot be modified.

**OPTION=INACT**

Specifies that the installation-wide exit should not be invoked during VTAM processing.

**OPTION=REPL**

Specifies that the installation-wide exit should be replaced by the installation-wide exit routine contained in the module named on the MODULE operand during VTAM processing.

**OPTION=FORCE**

Specifies that the installation-wide exit should be deactivated immediately. The exit will not be driven for deactivation in this case.

**Note:**

1. OPTION=FORCE should not be used in place of OPTION=INACT. Use OPTION=FORCE only if a previous MODIFY EXIT,OPTION=INACT command failed to deactivate the exit.
2. OPTION=FORCE is valid for use by a network operator and not by a program operator application (POA) program.

**PARMS=character\_string**

Specifies a character string, 1–70 characters in length, that can be passed to an installation-wide exit routine. You can use the PARMS operand to pass user-specified data or control information to the following exit routines:

- ITCMMND

## MODIFY EXIT

- ISTEEXCAA
- ISTEEXCDM
- ISTEEXCSS
- ISTEEXCGR
- ISTEEXCPM
- ISTEEXCSD
- ISTEEXCUV

The PARMS operand is ignored for other exit routines or if OPT=FORCE is specified.

See z/OS Communications Server: SNA Customization for more information about how this data is passed to the exit routine.

---

## MODIFY GR command

```
►►—MODIFY— —procname—,—GR—,—GNAME—=—netid.generic_resource—►►
►,—OPTION—=—DELETE—►►
```

### Abbreviations

Operand	Abbreviation
MODIFY	F
DELETE	DEL
OPTION	OPT

### Purpose

The MODIFY GR command causes VTAM to delete information about a generic resource locally at this host and from the generic resource's coupling facility structure. If VTAM has lost access to the generic resource's coupling facility structure, local generic resource information can still be deleted. This command has dependencies that must be met for the command to succeed. Every application instance of the generic resource must perform the following actions:

- Delete itself as an active instance of the generic resource
- End all of its sessions
- Delete all of its generic resource affinities
- Close its ACB

If these dependencies are met on the host where the MODIFY GR command is issued, but are not met for generic resource applications that are on other hosts, then local generic resource information can still be deleted. In order for a generic resource to be deleted from all hosts in a sysplex, this command must be issued at every host in a sysplex, and at least one host must have connectivity to the generic resources structure in the coupling facility. See z/OS Communications Server: SNA Network Implementation Guide for a description of how and why a generic resource should be deleted from a sysplex.

### Tips:

- You can display affinities using the D NET, GRAFFIN command. All generic resource instances can be displayed with the D NET,ID=*grname*,IDTYPE=GENERIC command.
- Use the D NET,RSCLIST command to determine where the representation of the generic resource exists. A type of GENERIC RESOURCE indicates that it exists in the generic resource coupling facility structure. A type of GENERIC USERVAR indicates that it exists on the local VTAM where the display command is issued.

### Operands

#### procname

The procedure name for the command. If the *procname* value in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for the *procname* value in this command.

If the *procname* value in the START command was *startname*, *startname* must be specified for the *procname* value in this command.

#### GNAME=netid.generic\_resource

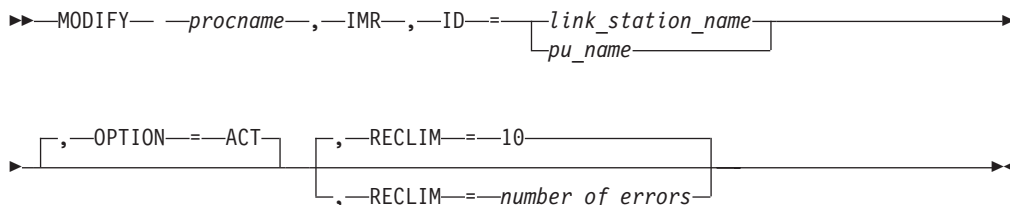
A required parameter that specifies the generic resource name to be deleted. The name can be a network-qualified name. If a *netid* value is not specified, the default network ID is that of the host where the command is issued.

#### OPTION=DELETE

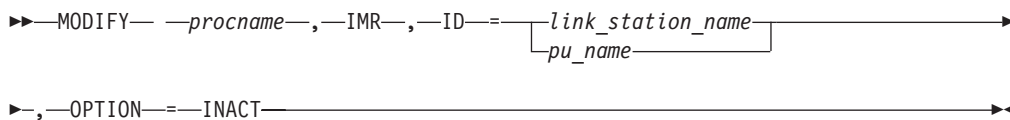
A required parameter that specifies the operation to be performed. DELETE is the only valid value. It specifies that the generic resource should be deleted.

## MODIFY IMR command

### Start intensive mode recording:



### Stop intensive mode recording:



### Abbreviations

Operand	Abbreviation
MODIFY	F
OPTION=ACT	OPT=ACT
OPTION=INACT	OPT=INACT

## MODIFY IMR

### Purpose

The MODIFY IMR (intensive mode recording) command enables you to request that an NCP provide detailed information concerning temporary line errors or other hardware error conditions for a station on an SDLC link. IMR can be specified for a peripheral physical unit of an NCP or for a cross-subarea link station within an NCP. For more information about intensive mode recording, such as the reason for using it and information about where the output is recorded, see *z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures*.

### Operands

#### procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

**ID** Specifies the name of the resource for which IMR data is to be recorded.

#### ID=link\_station\_name

Records IMR data for a link station.

#### ID=pu\_name

Records IMR data for a physical unit.

#### OPTION

Specifies whether IMR should be started or stopped for the named link station or physical unit.

#### OPTION=ACT

Specifies that IMR should be started for the named link station or physical unit.

#### OPTION=INACT

Specifies that ongoing intensive mode recording should be stopped, and that the NCP is not to generate any more IMR records for the named link station or physical unit.

#### RECLIM=number\_of\_errors

Specifies the maximum number of temporary errors that are recorded for the named link station or physical unit. When this limit is reached (or IMR is canceled with OPTION=INACT), the NCP reverts to sending only permanent error records to VTAM. Any decimal integer 1–65535 can be specified. The default is 10. RECLIM is not applicable if OPT=INACT is specified.

---

## MODIFY INOPCODE command

►►—MODIFY— —*procname*—,—INOPCODE—=(

ALL
—
—
<i>modulename</i>

—,—

ALL
—
—
<i>inopcode</i>

—,—

DUMPENABLE
—
DUMPDISABLE
—
DUMPDEFAULT

)—►►

### Abbreviations

Operand	Abbreviation
MODIFY	F

Operand	Abbreviation
DUMPENABLE	DUMPE
DUMPDISABLE	DUMPD
DUMPDEFAULT	DUMPDEF

### Purpose

INOPCODE is used to control the setting of the inoperative condition (InOp) code attributes:

- A dump attribute of DUMPENABLE indicates that if the inoperative condition specified by the module and code occurs, and INOPDUMP is enabled for the resource, VTAM will not avoid taking a dump.
- A dump attribute of DUMPDISABLE indicates that if the inoperative condition specified by the module and code occurs, VTAM will avoid taking a dump.
- A dump attribute of DUMPDEFAULT applies the original, IBM supplied attributes.

### Operands

#### procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

#### Positional Parameters:

- Positional parameter 1 specifies the modules which contain the *inopcodes* to be altered.
- Positional parameter 2 specifies the *inopcode* within the modules to be altered.
- Positional parameter 3 specifies the dump attribute to be applied

#### Restrictions:

- When specifying an InOpCode for the second positional parameter, always specify three digits by including any leading zeros.
- When positional parameter 1 is ALL, positional parameter 2 must also be ALL.

**Tip:** The value of using ALL for either positional parameters 1 or 2, or both when applying a dump attribute of DUMPENABLE is questionable, especially when a resource is InOpDump active. Use caution with the ALL values when enabling.

### Examples

Setting the dump attribute of ISTTSC8E inopcode 202 to DUMPDISABLE:

```
f vtam,inopcode=(isttsc8e,202,dumpd)
IST097I MODIFY ACCEPTED
IST1919I INOPCODES FOR MODULE ISTTSC8E:
IST1920I DUMP ENABLED:
IST1921I 002 003 004 005 006 007 008 009 010 011 012 013 014 100
IST1921I 101 102 103 200 201 205 206 207 208
IST1922I DUMP DISABLED:
```

## MODIFY INOPCODE

```
IST1921I      001 033 034 035 037 038 039 040 041 042 132 133 202 203
IST1921I      204
IST314I END
IST223I MODIFY COMMAND COMPLETED
```

Restoring all IBM supplied defaults (does nothing unless at least one InOpCode has been modified):

```
f vtam, inopcode=(all,all,dumpdef)
IST097I MODIFY ACCEPTED
IST1189I INOPCODE = DUMPDEFAULT
IST223I MODIFY COMMAND COMPLETED
```

### Using InOpDump and InOpCode together:

The following example assumes the *trlename*, *modulename*, and *inopcode* have been remembered from a previous InOp message.

Enable only a single InOpCode:

```
f procname, inopcode=(all,all,dumpd)
IST097I MODIFY ACCEPTED
IST1189I INOPCODE = DUMPDISABLE
IST223I MODIFY COMMAND COMPLETED

f procname, inopcode=(modulename, inopcode, dumpe)
IST097I MODIFY ACCEPTED
IST1919I INOPCODE FOR MODULE modulename:
IST1920I   DUMP ENABLED:
IST1921I     inopcode
IST1922I   DUMP DISABLED:
IST1921I     rest of codes in modulename
IST314I END
IST223I MODIFY COMMAND COMPLETED
```

The above two commands, by themselves, will not result in a dump when the InOp occurs. This is because the resource is not yet enabled for InOpDump.

Enable the *trlename* for InOpDump:

```
f procname, inopdump=on, trle=trlename
IST097I MODIFY ACCEPTED
IST1865I GLOBAL INOPDUMP = OFF
IST1866I TRLE = trlename INOPDUMP = ON
IST314I END
IST223I MODIFY INOPDUMP COMMAND COMPLETED
```

Now the dump will be taken if the condition leading to the use of the module inopcode occurs. After the problem is recreated and a dump has been acquired, restore the environment.

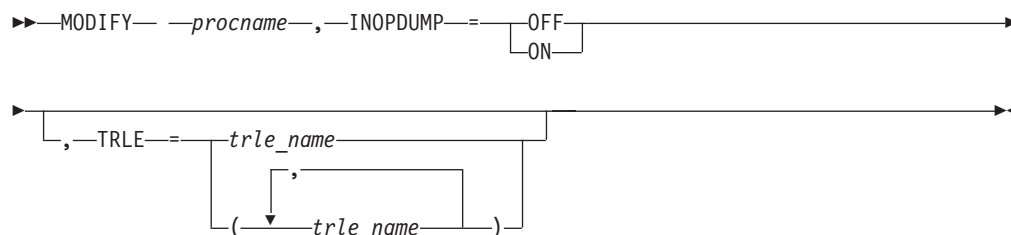
Set InOpDump off for all resources and restore all InOpCode IBM supplied defaults:

```
f procname, inopdump=off
IST097I MODIFY ACCEPTED
IST1865I GLOBAL INOPDUMP = OFF
IST1867I INOPDUMP = OFF FOR ALL TRLE-BASED RESOURCES
IST314I END
IST223I MODIFY INOPDUMP COMMAND COMPLETED

f procname, inopcode=(all,all,dumpdef)
IST097I MODIFY ACCEPTED
IST1189I INOPCODE = DUMPDEFAULT
IST223I MODIFY COMMAND COMPLETED
```



## MODIFY INOPDUMP command



### Abbreviations

Operand	Abbreviation
MODIFY	F

### Purpose

INOPDUMP controls the automatic dumping of VTAM when an inoperative condition occurs in one of VTAMs data link control layers. There are three separate but related controls:

- The global INOPDUMP status, which is also the VTAM INOPDUMP start option. This controls automatic dumping when an inoperative condition is declared on a resource that is not defined within a TRLE (transport resource list entry). The global INOPDUMP status is copied to the TRLE when a TRLE is activated if the TRLE InOpDump status has not been explicitly set.
- The TRLE INOPDUMP status which controls automatic dumping when an inoperative condition is declared on a resource that is defined within the TRLE.
- The INOPCODE status, which controls whether a given code in the module detecting the inoperative condition is enabled for automatic dumping. See “MODIFY INOPCODE command” on page 398 for more details on the interaction between INOPDUMP and INOPCODE.

Use MODIFY INOPDUMP to alter either the global or TRLE INOPDUMP status.

### Operands

#### procname

The procedure name for the command. If procname in the START command was specified as startname.ident, where startname is the VTAM start procedure and ident is the optional identifier, either startname.ident or ident can be specified for procname.

If procname in the START command was startname, startname must be specified for procname.

#### INOPDUMP=ON

Specifies that either the global or TRLE inopdump status is to be set on.

#### INOPDUMP=OFF

Specifies that either the global or TRLE inopdump status is to be set off.

#### TRLE=trle\_name

Specifies the TRLE name or names for which the INOPDUMP status is to be altered.

## MODIFY INOPDUMP

### Note:

1. If the TRLE operand is not specified, both the global and TRLE statuses are altered. If the TRLE operand is specified, only the status of the TRLE for the name or names specified is altered and the global status remains unchanged.
2. The response to a successful global Modify INOPDUMP command will always include the global INOPDUMP status. If the TRL major node was available at the time of the command, you will receive a reminder message that the status for all TRLEs has also been changed. The response to a successful Modify INOPDUMP command that includes the TRLE option will always include the global INOPDUMP status along with the TRLE name or names that were processed.

### Examples

Modifying INOPDUMP information:

```
f vtam,inopdump=off,trle=trle1a
IST097I MODIFY ACCEPTED
IST1865I GLOBAL INOPDUMP = OFF
IST1866I TRLE = TRLE1A INOPDUMP = OFF
IST314I END
IST223I MODIFY INOPDUMP COMMAND COMPLETED
```

---

## MODIFY IOPD command

►►—MODIFY— —*procname*—,—IOPD—,—IOINT—=—*number\_of\_seconds*—►►

### Abbreviations

Operand	Abbreviation
MODIFY	F

### Purpose

Using the MODIFY IOPD command, you can change the I/O problem determination (IOPD) time-out interval. This interval determines how long certain VTAM I/O operations or internal procedures can remain pending before VTAM reports them to the operator. You can then decide whether a problem exists and what action, if any, is warranted.

See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures for guidance on setting the I/O problem determination time-out interval.

**Note:** You can use the “MODIFY VTAMOPTS command” on page 498 (IOINT operand) to perform the same function as this command.

### Operands

#### **procname**

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

**IOINT=number\_of\_seconds**

Specifies the time-out interval (in seconds) for the I/O problem determination function. The value must be a decimal integer 0–5366000. IOINT=0 specifies that the I/O problem determination function is to be deactivated, meaning that VTAM will not notify the operator of pending I/O operations or internal procedures. IOINT is rounded up to the nearest 60-second multiple.

## MODIFY IOPURGE command

►►—MODIFY— —*procname*—,—IOPURGE—=—*timeout\_value*—►►

### Abbreviations

Operand	Abbreviation
MODIFY	F

### Purpose

Using the MODIFY IOPURGE (input/output purge) command, you can set a time interval after which outstanding I/O is assumed to be lost and recovery steps are taken. The types of outstanding I/O that are examined are CDINIT requests, direct search list requests, APPN search requests, and HPR route setup requests.

Before the availability of this function (or when IOPURGE is set to zero), outstanding session requests could remain indefinitely. For example, when an intermediate host that is used in session routing goes down, no response is received to a session establishment request and the LU remains hung indefinitely. By setting an IOPURGE value, you can, in effect, cancel session requests that fail to complete in a certain amount of time. This frees the LU so you can request a session using an alternate path.

It is recommended that you set an IOPURGE value of 3 minutes or more. In some circumstances, for example logging on a remote LU through a slow modem, session setup might take longer and the IOPURGE should be adjusted upward accordingly. A good rule of thumb is to set the IOPURGE value for twice as long as session setup takes. If you set IOPURGE too low, the session request is canceled before a response can be received, and you will have to repeat the session request.

**Note:** You can use the “MODIFY VTAMOPTS command” on page 498 to perform the same function as this command.

### Operands

**procname**

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

## MODIFY IOPURGE

### IOPURGE=timeout\_value

Specifies the time interval allowed to elapse before outstanding I/O is assumed to be lost. When this time interval expires, recovery steps are taken. VTAM supports this feature for CDINIT requests, direct search list requests, APPN search requests, and HPR route setup requests.

The time interval can be specified in seconds, minutes, hours, or days. The minimum value is 30 seconds. The maximum value is 7 days, or the equivalent value in seconds, minutes, or hours. A value of 0 deactivates the IOPURGE function. If you code a value from 1 to 30, VTAM sets IOPURGE to 30 seconds.

**Note:** To reduce potential performance strain, set IOPURGE greater than 2 minutes.

### IOPURGE=n or IOPURGE=nS

Specifies the number of seconds that can pass before a response is assumed to be lost. By default, the time is assumed to be seconds, unless M, H, or D is specified.

### IOPURGE=nM

Specifies the number of minutes that can pass before a response is assumed to be lost.

### IOPURGE=nH

Specifies the number of hours that can pass before a response is assumed to be lost.

### IOPURGE=nD

Specifies the number of days that can pass before a response is assumed to be lost.

---

## MODIFY LINEDEF command

```
▶—MODIFY— —procname—,—LINEDEF—,—ID—==—line_name————▶  
▶,—USE—== { DEFINED  
          SPARE }————▶
```

### Abbreviations

Operand	Abbreviation
MODIFY	F
USE=DEFINED	DEFINED
USE=SPARE	SPARE

### Purpose

Using the MODIFY LINEDEF command, you can dynamically change the definition of a redefinable line. A redefinable line is an SDLC line that has been defined in an NCP major node with USE=REDEF or USE=SPARE. A redefinable line must be the only line defined in the line group.

### Operands

#### **procname**

The procedure name for the command. If *procname* in the START command

was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

**ID=line\_name**

Specifies the name of an SDLC line defined in an NCP major node with the USE=REDEF or USE=SPARE.

**USE**

Specifies that the line identified on the ID operand is to be dynamically redefined.

**USE=DEFINED**

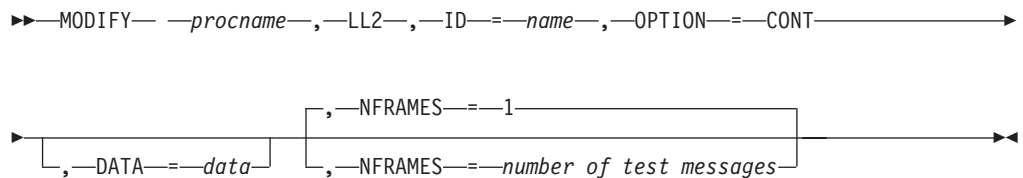
Specifies that the line identified on the ID operand is to become usable.

**USE=SPARE**

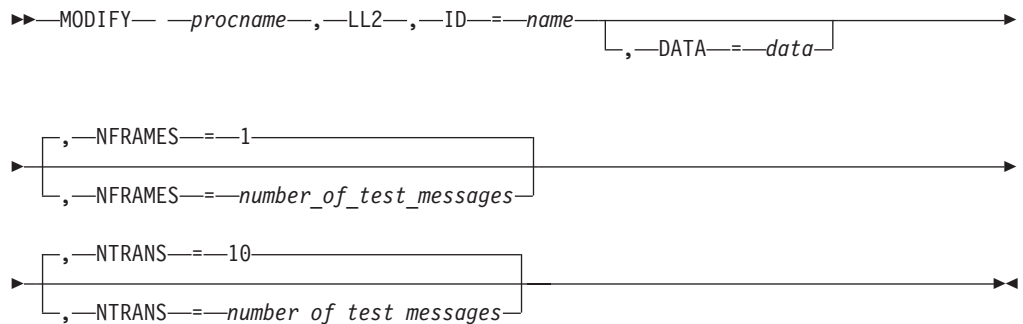
Specifies that the line identified on the ID operand is to become a spare line.

**MODIFY LL2 command**

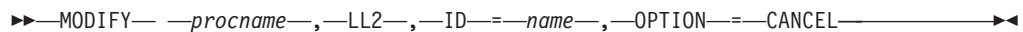
**Start a continuous link level 2 test:**



**Start a brief link level 2 test:**



**Stop a link level 2 test:**



**Abbreviations**

Operand	Abbreviation
MODIFY	F
OPTION=CANCEL	OPT=CANCEL or CANCEL

Operand	Abbreviation
OPTION=CONT	OPT=CONT or CONT

## Purpose

The MODIFY LL2 command is used to request a link level 2 test for a nonswitched SDLC link. This tests communication lines between the following link ends:

- An NCP and a peripheral PU attached to it.
- Two NCPs (PU type 4).
- VTAM and a peripheral PU attached to it.
- An NCP and another VTAM (PU type 5). The command must be initiated from the NCP's domain, and the link station identified by the ID operand must be inactive or inoperative.
- VTAM and another VTAM (PU type 5). The command must be initiated from the VTAM with the highest subarea, and the link station identified by the ID operand must be inactive or inoperative.

The test is performed by sending test data over the link from the primary end of the line to the remote station; the data is then echoed back to the sender. The data received is compared with the data sent. VTAM collects the results and displays these results in a message. For more information about when and how to run an LL2 test, see *z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures*.

## Operands

### procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

### DATA=data

Specifies optional user data to be used as part of the test message. Any EBCDIC alphabetic, numeric, or special characters (such as @ # \$) can be specified. The maximum number of characters permitted depends on the characteristics of the device at the receiving end of the test. If the DATA operand is omitted, VTAM sends test messages without user data.

If DATA is specified and the physical unit returns the correct number of echoes but does not return any data, the physical unit probably does not support echo check with data. To determine whether a physical unit supports data, see the component description for that physical unit.

### ID=name

Specifies:

- For a test of an SDLC link:
  - Between two NCPs or
  - Between an NCP and a host processor or
  - Between two host processors

the name of a link station on the link that is to be tested. The specified link station must be in the NCP or the host that is to initiate the test. The link station at the originating end must be inactive.

- For a link to an SDLC peripheral node:  
the name of a physical unit on the link that is to be tested. The SDLC link must be active and the specified physical unit must be inactive, but, for a multipoint link, the other physical units on the link can be active during the test.

If there is a conflict between VTAM and the NCP about whether a resource has been dynamically reconfigured, an informational message is displayed. This could happen when an NCP is shared among VTAMs.

See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures for additional information about testing a nonswitched SDLC communication line.

**NFRAMES=number\_of\_test\_messages**

Specifies (for a multipoint line) the number of test messages to send to the physical unit each time its station is selected. This option allows the test messages to be interleaved with other data going to other stations on the line. Specify any decimal integer 1–65535. The default is 1.

**NTRANS=number\_of\_test\_messages**

Specifies the number of test messages to send. This number can be any decimal integer 1–65535. (Specifying NTRANS=65535 gives the same result as specifying OPTION=CONT.)

NTRANS must not be specified on the same command as the OPTION operand. If neither NTRANS nor OPTION is specified, the default, NTRANS=10, is used.

**OPTION**

Specifies a test option to use instead of the NTRANS value. If OPTION is not specified, the value in effect for NTRANS is used. OPTION must not be specified on the same command with the NTRANS operand.

**OPTION=CANCEL**

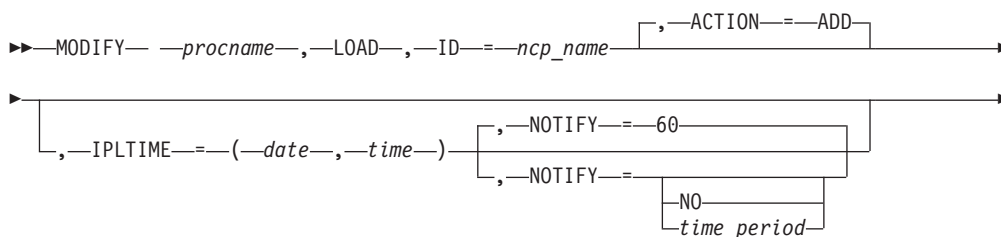
Specifies that the test running currently should be stopped.

**OPTION=CONT**

Specifies that the test being started should run continuously until canceled by the VTAM operator.

**MODIFY LOAD command**

**Store a load module on the hard disk, and optionally for a 3745, schedule an IPL:**



## MODIFY LOAD

```
┌,--LOADMOD==--load_module_name┐
```

**Replace a load module on the hard disk, and optionally for a 3745, schedule an IPL:**

```
►►--MODIFY-- --procname--,--LOAD--,--ID==--ncp_name--,--ACTION==--REPLACE--►►
```

```
┌,--IPLTIME==--(--date--,--time--)┐┌,--NOTIFY==--60┐┌,--NOTIFY==┐┌NO┐┌time_period┐
```

```
┌,--LOADMOD==--load_module_name┐
```

**Purge a load module from the hard disk:**

```
►►--MODIFY-- --procname--,--LOAD--,--ID==--ncp_name--,--ACTION==--PURGE--►►
```

```
┌,--LOADMOD==--load_module_name┐
```

**Cancel an ADD or REPLACE operation in progress:**

```
►►--MODIFY-- --procname--,--LOAD--,--ID==--ncp_name--,--ACTION==--CANCEL--►►
```

```
┌,--LOADMOD==--load_module_name┐
```

**Schedule or cancel an automatic IPL for an NCP load module in a 3745:**

```
►►--MODIFY-- --procname--,--LOAD--,--ID==--ncp_name--,--ACTION==--SETTIME--►►
```

```
┌,--IPLTIME==--(--date--,--time--)┐┌,--NOTIFY==--60┐┌,--NOTIFY==┐┌NO┐┌time_period┐┌CANCEL┐
```

```
┌,--LOADMOD==--load_module_name┐
```

**Rename a load module on the 3745 hard disk for MOSS:**

```
►►--MODIFY-- --procname--,--LOAD--,--ID==--ncp_name--,--ACTION==--RENAME--►►
```

```
┌,--LOADMOD==--load_module_name--,--NEWNAME==--new_load_module_name┐
```



## Abbreviations

Operand	Abbreviation
MODIFY	F
ACTION=ADD	ACTION=A
ACTION=CANCEL	ACTION=C
ACTION=PURGE	ACTION=P
ACTION=RENAME	ACTION=N
ACTION=REPLACE	ACTION=R
ACTION=SETTIME	ACTION=S
IPLTIME=CANCEL	IPLT=C
IPLTIME=time	IPLT=time
LOADMOD :c .LM	
NEWNAME	NEWN
NOTIFY=NO	NT=NO
NOTIFY=time	NT=time

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for IPLTIME=CANCEL, code only IPLT=C. Do not code IPLTIME=C.

## Purpose

The MODIFY LOAD command is used to control NCP load module contents on IBM 3720 or 3745 Communication Controller hard disks. The actions that can be performed are:

- Move a load module from the NCP library to the communication controller hard disk.
- Replace a load module already on the communication controller hard disk.
- Purge a load module on the communication controller hard disk.
- Schedule a load module already on the IBM 3745 Communication Controller hard disk for an automatic IPL, or cancel a scheduled IPL.
- Rename a load module already on the IBM 3745 Communication Controller hard disk.

For additional information about using the timed IPL and automatic reloading functions, see the *z/OS Communications Server: SNA Network Implementation Guide*.

Use the “DISPLAY DISK command” on page 91 to examine the contents of the communication controller hard disk.

## Operands

### procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

## MODIFY LOAD

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

### ACTION

Specifies the action to take on the load module specified by LOADMOD. See Table 5 for additional information about scheduling or canceling IPL, or adding, purging, moving, or replacing a load module.

#### ACTION=ADD

Requests that the load module specified by LOADMOD be stored on the communication controller's hard disk. The name specified by LOADMOD cannot be the same name as a load module already on the disk. If the load module to be added is already on the controller hard disk, the command is rejected. (If you do not specify LOADMOD, it defaults to the NCP name specified on the ID operand.)

The 3720 disk holds a maximum of two load modules. The IBM 3745 Communication Controller's hard disk holds a maximum of two load modules per CCU. If you request an ADD of a load module and the maximum number of load modules are on the disk, the request will be rejected. You then have two options:

- Replace one or both of the load modules already on the disk using the ACTION=REPLACE option.
- Purge one or all of the load modules already on the disk using the ACTION=PURGE option, and then add the module or modules required with the ACTION=ADD option.

Table 5. Relationship between ACTION and IPLTIME operands

	IPLTIME=time	IPLTIME=CANCEL	IPLTIME not specified
<b>ACTION=ADD</b> Requests that the load module specified by LOADMOD be placed on the hard disk. If the load module to be added is already on the hard disk or if the load module slots are already full, the request is rejected.	Requests that the load module be scheduled for IPL at the specified time on the IPLTIME operand.	This is an incorrect specification.	V NET,ACT, LOADFROM=EXT can be used to load the load module into the CCU.
<b>ACTION=REPLACE</b> Requests that the load module specified by LOADMOD replace a load module of the same name already on the hard disk. If a load module with the name specified is not on the hard disk, VTAM attempts an ADD of the load module. The rules for a successful ADD then apply to the REPLACE option.	Requests that the load module be scheduled for IPL at the specified time on the IPLTIME operand.	This is an incorrect specification.	V NET,ACT, LOADFROM=EXT can be used to load the load module into the CCU.  If a scheduled IPL is outstanding for the load module to be replaced, the scheduled IPL is canceled.
<b>ACTION=SETTIME</b> Requests that the load module specified by LOADMOD, existing on the hard disk, be scheduled for an automatic IPL or have a scheduled IPL canceled. The IPLTIME operand is required.	Requests that the load module be scheduled for IPL (or changes a scheduled IPL) at the specified time on the IPLTIME operand.	Requests that the scheduled IPL for the load module be canceled. The load module is not purged from the hard disk.	This is an incorrect specification.

Table 5. Relationship between ACTION and IPLTIME operands (continued)

	IPLTIME=time	IPLTIME=CANCEL	IPLTIME not specified
<b>ACTION=PURGE</b> Requests that the load module specified by LOADMOD be purged from the hard disk. If no load module with the name specified by LOADMOD is on the hard disk, no action is taken and the request is rejected.	This is an incorrect specification.	This is an incorrect specification.	If a scheduled IPL is outstanding for the load module to be purged, the scheduled IPL is canceled.

**ACTION=REPLACE**

Requests that the load module specified by LOADMOD be replaced on the communication controller's hard disk. The name specified by LOADMOD should have the same name as a load module already on the disk, but this is not required. If a load module with the name specified is not on the disk, VTAM attempts an ADD of the load module. The rules for a successful ADD then apply to the REPLACE option.

You should be aware that the REPLACE option affects the automatic reload of a load module if an NCP abends. If the load module being replaced is the one tagged for automatic IPL by use of the DUMPLOAD operand on the VARY ACT command or the DUMPLD operand on the PCCU definition statement (that is, the load module to be reloaded if an NCP abend occurs), it is no longer tagged for automatic IPL after the replace operation begins, nor is the load module retagged for automatic IPL after the replace operation completes.

If the load module being replaced is not the load module tagged for automatic IPL, the automatic IPL tag is not affected during or after the replace of the other load module.

**ACTION=PURGE**

Requests that the load module and scheduled IPL (if applicable) specified by LOADMOD be purged from the hard disk. Only one load module is purged by this command. Issue a separate PURGE command for each load module to be purged. If no load module with the name specified by LOADMOD is on the disk, no action is taken and an error message is issued.

Before issuing a subsequent MODIFY LOAD command of any type, wait for the completion message of the purge request.

**Note:** ACTION=PURGE is not valid with the IPLTIME or NOTIFY operands.

**ACTION=CANCEL**

Requests that a nondisruptive MODIFY LOAD ACTION=ADD or REPLACE option be canceled. The command cannot be disruptive, and must still be executing in order to be canceled. This command does not reverse the process if the process is finished executing. The load module name specified for the CANCEL option must match the load module name specified in the ADD or REPLACE option that is to be canceled.

Regardless of whether the specified load module was originally tagged for automatic IPL, canceling an ADD or REPLACE option results in a PURGE of the partial load module on the disk.

## MODIFY LOAD

**Note:** ACTION=CANCEL is not valid with the IPLTIME or NOTIFY operands.

A nondisruptive PURGE cannot be canceled with this command.

### **ACTION=SETTIME**

Requests that the load module specified by LOADMOD, which exists on the IBM 3745 Communication Controller hard disk, either be scheduled for automatic IPL or have its scheduled IPL canceled. If you use SETTIME, the IPLTIME operand is required.

See Table 5 on page 410 for additional information about scheduling IPL.

You can use the "DISPLAY DISK command" on page 91 to display the scheduled IPL time.

### **ACTION=RENAME**

Requests that the load module on the IBM 3745 Communication Controller hard disk be renamed. This command changes the name MOSS associates with a specified load module on the disk. The internal NCP names (specified in the NCP generation definition) are not affected by this command. If you use RENAME, both the LOADMOD and NEWNAME operands are required.

Renaming a load module that already has a timed IPL set does not cancel the scheduled IPL.

### **ID=ncp\_name**

Specifies the name of an active NCP (as specified in the PUNAME operand of the BUILD statement during NCP generation) that is on the communication controller whose associated hard disk is to be modified.

### **IPLTIME**

Specifies the scheduled IPL time or cancels an existing scheduled IPL from the hard disk into the CCU. This operand is valid with ACTION=SETTIME, ADD, or REPLACE.

IPLTIME can be specified only when an IBM 3745 Communication Controller is being used.

Each load module can have only one IPL time selected for it. Two load modules on the same CCU cannot have estimated IPL times within 5 minutes of each other.

If the time you specify as the IPL time is the same as the current system time, MOSS does not restart the system. See the "VARY ACT command" on page 531 for information about how to cause an immediate IPL.

### **IPLTIME=(date,time)**

Specifies the time of the scheduled IPL. The format of the date entered is determined by the value specified on the DATEFORM start option. The valid possible values for this operand are:

- DATEFORM=MDY (default); date format is mm/dd/yy. The delimiters can be either slash (/) or dash (-).
- DATEFORM=DMY; date format is dd/mm/yy. The delimiters can be either slash (/) or period (.).
- DATEFORM=YMD; date format is yy/mm/dd. The delimiters can be slash (/), period (.), or dash (-).

For example, if DATEFORM=MDY is in effect, specify the IPL time in the form IPLTIME=(mm/dd/yy, hh:mm).

If the year is omitted, the current year is used. The command is rejected if the value entered for the date or time conflicts with any of the following restrictions:

- Date or time is not valid.
- Date or time is greater than 90 days from the current date or time. (If you specify a time interval greater than 15 days, minor MOSS clock deviation might occur.)
- Date or time is before current date or time.

The time *hh:mm* must be specified in military format (24-hour day) and is time zone independent. See Table 6 for examples of time specifications.

*Table 6. Examples of time specifications for IPLTIME*

Location of operator	Location of 3745 for the scheduled IPL	Difference in time zones between the operator and 3745	Time specified in IPLTIME	Time of scheduled IPL at 3745
Los Angeles	New York	+ 3 hours	14:00	17:00
Paris	London	- 1 hour	13:00	12:00
Tokyo	Tokyo	0 hours	23:00	23:00

**IPLTIME=CANCEL**

Indicates that a scheduled IPL for the specified load module be canceled. ACTION=SETTIME is required.

**LOADMOD=load\_module\_name**

Specifies the name of the NCP load module. For ACTION=REPLACE or PURGE, the load module on the disk does not have to be the load module currently active in the communication controller.

For ACTION=ADD, ACTION=REPLACE, ACTION=PURGE, or ACTION=SETTIME, the LOADMOD operand, when not coded, defaults to the name specified for the ID operand. For ACTION=CANCEL, LOADMOD defaults to the name of the load module currently being loaded, if a load is in progress.

For ACTION=RENAME, the LOADMOD operand is required.

For ACTION=ADD or ACTION=REPLACE, the load module specified must be one of the load modules in the load library specified by the LOADLIB operand of the BUILD definition statement for the active NCP.

**NEWNAME=new\_load\_module\_name**

Specifies the new name to be given to the load module specified by the LOADMOD operand. If the new name is the same as the value already specified in LOADMOD, the command is rejected.

NEWNAME can be specified only when an IBM 3745 Communication Controller is being used. NEWNAME is valid and is required when ACTION=RENAME is specified.

**NOTIFY**

Specifies if and when an alert is to be sent before the expiration of the scheduled IPL. NOTIFY is valid only when a time is specified in the IPLTIME operand. NOTIFY can be specified only when an IBM 3745 Communication Controller is being used.

## MODIFY LOAD

An IPLTIME cannot be sooner than the NOTIFY time or the command fails. For example, if NOTIFY is allowed to take the default time (60 minutes) an IPLTIME of less than one hour away is not accepted.

**Note:** The alert is not displayed by VTAM; it is forwarded to the Tivoli NetView for z/OS for z/OS, where it can be displayed using the hardware monitor.

### NOTIFY=mmm

Indicates that an alert will be sent *mmm* minutes before expiration of the scheduled IPL. The default time is 60 minutes. The maximum value is 999 minutes.

### NOTIFY=(hh,mm)

Indicates that an alert will be sent at time *hh,mm* before expiration of the scheduled IPL. The maximum value is 99,99 (99 hours and 99 minutes).

### NOTIFY=NO

Indicates that no alert will be sent before the scheduled IPL.

---

## MODIFY MSGMOD command

►►—MODIFY— —*procname*—, —MSGMOD—=—NO  
YES—►►

### Abbreviations

Operand	Abbreviation
MODIFY	F

### Purpose

The MODIFY MSGMOD (message module) command enables you to specify whether VTAM messages contain an identifier that indicates the VTAM module that originated the message. MSGMOD=YES puts the last five characters of the name of the issuing module immediately after the message identifier. This command overrides the value that was used on the MSGMOD start option.

If the addition of this identifier causes the message text to exceed the maximum allowable message length, the message is truncated on the right, with the possible loss of information. The truncation of messages can be significant (for example, when a display of buffer usage is requested). In this case, the truncated information contains the expansion increment for each buffer pool.

**Note:** You can use the “MODIFY VTAMOPTS command” on page 498 to perform the same function as this command.

### Operands

#### **procname**

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

**MSGMOD**

Specifies whether VTAM messages are to contain an issuing-module identifier.

**MSGMOD=YES**

Causes VTAM messages to contain an issuing-module identifier.

**MSGMOD=NO**

Causes VTAM messages to not contain an issuing-module identifier.

## MODIFY NCP command

►►—MODIFY— —*procname*—, —NCP—, —ID—=*ncp\_name*—, —COMMAND—=*TRSWITCH*—►►  
 ►—, —RESNM—=*resource\_name*—►►

### Abbreviations

Operand	Abbreviation
MODIFY	F
COMMAND	COM, CMD
RESNM	RES, NAME, RESNAME

### Purpose

The MODIFY NCP command is used to send a request to NCP to run the specified command for the specified resource.

### Operands

**procname**

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

**ID=*ncp\_name***

Specifies an active NCP.

**COMMAND**

Specifies the command for NCP to run.

**COMMAND=*TRSWITCH***

Specifies the Token-Ring Path switch request command.

The TRSWITCH command requests NCP to initiate non-disruptive route switch (NDRS) processing for the resource. The resource indicated by the RESNM parameter must be an active NCP Token Ring Interface (NTRI) subarea (PU4) physical unit connected to a 3745 through a bridged network. If no error messages are received at the system console, then VTAM has sent the request to NCP via a SETCV RU. If NCP cannot initiate



## MODIFY NCP

NDRS processing for the resource, the SETCV command will be rejected and the following message will be displayed at the system console:

```
IST242I SETCV COMMAND FAILED FOR ID = nodename SENSE = code
```

If NCP successfully initiates NDRS processing and a route to the physical unit is found, NCP generates a "Token-Ring Path Switch Notification" Generic Alert. This Alert contains the routing information for the route chosen.

### **RESNM=resource\_name**

Specifies the target resource name for the command. It must be a valid resource within the NCP major node indicated by the ID parameter.

---

## MODIFY NEGPOLL command

```
►►—MODIFY— —procname—,—NEGPOLL—=number_of_responses—►►  
►,—ID—=line_name—►►
```

### Abbreviations

Operand	Abbreviation
MODIFY	F

### Purpose

Use this command to request that an NCP change the negative polling limit (the maximum number of consecutive negative polling responses accepted before polling another terminal on the line) for a nonswitched, multipoint line to one or more attached start/stop or BSC terminals.

### Operands

#### **procname**

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

#### **ID=line\_name**

Specifies the name of a nonswitched multipoint line to one or more attached start/stop or BSC terminals.

#### **NEGPOLL=number\_of\_responses**

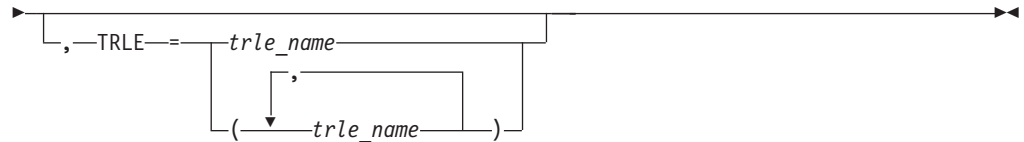
Specifies the negative polling limit as a decimal integer 1–255. This is the maximum number of consecutive negative polling responses accepted before polling another terminal on the line specified by the ID operand.

---

## MODIFY NOTNSTAT command

```
►►—MODIFY— —procname—,—NOTNSTAT—►►
```





### Abbreviations

Operand	Abbreviation
MODIFY	F

### Purpose

The MODIFY NOTNSTAT (no tuning statistics) command enables you to stop the recording of tuning statistics. Also see the “MODIFY TNSTAT command” on page 460 for more ways to control the recording of tuning statistics. MODIFY NOTNSTAT without the TRLE operand terminates global tuning statistics recording (all devices for which VTAM gathers tuning statistics). MODIFY NOTNSTAT with the TRLE operand affects only those TRLEs specified.

### Operands

#### procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

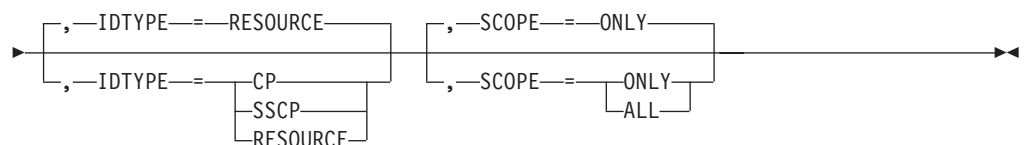
#### TRLE=*trle\_name*

Specifies the transport resource list entry name or names for which statistical recording is to be terminated.

**Note:** Recording is terminated only for those devices within the specified TRLE or TRLEs. If the TRLE operand is not specified, recording is terminated for all devices that collect tuning statistics.

## MODIFY NOTRACE command

### Stop a buffer contents trace:



## MODIFY NOTRACE

### Stop a communication network management trace:

```
▶▶ MODIFY —procname—, —NOTRACE—, —TYPE—=—CNM—, —ID—=—  
└── PDPIUBUF ──▶  
└── SAWBUF ───▶
```

### Stop a user Exit buffer trace:

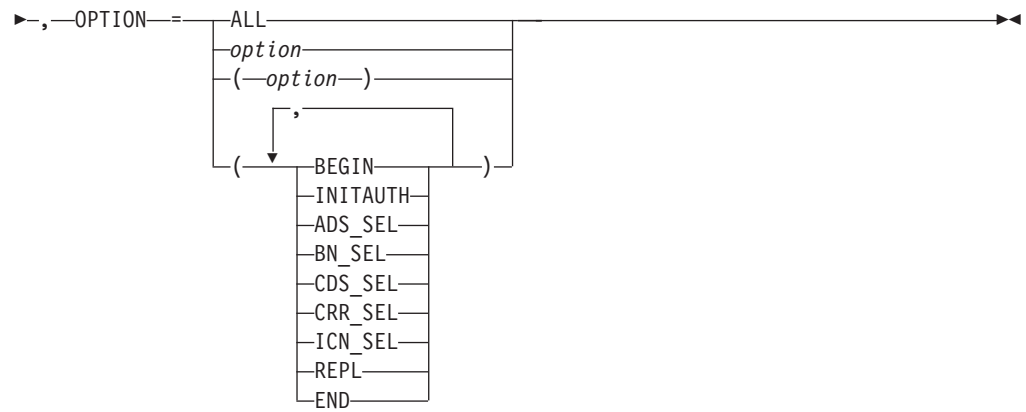
```
▶▶ MODIFY —procname—, —NOTRACE—, —TYPE—=—EXIT—, —ID—=—ISTEXCAA ───▶
```

```
▶, —OPTION—=—  
└── ALL ───▶  
└── option ───▶  
└── (—option—) ───▶  
└── , ───▶  
└── (—  
└── ACCTING ───▶  
└── ADJSSCP ───▶  
└── ALIAS ───▶  
└── ALS ───▶  
└── BEGIN ───▶  
└── END ───▶  
└── GWPATH ───▶  
└── INITAUTH ───▶  
└── REPL ───▶  
└── SECAUTH ───▶  
└── VRSEL ───▶  
└── XRF ───▶
```

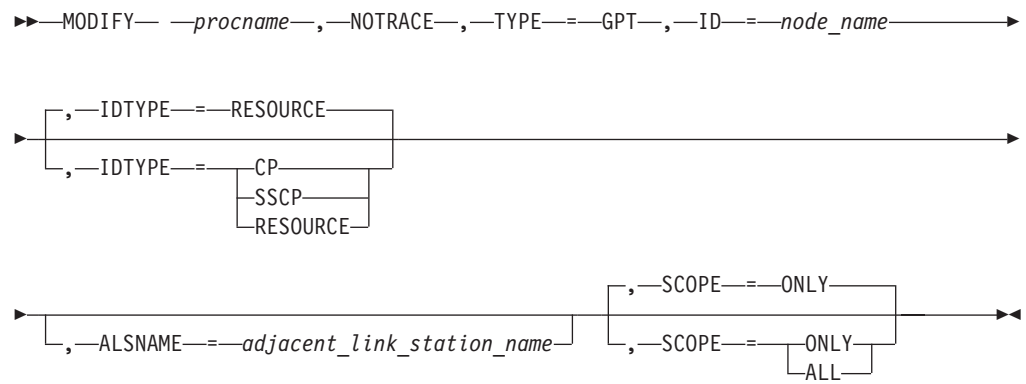
```
▶▶ MODIFY —procname—, —NOTRACE—, —TYPE—=—EXIT—, —ID—=—ISTEXCCS ───▶
```

```
▶, —OPTION—=—  
└── ALL ───▶  
└── option ───▶  
└── (—option—) ───▶  
└── , ───▶  
└── (—  
└── BEGIN ───▶  
└── CONNSTAT ───▶  
└── DYNA_XID ───▶  
└── PRED_XID ───▶  
└── END ───▶
```

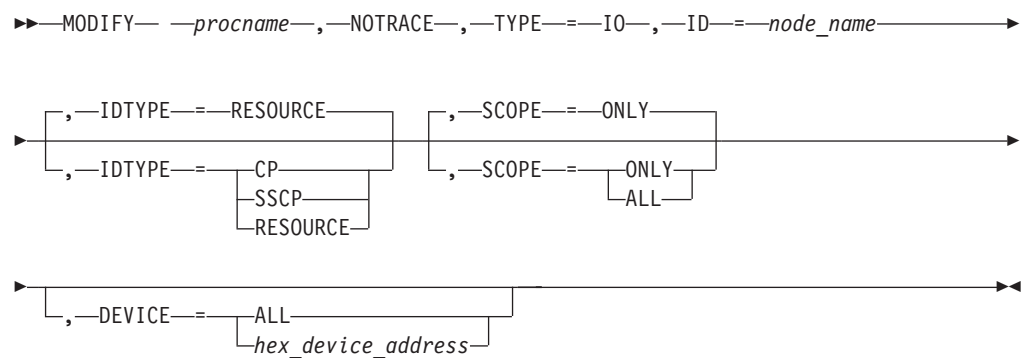
```
▶▶ MODIFY —procname—, —NOTRACE—, —TYPE—=—EXIT—, —ID—=—ISTEXCDM ───▶
```



**Stop a generalized PIU trace:**



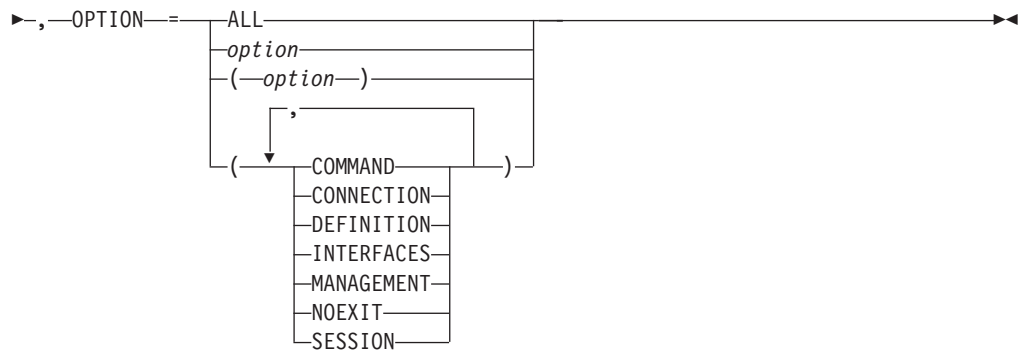
**Stop an input/output trace:**



**Stop a module trace:**



## MODIFY NOTRACE



### Stop an NCP line trace:

```
>> MODIFY procname, NOTRACE, TYPE=LINE, ID=line_name
```

### Stop a 3710 Network Controller line trace:

```
>> MODIFY procname, NOTRACE, TYPE=NETCTLR, ID=pu_name
>> , LINE=line_name, PU=3710_pu_name
```

### Stop OSA-Express2 diagnostic data synchronization for an OSA-Express2 adapter:

```
>> MODIFY procname, NOTRACE, TYPE=QDIOSYNC
```



### Stop the APPN route selection trace in a network node:

```
>> MODIFY procname, NOTRACE, TYPE=ROUTE (1)
```



### Notes:

- 1 TYPE=ROUTE is allowed only in a network node.

### Stop a scanner interface trace:

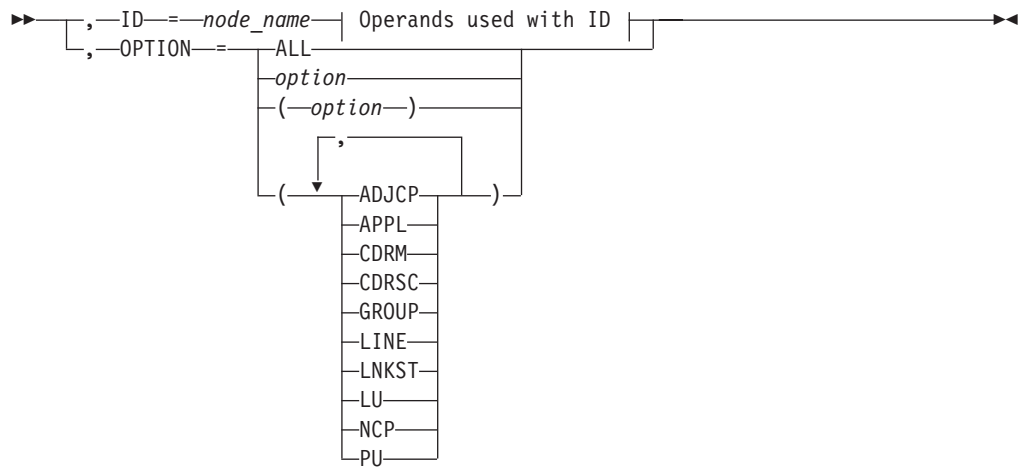
```
>> MODIFY procname, NOTRACE, TYPE=SIT, ID=line_name
```

**Stop an SMS (buffer use) trace:**

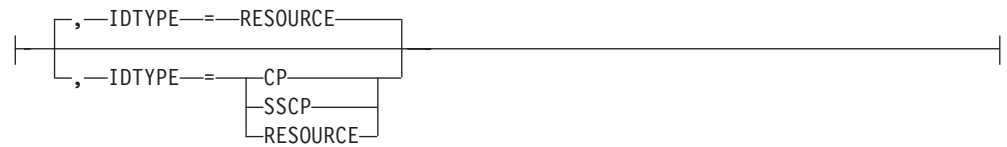
►► MODIFY —*procname*—, —NOTRACE—, —TYPE—=—SMS— [ , —ID—=—VTAMBUF— ]

**Stop a resource state trace:**

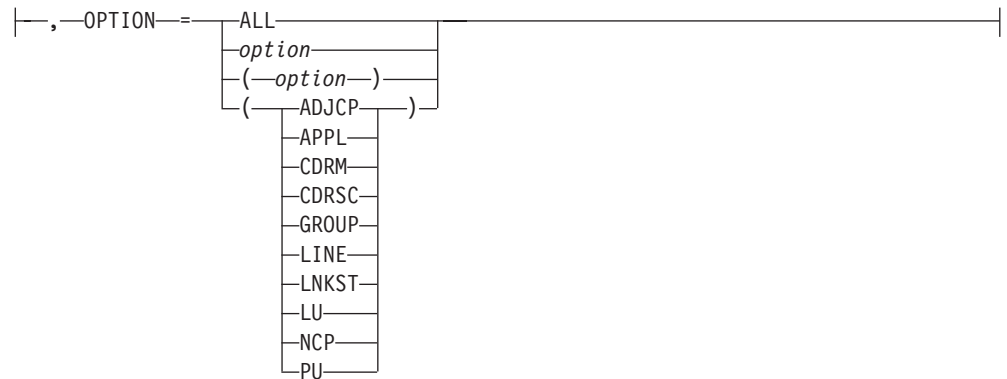
►► MODIFY —*procname*—, —NOTRACE—, —TYPE—=—STATE—



**Operands used with ID:**



**OPTION Operand:**



**Stop a transmission group trace:**

►► MODIFY —*procname*—, —NOTRACE—, —TYPE—=—TG—, —ID—=—*line\_name*—

## MODIFY NOTRACE

### Stop a TSO user ID trace:

►► MODIFY —*procname*—, NOTRACE—, TYPE—=—TSO—, ID—=—*tso\_user\_id*—►◄

### Stop a VTAM internal trace:

►► MODIFY —*procname*—, NOTRACE—, TYPE—=—VTAM—►





## MODIFY NOTRACE

### Notes:

- 1 If you do not specify the mode, both internal and external recording are stopped. However, any default options that you have stopped are immediately restarted by VTAM and recorded on the internal trace table.
- 2 When you specify SUBTRACE=ARBP and you code a single OPTION value, the OPTION value must be either HPR or one of the group options (*hprgrpopt*) that include HPR as an individual option equivalent. The applicable group options are DLUROPTS, EEOPTS, HPDPTOPTS, HPROPTS, QDIOOPTS, and XCFOPTS.
- 3 When you code SUBTRACE=ARBP and you code multiple trace options in parentheses, you must code either HPR or one of the group options (*hprgrpopt*) that include HPR as an individual option equivalent inside the parentheses.
- 4 When you specify SUBTRACE=DIO and you code a single OPTION value, the OPTION value must be either CIA or one of the group options (*ciagrpoppt*) that include CIA as an individual option equivalent. The applicable group options are EEOPTS, HPDPTOPTS, HPROPTS, QDIOOPTS, TCPOPTS, and XCFOPTS.
- 5 When you code SUBTRACE=DIO and you code multiple trace options in parentheses, you must code either CIA or one of the group options (*ciagrpoppt*) that include CIA as an individual option equivalent inside the parentheses.
- 6 When you code SUBTRACE=TGVC or SUBTRACE=TREE and you code a single OPTION value, the OPTION value must be either SSCP or one of the group options (*groupopt*), all of which include SSCP as an individual option equivalent. The group options are APIOPTS, APPCOPTS, CPCPOPTS, CSMOPTS, DLUROPTS, EEOPTS, HPDPTOPTS, HPROPTS, LCSOPTS, QDIOOPTS, STDOPPTS, TCPOPTS, and XCFOPTS.
- 7 When you code SUBTRACE=TGVC or SUBTRACE=TREE and you code multiple trace options in parentheses, you must code either SSCP or one of the group options (*groupopt*) inside the parentheses.
- 8 To stop external recording with OPTION=END, MODE=EXT must be explicitly specified.
- 9 OPTION=FORCE is not valid when MODE=EXT is specified.

### Abbreviations

Operand	Abbreviation
MODIFY	F
ALSNAME	ALS
OPTION	OPT
OPTION=COMMAND	OPT=CMD
OPTION=CONNECTION	OPT=CON
OPTION=DEFINITION	OPT=DEF
OPTION=INTERFACES	OPT=INT
OPTION=MANAGEMENT	OPT=MGMT
OPTION=SESSION	OPT=SES
SCOPE=ALL	EVERY or E



Operand	Abbreviation
SCOPE=ONLY	NONE

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for SCOPE=ALL, code only EVERY or E. Do not code SCOPE=E.

## Purpose

The MODIFY NOTRACE command stops a specified trace or deletes a trace command that was saved previously with MODIFY TRACE,SAVE=YES. See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures for a more detailed description of the VTAM trace facilities. See also the z/OS Communications Server: SNA Resource Definition Reference and the “MODIFY TRACE command” on page 467.

## Operands

### procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

### ALSNAME=adjacent\_link\_station\_name

Applies only when TYPE=GPT. It specifies the name of the adjacent link station through which you want to turn off traces. The adjacent link station name must be a PU in an NCP major node or a switched PU connected by an NCP link.

The LU can be traced over multiple connections. To turn off tracing for multiple connections, enter a separate command for each connection.

You do not need to specify the ALSNAME operand if either of the following situations is true:

- The ALS list has only one entry (and it is not ISTAPNPU). That entry is selected.
- The ALS list has two entries, one of which is ISTAPNPU. The entry other than ISTAPNPU is selected.

The command fails if ISTAPNPU is specified, or if ISTAPNPU is used by default because it is the only entry in the ALS list.

If no ALS list exists for the resource, specify the adjacent link station on the ALSNAME operand.

Use the DISPLAY ID=*lu\_name*,SCOPE=ALL command to display all sessions for an independent LU and which adjacent link station list is used for each session.

### DEVICE

Applies only when the ID operand is a TRLE that has the DATAPATH operand coded. Use DEVICE to stop input/output trace on OSA-Express devices specified on the DATAPATH operand.

## MODIFY NOTRACE

### DEVICE=ALL

Specifies to turn off input/output trace on all devices in the DATAPATH list.

### DEVICE=*hex\_device\_address*

Specifies to turn off input/output trace for a specific DATAPATH device.

### FREE

Applies only when you specify TYPE=ROUTE. The FREE operand specifies whether the APPN route selection trace table storage should be freed.

### FREE=YES

The storage allocated for the route selection trace table is freed.

#### Guidelines for using the FREE operand:

1. Start the APPN route selection trace with the MODIFY TRACE,TYPE=ROUTE command.
2. Recreate the problem (an incorrect APPN route was taken).
3. Stop the APPN route selection trace with the MODIFY NOTRACE,TYPE=ROUTE command.
4. Dump VTAM to capture the information in the APPN route selection trace.
5. Free the route selection trace table storage with the MODIFY NOTRACE,TYPE=ROUTE, FREE=YES

### FREE=NO

The storage allocated for the route selection trace table is not freed.

### ID=*name*

Specifies one of the following values:

- When TYPE is **BUF, IO, GPT, LINE, SIT, STATE, or TG**, the ID operand specifies the name of a node for which there is an active trace of the type specified by the TYPE operand.

For TYPE=BUF, TYPE=IO, TYPE=GPT, or TYPE=STATE, the name can be a network-qualified name. If *name* is an ACB name, and the ACB name matches the name on the APPL definition statement, then you can use a network-qualified ACB name.

For TYPE=BUF, TYPE=IO, or TYPE=STATE for a CDRM, you can specify a network-qualified name, but this does not remove the restriction that the non-network-qualified CDRM name must be unique across networks.

For TYPE=BUF, you can specify the name of the internal or external CMIP application program. For the VTAM topology agent, *node\_name* is ISTTOPAG. For notification services, *node\_name* is ISTNOTIF

For TYPE=IO, the name can be a TRLE name with OSA-Express.

For TYPE=BUF, TYPE=IO, or TYPE=STATE, the name can be a model resource (APPL or CDRSC). If SCOPE=ALL is specified, the command also applies to the clone resources created from the model. If SCOPE=ONLY is specified, current clone resources are unaffected, but future clone resources are affected when they are created.

- When TYPE is **CNM**, the ID operand specifies one of the following values:
  - PDPIUBUF, to stop the problem determination PIU buffer trace
  - SAWBUF, to stop the session awareness buffer trace.
- When TYPE is **EXIT**, the ID operand is required and must be specified as ISTECCA, ISTECCS, or ISTECCDM.
- When TYPE is **MODULE**, the ID operand does not apply.

- When TYPE is **NETCTLR**, the ID operand specifies the physical unit for which the trace is to be stopped. (VTAM is not required to own or know about the IBM 3710 Network Controller). VTAM sends the name of the resource specified on the ID operand to the IBM 3710 Network Controller specified on the PU operand.
- When TYPE is **QDIOSYNC**, the ID operand specifies the TRLE name of the OSA-Express2 adapter for which diagnostic data synchronization and filtering is to be stopped. Specify ID=\* to stop QDIOSYNC for all OSA-Express2 adapters.

When multiple QDIOSYNC NOTRACE or TRACE commands are specified, the last one that is applicable to a specific TRLE name takes precedence. For example, TRACE TYPE=QDIOSYNC,ID=TRLE1 requests synchronization for a single OSA-Express2 adapter but the request is canceled if it is followed by NOTRACE TYPE=QDIOSYNC,ID=\*. TRACE TYPE=QDIOSYNC,ID=\* requests synchronization of all OSA-Express2 adapters and, if it is followed by NOTRACE TYPE=QDIOSYNC,ID=TRLE1, results in the synchronization of all OSA-Express2 adapters except TRLE1.

- When TYPE is **SMS**, the ID operand is optional and, if specified, is always VTAMBUF.
- When TYPE is **TSO**, the ID operand specifies the name of a TSO user ID for which there is an active trace.
- When TYPE is **VTAM**, the ID operand does not apply.

**IDTYPE**

Specifies the type of resource that the ID operand names. If several types of resources share the same name, IDTYPE identifies which resource the command should act on. IDTYPE applies when TYPE=BUF, TYPE=IO, TYPE=GPT, or TYPE=STATE.

**IDTYPE=CP**

Stops tracing for the CP with the name specified on the ID operand. The control point can be the host CP or a CDRSC representing an adjacent CP.

**IDTYPE=SSCP**

Stops tracing for the SSCP with the name specified on the ID operand.

**IDTYPE=RESOURCE**

Stops tracing for a CP, an SSCP, or another resource with the name specified on the ID operand. If both an SSCP and a CP are found, VTAM stops tracing for both of them.

**LINE=line\_name**

Applies only when TYPE=NETCTLR. It specifies the name of a link whose trace is to be stopped. This link is attached to the IBM 3710 Network Controller specified on the PU operand. VTAM has no knowledge of this link. VTAM sends the name of the link specified on the LINE operand to the IBM 3710 Network Controller specified on the PU operand.

**MODE**

Applies only when TYPE=VTAM. It specifies whether to stop internal or external trace recording.

If you do not specify MODE, the requested options are stopped both internally and externally. However, if external tracing is active when the command is issued, external tracing is restarted with the same number of external buffers.

If you turn off tracing for the default trace options, they will be immediately restarted and recorded internally.

## MODIFY NOTRACE

The default options are for internal tracing only. In effect, you cannot stop the default options from running internally.

### **MODE=INT**

Stops internal trace recording for the specified options.

### **MODE=EXT**

Stops external trace recording for the specified options.

MODE=EXT is not valid when OPTION=FORCE is specified.

### **OPTION**

Applies to TYPE=EXIT, TYPE=MODULE, TYPE=STATE, and TYPE=VTAM.

For TYPE=EXIT, OPTION specifies the functions for which tracing is to be stopped.

If more than one option is selected, separate them with commas and enclose the list in parentheses; for example OPTION=(BEGIN,INITAUTH,ACCTING).

For TYPE=MODULE, OPTION specifies the modules for which tracing is to be stopped.

If more than one option is selected, separate them with commas and enclose the list in parentheses; for example OPTION=(COMMAND,SESSION).

For TYPE=STATE, OPTION specifies the types of resources for which resource state tracing is to be stopped.

If more than one option is selected, separate them with commas and enclose the list in parentheses; for example OPTION=(APPL,GROUP,NCP).

For TYPE=VTAM, OPTION indicates the types of VTAM internal traces to be stopped. For additional information about the OPTION operand, see the "MODIFY TRACE command" on page 467 and the z/OS Communications Server: SNA Resource Definition Reference. For more information about VTAM internal trace options, see the z/OS Communications Server: SNA Diagnosis Vol 2, FFST Dumps and the VIT.

If TYPE=VTAM is specified and OPTION is omitted, VTAM issues messages identifying the components for which the internal trace is active, without stopping any active traces.

If more than one option is selected, separate them with commas and enclose the list in parentheses; for example, OPTION=(API,LOCK,SSCP).

The API, CIO, MSG, NRM, PIU, and SSCP VIT options are kept active by VTAM for internal recording (MODE=INT). If you stop them, VTAM immediately restarts them. For external recording (MODE=EXT), there are no default options. You can start or stop any options.

**Note:** Although the default options are always active, these options do not appear in DISPLAY TRACES output unless you have specified them on the MODIFY TRACE command or the TRACE,TYPE=VTAM start option.

### **OPTION=ALL**

Applies to TYPE=MODULE, TYPE=STATE, and TYPE=VTAM.

For TYPE=MODULE, it stops the tracing of all modules.

For TYPE=STATE, it stops the tracing of all resource types except for those started for a specific resource.

For TYPE=VTAM, it stops all of the internal trace options. Exception trace entries continue to be recorded in the internal trace table. For MODE=INT,

OPTION=ALL stops internal recording for all options; however, the default options are restarted immediately. For MODE=EXT, OPTION=ALL stops external trace recording for all options. If you do not specify the MODE, tracing is stopped both internally and externally, but the default options are restarted immediately for MODE=INT.

**OPTION=END**

Applies to TYPE=VTAM.

- If MODE is not specified, OPTION=END stops both internal and external trace recording and frees the internal trace table (with consequent loss of existing trace data if external recording is not being used). VTAM immediately restarts the default trace options with MODE=INT and the default trace table size.
- If MODE=INT is specified, OPTION=END stops internal trace recording only and frees the internal trace table (with consequent loss of existing trace data if external recording is not being used). VTAM immediately restarts the default trace options with MODE=INT and the default trace table size.
- If MODE=EXT is specified, OPTION=END stops external trace recording only. To stop external recording with OPTION=END, MODE=EXT must be explicitly specified.

For **TYPE=EXIT** where ID=ISTEXCAA, you can also specify the following options:

**OPTION=ALL**

Stops the tracing of all functions of the session management exit (SME).

**OPTION=ACCTING**

Stops tracing the initial and final accounting function of the session management exit (SME).

**OPTION=ADJSSCP**

Stops tracing the adjacent SSCP selection function of the session management exit (SME).

**OPTION=ALIAS**

Stops tracing the alias translation function of the session management exit (SME).

**OPTION=ALS**

Stops tracing the adjacent link station function of the session management exit (SME).

**OPTION=BEGIN**

Stops tracing the begin function of the session management exit (SME).

**OPTION=END**

Stops the tracing of the END function of the session management exit (SME).

**OPTION=GWPATH**

Stops tracing the gateway path list function of the session management exit (SME).

**OPTION=INITAUTH**

Stops tracing the initial authorization function of the session management exit (SME).

## MODIFY NOTRACE

### **OPTION=REPL**

Stops tracing the exit replacement function of the session management exit (SME).

### **OPTION=SECAUTH**

Stops tracing the secondary authorization function of the session management exit (SME).

### **OPTION=VRSEL**

Stops tracing the virtual route selection function of the session management exit (SME).

### **OPTION=XRF**

Stops tracing the XRF session switch function of the session management exit (SME).

For **TYPE=EXIT** where **ID=ISTEXCCS**, you can also specify the following options:

### **OPTION=ALL**

Stops tracing of all functions.

### **OPTION=BEGIN**

Stops tracing the begin function.

### **OPTION=CONNSTAT**

Stops tracing the connection status.

### **OPTION=DYNA\_XID**

Stops tracing the XIDs for dynamic PUs function.

### **OPTION=END**

Stops tracing the end function.

### **OPTION=PRED\_XID**

Stops tracing the XIDs for predefined PUs function.

For **TYPE=EXIT** where **ID=ISTEXCDM**, you can also specify the following options:

### **OPTION=ALL**

Stops tracing of all the functions.

### **OPTION=ADS\_SEL**

Stops tracing the alternate central directory server selection function.

### **OPTION=BEGIN**

Stops tracing the begin function.

### **OPTION=BN\_SEL**

Stops tracing the border node selection function.

### **OPTION=CDS\_SEL**

Stops tracing the central directory server selection function.

### **OPTION=CRR\_SEL**

Stops tracing the central resource registration selection function.

### **OPTION=END**

Stops tracing the end function.

### **OPTION=ICN\_SEL**

Stops tracing the interchange node selection function.

### **OPTION=INITAUTH**

Stops tracing the initial authorization function.

**OPTION=REPL**

Stops tracing the exit replacement function

For **TYPE=MODULE**, you can also specify the following options:

**OPTION=COMMAND**

Stops tracing modules involved in command processing.

**OPTION=CONNECTION**

Stops tracing modules involved in setting up connections between nodes.

**OPTION=DEFINITION**

Stops tracing modules involved in resource definition processing.

**OPTION=INTERFACES**

Stops tracing modules involved in the interface with the host SSCP or the host CP.

**OPTION=MANAGEMENT**

Stops tracing modules involved in network management.

**OPTION=NOEXIT**

Specifies that module exits are to be traced for the modules associated with all active **OPTION** values for **TYPE=MODULE**. Module exits are traced for all modules until a subsequent **MODIFY TRACE,TYPE=MODULE,OPTION=NOEXIT** command is issued.

**Note:** When a **MODULE** trace is started with **OPTION=NOEXIT** (either with the **TRACE** start option or a **MODIFY TRACE** command), module exits are not traced. Specifying **OPTION=NOEXIT** on the **MODIFY NOTRACE** command resumes the tracing of the module exits.

**OPTION=SESSION**

Stops tracing modules involved in session establishment.

For **TYPE=STATE**, you can also specify the following options:

**OPTION=ADJCP**

Stops tracing the states of all adjacent control points.

**OPTION=APPL**

Stops tracing the states of all application programs.

**OPTION=CDRM**

Stops tracing the states of all CDRMs.

**OPTION=CDRSC**

Stops tracing the states of all CDRSCs.

**OPTION=GROUP**

Stops tracing the states of all line groups.

**OPTION=LINE**

Stops tracing the states of all lines.

**OPTION=LNKST**

Stops tracing of link stations.

**OPTION=LU**

Stops tracing the states of all logical units.

**OPTION=NCP**

Stops tracing the states of all NCPs.



## MODIFY NOTRACE

### **OPTION=PU**

Stops tracing the states of all physical units.

For **TYPE=VTAM**, you can also specify the following options:

### **OPTION=API**

Stops tracing the application programming interface.

### **OPTION=APIOPTS**

Stops tracing events related to the application programming interface (API). Specifying this value is equivalent to specifying **OPTION=(API,MSG,NRM,PIU,PSS,SMS,SSCP)**.

### **OPTION=APPC**

Stops tracing LU 6.2 communication.

### **OPTION=APPCOPTS**

Stops tracing events related to LU 6.2 application programs. Specifying this value is equivalent to specifying **OPTION=(API,APPC,MSG,NRM,PIU,PSS,SMS,SSCP)**.

### **OPTION=CFS**

Stops tracing coupling facility services.

### **OPTION=CIA**

This option helps isolate problems related to channel I/O. CIA entries are the remaining trace records from the CIO option.

### **OPTION=CIO**

Stops tracing channel I/O for channel-attached devices and for lines attached to a communication adapter.

### **OPTION=CMIP**

Stops tracing internal events in CMIP services and the VTAM topology agent.

### **OPTION=CPCPOPTS**

Stops tracing events related to CP-CP sessions. Specifying this value is equivalent to specifying **OPTION=(API,APPC,MSG,NRM,PIU,PSS,SMS,SSCP)**.

### **OPTION=CSM**

Stops tracing the communications storage manager.

### **OPTION=CSMOPTS**

Stops tracing events related to communications storage manager (CSM). Specifying this value is equivalent to specifying **OPTION=(API,APPC,CIO,CSM,MSG,NRM,PIU,PSS,SMS,SSCP,XBUF)**.

### **OPTION=DLUROPTS**

Stops tracing events related to dependent LU requester (DLUR). Specifying this value is equivalent to specifying **OPTION=(API,APPC,HPR,MSG,NRM,PIU,PSS,SMS,SSCP)**.

### **OPTION=EEOPTS**

Stops tracing events related to Enterprise Extender (EE). Specifying this value is equivalent to specifying **OPTION=(CIA,CIO,HPR,MSG,NRM,PIU,PSS,SMS,SSCP,TCP)**.

### **OPTION=ESC**

Stops tracing the execution sequence control.

### **OPTION=HPDTPPTS**

Stops tracing events related to high performance data transfer (HPDT).



Specifying this value is equivalent to specifying  
OPTION=(CIA,CIO,HPR,MSG,PIU,PSS,SMS,SSCP).

**OPTION=HPR**

Stops tracing for HPR.

**OPTION=HPROPTS**

Stops tracing events related to high performance routing (HPR). Specifying this value is equivalent to specifying  
OPTION=(API,APPC,CIA,CIO,HPR,MSG,NRM,PIU,PSS,SMS,SSCP).

**OPTION=LCS**

Stops tracing LAN channel stations.

**OPTION=LCSOPTS**

Stops tracing events related to LAN channel station (LCS). Specifying this value is equivalent to specifying  
OPTION=(CIO,LCS,MSG,NRM,PIU,PSS,SMS,SSCP).

**OPTION=LOCK**

Stops tracing locks

**OPTION=MSG**

Stops tracing messages.

**OPTION=NRM**

Stops tracing network resource management.

**OPTION=PIU**

Stops tracing path information units.

**OPTION=PSS**

Stops tracing process scheduling services.

**OPTION=QDIOOPTS**

Stops tracing events related to queued direct I/O (QDIO). Specifying this value is equivalent to specifying  
OPTION=(CIA,CIO,HPR,MSG,NRM,PIU,PSS,SMS,SSCP).

**OPTION=SMS**

Stops tracing Storage Management services.

**OPTION=SSCP**

Stops tracing the system services control point.

**OPTION=STDOPTS**

Stops tracing events related to the application programming interface, channel I/O, messages, network resource management, path information units, process scheduling services, Storage Management services, and the system services control point. Specifying this value is equivalent to specifying  
OPTION=(API,CIO,MSG,NRM,PIU,PSS,SMS,SSCP).

**OPTION=TCP**

Stops tracing the Enterprise Extender events.

**OPTION=TCPOPTS**

Stops tracing events related to TCP/IP. Specifying this value is equivalent to specifying  
OPTION=(CIA,CIO,MSG,NRM,PIU,PSS,SMS,SSCP,TCP).

**OPTION=VCNS**

Stops tracing VTAM common network services.

**OPTION=XBUF**

Stops tracing of extended buffer list information.

## MODIFY NOTRACE

### **OPTION=XCF**

Stops tracing XCF communication.

### **OPTION=XCFOPTS**

Stops tracing events related to the cross-system coupling facility (XCF). Specifying this value is equivalent to specifying `OPTION=(CIA,CIO,HPR,MSG,NRM,PIU,PSS,SMS,SSCP,XCF)`.

### **OPTION=FORCE**

Stops trace recording if it appears that a previous `MODIFY NOTRACE,OPT=ALL` or `END` command did not complete. Use `OPTION=FORCE` only if your attempt to use `OPTION=END` appears to have failed. VTAM immediately restarts the default trace options with `MODE=INT` and the default trace table size.

**Note:** `OPTION=FORCE` may cause ABENDs for applications that are in a hung condition.

`OPTION=FORCE` is not valid when `MODE=EXT` is specified. If `OPTION=FORCE` is specified without the `MODE` operand, external tracing is stopped and all external buffers are freed.

### **PU=3710\_pu\_name**

Applies only when `TYPE=NETCTLR`. It specifies the 3710 physical unit performing the trace to be stopped. VTAM rejects the command if the physical unit is not active to this VTAM (SSCP).

### **SCOPE**

Specifies the scope of the trace. It applies when `TYPE=BUF` or `TYPE=IO`. You can also specify the `SCOPE` operand for `TYPE=GPT`, but it is meaningful only for the NCP node. `SCOPE=ALL` is assumed for a GPT trace of all other node types.

#### **SCOPE=ALL**

Stops traces for any nodes subordinate to the node specified. `SCOPE=ALL` is not valid for the host PU trace or for the host intermediate routing node trace (`ID=ISTIRN`). If `SCOPE=ALL` is specified, VTAM issues a message and uses `SCOPE=ONLY` instead.

If the specified node is a model application, `SCOPE=ALL` turns off the trace option for the model application and stops traces for all existing dynamic applications created using the model. Traces will not be started for future dynamic applications created using the model.

#### **SCOPE=ONLY**

Stops a trace only for the specified node.

If the specified node is a model application, `SCOPE=ONLY` turns off the trace option or the model application. Traces for all existing dynamic applications created using the model are unaffected. Traces will not be started for future dynamic applications created using the model.

### **SUBTRACE**

Specifies that `SUBTRACE` can be used to turn off a subset of trace entries under a trace option. Currently, four `SUBTRACE` types are defined; subtrace `TREE` and `TGVC` are defined under the SSCP trace option, subtrace `DIO` is defined under the CIA trace option, and subtrace `ARBP` is defined under the HPR trace option.

**SUBTRACE=ARBP**

Specifies that OPTION is a required keyword when SUBTRACE is specified and HPR must be one of the trace options specified when SUBTRACE=ARBP is coded.

**SUBTRACE=DIO**

Specifies that OPTION is a required keyword when SUBTRACE is specified and CIA must be one of the trace options specified when SUBTRACE=DIO is coded.

**SUBTRACE=TGVC**

Specifies that OPTION is a required keyword when SUBTRACE is specified and SSCP must be one of the trace options specified when SUBTRACE=TGVC is coded.

**SUBTRACE=TREE**

Specifies that OPTION is a required keyword when SUBTRACE is specified and SSCP must be one of the trace options specified when SUBTRACE=TREE is coded.

**TYPE**

Specifies the kind of trace that is to be stopped. Each trace must be stopped with a separate MODIFY NOTRACE command.

**TYPE=BUF**

Stops the tracing of text that passes through VTAM buffers on the way to or from the node indicated by the ID operand. The SCOPE=ALL operand can be used to extend the scope of the trace to all nodes subordinate to the specified node.

**TYPE=CNM**

Stops a communication network management trace.

**TYPE=EXIT**

Stops the tracing of functions of the session management exit (SME).

**TYPE=GPT**

Stops an NCP generalized PIU trace for the resources specified by the ID operand.

**Note:** The ID operand of MODIFY NOTRACE cannot specify:

- An NCP switched line that is a switched subarea connection
- A dynamic CDRSC

**TYPE=IO**

Stops a trace of I/O activity associated with the node specified on the ID operand. The SCOPE=ALL operand can be used to extend the scope of the trace to all nodes subordinate to the specified node. Also, for an NCP major node with an active channel attachment, the SCOPE=ALL operand terminates any active channel I/O trace.

**Note:** The external VIT is now used to record the IO trace entries. The previously used IO trace is no longer available. PIU, NLPI, NLPO, LSNA, and MPTNFMT entries may be written for a specific IO trace invocation. When the last IO trace is terminated, the external VIT remains active. You must explicitly turn the VIT off.

## MODIFY NOTRACE

### TYPE=LINE

Stops an NCP line trace for the line specified by the ID operand. Note that specifying TYPE=LINE stops any transmission group trace that was started using the same line name.

### TYPE=MODULE

Stops module tracing for the options specified on the OPTION operand.

### TYPE=NETCTLR

Stops the IBM 3710 Network Controller line trace for the physical unit named on the PU operand.

### TYPE=QDIOSYNC

Stops QDIOSYNC OSA-Express2 diagnostic data synchronization and filtering.

### TYPE=ROUTE

Stops the APPN route selection trace.

### TYPE=SIT

Stops a scanner interface trace (SIT) of the communication scanner processor in the IBM 3720 or 3745 Communication Controller.

### TYPE=SMS

Stops a Storage Management services (SMS) trace that is recording VTAM buffer pool usage data.

### TYPE=STATE

Stops resource state tracing. If the ID operand is specified, state tracing is stopped for that resource only. If the OPTION operand is specified, state tracing is stopped for those resource types specified.

### TYPE=TG

Stops an NCP transmission group trace for the transmission group containing the line specified by the ID operand.

### TYPE=TSO

Stops a TSO component trace for the user ID specified by the ID operand.

### TYPE=VTAM

Stops the VTAM internal trace (VIT) for the components specified by the OPTION operand. If OPTION is omitted, no internal traces are stopped; rather, VTAM issues messages identifying the components for which the internal trace is currently active.

---

## MODIFY POLL command

►►—MODIFY— —*procname*—,—POLL—==—*number\_of\_seconds*—,—ID—==—*line\_name*—►►

### Abbreviations

Operand	Abbreviation
MODIFY	F

### Purpose

You can use this command to request that an NCP change the polling delay (the time delay between polling sequences) for a nonswitched, polled line to one or more attached BSC IBM 3270 terminals.

### Operands

**procname**

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

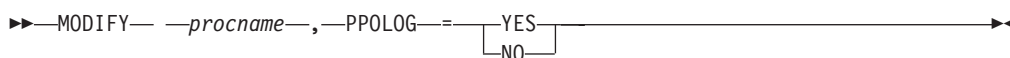
**ID=line\_name**

Specifies the name of a nonswitched, polled line to one or more attached BSC IBM 3270 terminals.

**POLL=number\_of\_seconds**

Specifies the polling delay in seconds. This is the time delay between polling sequences on the line specified by the ID operand. Specify the number of seconds as an integer in the range 0–255.

## MODIFY PPOLOG command



### Abbreviations

Operand	Abbreviation
MODIFY	F

### Purpose

Use the MODIFY PPOLOG command to request that VTAM start or stop sending copies of VTAM operator commands and VTAM messages to the primary program operator (PPO).

If the PPOLOG option is in effect, messages that were suppressed by the MODIFY SUPP command or the SUPP start option are still sent to the primary program operator, even though those messages do not appear on the system console.

PPOLOG is supported by the Tivoli NetView for z/OS. Use of this command requires the system to have a primary program operator such as the Tivoli NetView for z/OS, and requires that the primary program operator can support the option.

**Note:** You can use the “MODIFY VTAMOPTS command” on page 498 to perform the same function as this command.

## MODIFY PPOLOG

### Operands

#### procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

#### PPOLOG

Specifies whether to send copies of VTAM operator commands and messages to the PPO for logging.

#### PPOLOG=YES

Sends copies of all VTAM operator commands received from the system console, and copies of all VTAM messages that have been written to the system console.

#### PPOLOG=NO

Stops sending copies of all VTAM operator commands received from the system console, and copies of all VTAM messages that have been written to the system console.

---

## MODIFY PROFILES command

►►—MODIFY— —*procname*—,—PROFILES—,—ID—=—*appl\_name*—►►

### Abbreviations

Operand	Abbreviation
MODIFY	F

### Purpose

The MODIFY PROFILES command refreshes an active application's set of RACF<sup>®</sup> profiles. This command updates the profiles in storage to reflect changes made by the security administrator to the RACF profiles.

**Note:** The profile changes affect only those sessions that are started after the command is run. Active sessions are not affected. Pending sessions might be terminated if the profile or the LU-LU password is deleted or changed for a partner LU. To prevent such an error, it is recommended that this command not be invoked if any active or pending sessions between the application program and its partner LUs would be affected by a profile change. See the z/OS Communications Server: SNA Programmer's LU 6.2 Guide for more information about LU 6.2 application program security.

### Operands

#### procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

**ID=appl\_name**

Specifies the name of an active application that has VERIFY=OPTIONAL or VERIFY=REQUIRED specified on its APPL statement. This operand is required.

## MODIFY QUERY command

### Purpose

The MODIFY QUERY command can be issued only from a program operator application.

Using the MODIFY QUERY command, a program operator application can communicate with a tuning facility such as the NTune program. For more information about this command, see z/OS Communications Server: SNA Programming.

## MODIFY RESOURCE command

### Modify the DLOGMOD value for a resource:

```

▶▶—MODIFY— —procname—,—RESOURCE—,—ID—==—resource_name—————▶
▶,—DLOGMOD—==—————▶
└─logon_mode_name—┘
    
```

### Add or change the ADJLIST value for a cross-domain resource:

```

▶▶—MODIFY— —procname—,—RESOURCE—,—ID—==—resource_name—————▶
▶,—ADJLIST—==—list_name—,—ACTION—==—UPDATE—————▶
    
```

### Delete the ADJLIST value for a cross-domain resource:

```

▶▶—MODIFY— —procname—,—RESOURCE—,—ID—==—resource_name—————▶
▶,—ADJLIST—==—list_name—,—ACTION—==—DELETE—————▶
    
```

### Change the error message display option for an APPL or CDRSC:

```

▶▶—MODIFY— —procname—,—RESOURCE—,—ID—==—resource_name—————▶
▶,—SIRFMSG—==—————▶
┌─OLUSSCP—┘
├─ALLSSCP—┘
├─STARTOPT—┘
└─NONE—┘
    
```

### Change the delay timer for disconnection of a switched PU:

```

▶▶—MODIFY— —procname—,—RESOURCE—,—ID—==—resource_name—————▶
    
```

## MODIFY RESOURCE

►, —DISCNTIM—=*time\_period*—————▶

### Change the number of search requests for a resource:

►► —MODIFY— —*procname*—, —RESOURCE—, —ID—=*resource\_name*—————▶

►, —SRCOUNT—=*number\_of\_search\_requests*—————▶

### Change the value of the search reduction timer for a resource:

►► —MODIFY— —*procname*—, —RESOURCE—, —ID—=*resource\_name*—————▶

►, —SRTIMER—=*number\_of\_seconds*—————▶

### Reset the search reduction entry for a resource:

►► —MODIFY— —*procname*—, —RESOURCE—, —ID—=*resource\_name*—————▶

►, —SRCLEAR—=*YES*—————▶

### Modify the registration value for a resource:

►► —MODIFY— —*procname*—, —RESOURCE—, —ID—=*resource\_name*—————▶

►, —REGISTER—=

CDSRVR
NETSRVR
NO

—————▶

### Modify the ASRCVLM value for an application program:

►► —MODIFY— —*procname*—, —RESOURCE—, —ID—=*resource\_name*—————▶

►, —ASRCVLM—=*amount\_of\_storage*—————▶

### Modify the MODSRCH value for a model application program:

►► —MODIFY— —*procname*—, —RESOURCE—, —ID—=*resource\_name*—————▶

►, —MODSRCH—=

FIRST
LAST
NEVER

—————▶

### Modify the VTAMTOPO value for a reporting status:

►► —MODIFY— —*procname*—, —RESOURCE—, —ID—=*resource\_name*—————▶





### Abbreviations

Operand	Abbreviation
MODIFY	F
DLOGMOD	DLOG

### Purpose

Using the MODIFY RESOURCE command, you can make perform the following changes for an individual resource:

- Change the current value of the DLOGMOD operand of a definition statement for an LU, application program, or cross-domain resource without deactivating the entire major node.
- Modify the reporting status for a resource.
- Add, replace, or delete the current value of the ADJLIST operand of a definition statement for a cross-domain resource.
- Change the setting of the error message display value for an APPL or CDRSC resource.
- Change the delay timer for disconnection of a switched PU.
- Modify search reduction information for existing CDRSCs and APPN directory entries.
- Modify the registration value for a resource.
- Change the current value of the ASRCVLM operand coded on the APPL definition statement.
- Change the current value of the MODSRCH operand coded on the APPL definition statement.

When VTAM receives the MODIFY RESOURCE command, it overlays the existing value for the specified operand with the new value.

### Operands

#### procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

#### ACTION

Specifies whether VTAM is to add, update, or delete the name of the adjacent SSCP list for a cross-domain resource.

ACTION is valid only with the ADJLIST and ID operands.

## MODIFY RESOURCE

### **ACTION=DELETE**

Deletes the name of the current adjacent CDRM list for the cross-domain resource specified on the ID operand. Routing after the successful completion of this command will not use ADJLISTs. Existing sessions are not affected by this command.

### **ACTION=UPDATE**

Adds a name of an adjacent CDRM list or replaces the name of the current adjacent CDRM list for the cross-domain resource specified on the ID operand. Routing after the successful completion of this command will use the specified list.

### **ADJLIST=list\_name**

Specifies the value of the adjacent CDRM list for the cross-domain resource specified on the ID operand. If ACTION=UPDATE, the list\_name must match the name on an ADJLIST definition statement for subsequent routing to be successful.

**Note:** The ADJLIST operand is not valid in a pure APPN node. The MODIFY RESOURCE command will fail with an indication that ADJLIST is ignored. A pure APPN node is a VTAM that is started with start options NODETYPE=NN or NODETYPE=EN, but without HOSTSA or with HOSTSA and SACONNS=NO.

ADJLIST is valid only with the ACTION and ID operands.

### **ASRCVLM=amount\_of\_storage**

Specifies an amount of the data space storage associated with this application that is used by VTAM to calculate constrained and critical threshold values for the data space. These constrained and critical threshold values affect the way adaptive session pacing operates with session partners. High usage periods of data space storage should be considered when setting this value.

The range is 0–99 999 999. If you specify 0, the amount of data space storage used is 1 000 000 bytes.

### **DISCNTIM=time\_period**

Specifies the amount of time that VTAM delays deactivation of the SSCP-PU session when there are no outstanding LU-LU session requests.

You can specify the time in seconds (S). Specify the number of seconds as an integer in the range 5–65535.

DISCNTIM is valid only for PU types 2 and 2.1 that have DISCNT=DELAY specified on the PU definition statement.

DISCNTIM is valid only with the ID operand.

### **DLOGMOD=logon\_mode\_name**

Specifies the new value for the logon mode. If DLOGMOD is specified with a null value (left blank), the predefined DLOGMOD value is deleted.

DLOGMOD is valid only with the ID operand

**Note:** If DLOGMOD is specified with an unknown logon mode, a warning message is issued indicating that it is unknown and the change is accepted.

### **ID=resource\_name**

Specifies the name of the resource to which the command applies. If you specify ADJLIST, the resource name must specify a cross-domain resource.

**Tip:** If you are specifying a model resource (APPL or CDRSC), you can use wildcard characters in the name you specify. The use of wildcard characters on the ID operand does not depend on the value of the DSPLYWLD start option.

The name can be a network-qualified name. If the name specified on the ID operand is network-qualified, this name is considered to be the real name of the resource.

**Note:** If the resource name is a cross-network CDRSC which is defined with NQNMODE=NQNAME (either by definition statement or start option), be sure to use its network-qualified name on this command.

### MODSRCH

Specifies when the INQUIRE APPSTAT and INQUIRE STATUS macroinstructions will use this model application definition. The VTAM containing the application that issued the INQUIRE first searches its tables for a previously defined application. If one is not found, it searches for a local model that can satisfy the request.

**Requirement:** If you plan to use the model application program definitions with TSO/VTAM, then you must code MODSRCH=FIRST on the TSO application definition statement that represents the subordinate TSO APPLs. For more information about MODSRCH, see *z/OS Communications Server: SNA Network Implementation Guide*.

#### MODSRCH=FIRST

Specifies that VTAM should use this model, if it is an appropriate match, and not search the network for the specified name. For example, because the OPEN ACB macroinstruction can use a model definition, you could specify MODSRCH=FIRST so this model would be found by an application issuing INQUIRE APPSTAT to determine whether an OPEN ACB will follow.

#### MODSRCH=LAST

Specifies that VTAM use this model definition only if all other hosts in the network report that the application was not found.

#### MODSRCH=NEVER

Specifies that VTAM never use this model to satisfy an INQUIRE macroinstruction.

### REGISTER

Indicates that the registration value of the resource should be changed and a registration request might be initiated. This command can be issued only from the resource's real or surrogate owner.

#### REGISTER=CDSERVR

Specifies that the resource is to be registered to the network node server and the central directory server (CDS).

#### REGISTER=NETSRVR

Specifies that the resource is to be registered to its network node server only. If the resource is currently registered to the central directory server, the registration is not deleted.

#### REGISTER=NO

Specifies that the resource should not be registered. If the resource is currently registered to a network node server, a request to delete the registration is sent to the network node server. If the resource is currently registered to the central directory server, the registration is not deleted.

## MODIFY RESOURCE

### **SIRFMSG**

Specifies SIRFMSG values for the resource.

The SIRFMSG operand for a CDRSC definition will effectively control ASIRFMSG, DSIRFMSG, ESIRFMSG, FSIRFMSG, LSIRFMSG, RSIRFMSG, and SIRFMSG processing.

### **SIRFMSG=ALLSSCP**

Specifies that messages are issued for all session initiation request failures involving this resource.

### **SIRFMSG=OLUSSCP**

Specifies that messages are issued only when the VTAM owning this resource is the origin logical unit (OLU) SSCP.

### **SIRFMSG=START**

Specifies that the value of the SIRFMSG start option is to be used for this resource. This is the default setting.

### **SIRFMSG=NONE**

Specifies that no messages are issued for any searches involving this resource.

### **SRCLEAR=YES**

Specifies that the search reduction entry should be reset for this resource. This operand does not affect the SRTIMER or SRCOUNT values for subsequent entries. The resource is verified when the next request is received. If the resource cannot be reached, a new search reduction entry is created.

SRCLEAR is valid only with the ID, SRCOUNT, and SRTIMER operands.

### **SRCOUNT=number\_of\_search\_requests**

Specifies the new number of search requests that are limited because of a search reduction entry before another search is attempted. The value for this operand is 0 – 65535.

**Note:** This operand applies only to existing CDRSCs and APPN directory entries.

SRCOUNT is valid only with the ID, SRCLEAR, and SRTIMER operands.

### **SRTIMER=number\_of\_seconds**

Specifies the new number of seconds that a search reduction entry limits incoming search requests or session requests. The value for this operand is 0–65535.

**Note:** This operand applies only to existing CDRSCs and APPN directory entries.

SRTIMER is valid only with the ID, SRCLEAR, and SRCOUNT operands.

### **VTAMTOPO**

Specifies the new reporting status for a resource. Possible values are:

#### **VTAMTOPO=REPORT**

Specifies that the VTAM topology agent reports resources.

#### **VTAMTOPO=NOREPORT**

Specifies that the VTAM topology agent does not report resources.

#### **VTAMTOPO=NOLLINES**

Specifies that the VTAM topology agent does not report switched logical lines.

**VTAMTOPO=NOSWPUS**

Specifies that the VTAM topology agent does not report connected switched PUs, except for those switched PUs which have VTAMTOPO=REPORT explicitly coded or specified under the switched major node.

**VTAMTOPO=INCLUDE**

Specifies that the VTAM topology agent reports all resources, regardless of the reporting status of the subordinate resources.

**VTAMTOPO=IGNORE**

Specifies that the VTAM topology agent does not report resources, regardless of the reporting status of the subordinate resources.

## MODIFY RTP command

►►—MODIFY— —*procname*—, —RTP—, —ID—=—*rtp\_pu\_name*—►►

### Abbreviations

Operand	Abbreviation
MODIFY	F

### Purpose

The MODIFY RTP command causes VTAM to search for the best high performance routing (HPR) route, based on transmission group weight, between the two endpoints of a rapid transport protocol (RTP) connection. If an equal or better route is found, the connection is switched to the better route. If the current route is the best route, a path switch still occurs, but the switch is made to the same route.

### Operands

**procname**

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

**ID=*rtp\_pu\_name***

Specifies the name of a PU that represents a rapid transport protocol (RTP) route. This operand is required.

## MODIFY SECURITY command

### Increase the cryptography specification for an LU:

►►—MODIFY— —*procname*—, —SECURITY—, —ID—=—*lu\_name*—, —ENCR—= 

COND
OPT
REQD

►►

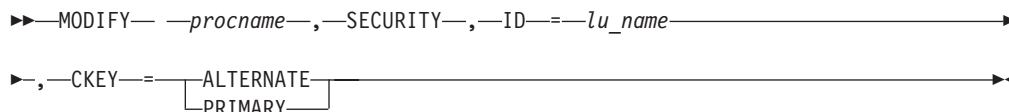
## MODIFY SECURITY



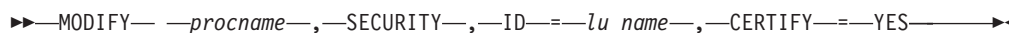
### Notes:

- 1 ENCRTYPE cannot be downlevel. If the current value is TDES24, MODIFY SECURITY ENCRTYPE=DES will not be allowed.

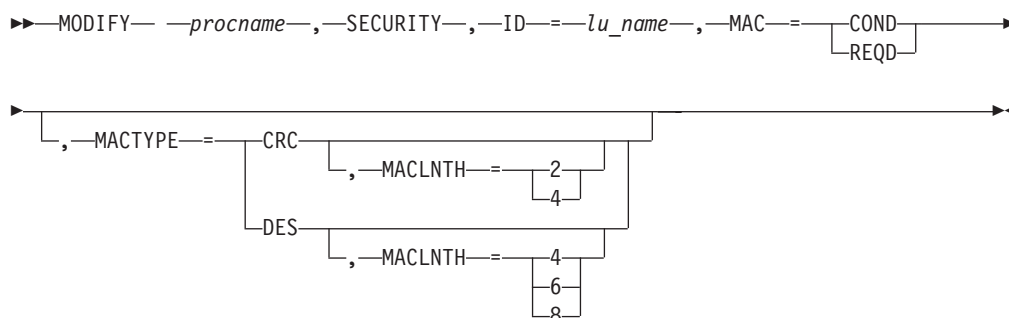
### Modify which cryptographic key name is used for an LU:



### Initiate SLU authentication for an LU:



### Increase the message authentication specification for an LU:



## Abbreviations

Operand	Abbreviation
MODIFY	F
ALTERNATE	ALT
PRIMARY	PRIM

## Purpose

The MODIFY SECURITY command is a superset of the MODIFY ENCR command. Using this command, you can change the cryptographic and the message authentication requirements for application program logical units and device-type logical units.

## Operands

### procname

The procedure name for the command. If *procname* in the START command

was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

**CERTIFY=YES**

Indicates that SLU authentication (verifying that the SLU is using the same cryptographic key as the PLU) is to be performed by the PLU, if encryption is being used.

**CKEY**

Indicates whether VTAM is to use the primary or alternate cryptographic key name to generate cryptographic session keys for this logical unit.

This indicator is initialized to PRIMARY, and cannot be explicitly set with the LU definition statement. If you do not specify CKEY, the current CKEY value is unchanged.

CKEY affects only the secondary logical unit (SLU) key; it does not affect the cross domain (CP/SSCP) keys.

**CKEY=ALTERNATE**

Specifies that VTAM use the alternate cryptographic key name to generate cryptographic session keys. The alternate name is either the name on the LU definition statement or the value of the CKEYNAME operand with the suffix **.ALT.ALT**. For example, name.ALT.

**CKEY=PRIMARY**

Specifies that VTAM use the primary cryptographic key name to generate cryptographic session keys. The primary name is either the name on the LU definition statement or the value of the CKEYNAME operand.

**ENCR**

Specifies the new cryptography specifications of the logical unit.

**Note:** The level of the cryptography specification can be only raised. Any attempt to lower the level is rejected. The new level is effective for all future sessions involving the logical unit; existing active or pending sessions are not affected.

**ENCR=OPT**

Raises the level of the logical unit's cryptography specification from no cryptography to optional (capable of cryptography).

**ENCR=COND**

Raises the level of the logical unit's cryptography specification from no cryptography or optional to required (that is, all user sessions must be encrypted) if both sides support encryption. If the session partner does not support encryption, the session does not fail; instead, a session is established with no encryption of data.

**ENCR=REQD**

Raises the level of the logical unit's cryptography specification from no cryptography or optional (or selective or conditional for application programs) to required (that is, all user sessions must be encrypted).

**ENCRTYPE**

Specifies the minimum type of encryption that VTAM should use on behalf of the logical unit when performing session level encryption. The new

## MODIFY SECURITY

ENCRTYPE level is effective for all subsequent sessions involving the logical unit; currently active or pending sessions are not affected.

### ENCRTYPE=DES

Specifies that VTAM must use a minimum of DES encryption with an 8-byte key when performing session level encryption. This is the default.

**Note:** If the current value of ENCRTYPE=TDES24, then ENCRTYPE=DES will not be allowed.

### ENCRTYPE=TDES24

Specifies that VTAM must use a minimum of Triple\_DES encryption with a 24-byte key performing session level encryption.

**Note:** When the DES method of message encryption (MACTYPE=DES) is also in use for this application or LU, the encryption type used as part of the message authentication logic is determined by the ENCRTYPE keyword. The ENCRTYPE keyword defaults to DES and this is the current type of encryption VTAM uses in message authentication today. However, if ENCRTYPE=TDES24, message authentication will use a minimum of Triple-DES with 24-byte key when calculating the MAC code.

### ID=*lu\_name*

Specifies the name of the LU whose security specification you want to change.

**Tip:** If you are specifying a model resource (APPL or CDRSC), you can use wildcard characters in the name you specify. The use of wildcard characters on the ID operand does not depend on the value of the DSPLYWLD start option. For model resources, any current clone resources are unaffected by this command, but future clone resources and their sessions are affected.

The ID must represent the type of LU that can be modified by the remaining operands:

- 

**CKEY** Device-type LU

**ENCR** Application program, device-type LU, or CDRSC

**ENCRTYPE**

Application program, device-type LU, or CDRSC

**MAC** Application program LU

**MACTYPE**

Application program LU

**MACLNTH**

Application program LU

### MAC

Specifies the new message authentication specifications for the logical unit (application program or device). The value you specify must be higher than the current value. Any attempt to lower the level is rejected.

MAC values, in ascending order, are:

- NONE
- COND (conditional)
- REQD (required)



The new MAC level is effective for all subsequent sessions involving the logical unit; currently active or pending sessions are not affected. If you do not specify the MAC operand, the current MAC value is unchanged.

**MAC=COND**

Raises the level of the application program message authentication specifications from NONE to COND (conditional); that is, if the session partners are MAC capable, each side uses message authentication codes. If one session partner does not support the function, the session does not fail; instead, a session is established but without any message authentication of data.

**MAC=REQD**

Raises the level of the message authentication specification of an application program or logical unit from NONE or conditional (COND), to required; that is, all user sessions must use message authentication codes.

**MACLNTH**

Specifies the minimum length, in bytes, of the message authentication code that is to be generated. For MACTYPE=DES, valid values are 4, 6, or 8. For MACTYPE=CRC, valid values are 2 or 4.

**MACTYPE**

Specifies the method to use when message authentication codes are created and checked.

**MACTYPE=CRC**

Specifies that an internal VTAM service is used to create a cyclic redundancy check (CRC) for data on the specified conversation.

**MACTYPE=DES**

Specifies that VTAM uses message authentication code services as provided in the Common Cryptographic Architecture (CCA) specification. The message authentication code calculation support is described in the ANSI X 9.9 standard.

**MODIFY SESSION command**

►►—MODIFY— —*procname*—,—SESSION—=—*number\_of\_sessions*—►►  
 ►,—ID—=—*line\_name*—►►

**Abbreviations**

Operand	Abbreviation
MODIFY	F

**Purpose**

You can use the MODIFY SESSION command to request that an NCP change the session limit (the maximum number of concurrent line scheduling sessions allowed) for a nonswitched multipoint line to one or more attached start/stop or BSC terminals. This limit does not become effective until the number of sessions now in operation falls below the new limit.

**Note:**

## MODIFY SESSION

1. The session limit should not exceed the number of devices on the line. If the line has IBM 3270 terminals attached, the session limit should be the total number of cluster controllers and terminals on the line.
2. This command does not activate resources. To do this, the appropriate resource must be activated (for example, by using the VARY ACT command).

### Operands

#### procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

#### ID=line\_name

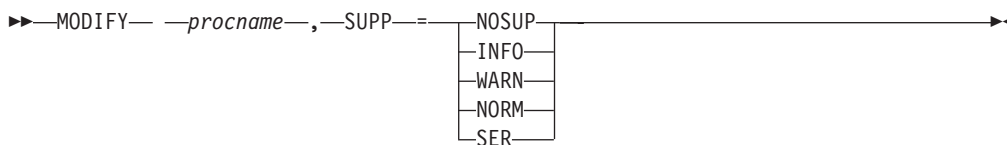
Specifies the name of a nonswitched multipoint line to one or more attached start/stop or BSC terminals.

#### SESSION=number\_of\_sessions

Specifies the session limit as a decimal integer 1–255. This is the maximum number of concurrent line scheduling sessions allowed on the line specified by the ID operand.

---

## MODIFY SUPP command



### Abbreviations

Operand	Abbreviation
MODIFY	F

### Purpose

Using the MODIFY SUPP (suppression) command, you can change the message suppression level after VTAM has been started.

Some error messages, such as those indicating abnormal termination of a task, are classified as “insuppressible” and cannot be suppressed. Other messages that cannot be suppressed include those requiring a response from the VTAM operator (messages that end in “A”) and those resulting from the operator’s status inquiries (messages resulting from a DISPLAY command). See z/OS Communications Server: SNA Messages for a definition of these message categories and the classifications of specific VTAM messages.

If the PPOLOG option is in effect, messages that are suppressed by the MODIFY SUPP command or the SUPP start option are still sent to the primary program operator, even though those messages do not appear on the system console.

Also see z/OS Communications Server: SNA Messages for information about message flooding.

**Note:**

1. Issuing a MODIFY SUPP command prevents specific messages from being issued by VTAM. Before issuing the command, make sure that you understand the potential effects on Tivoli NetView for z/OS command lists and any automated operation facilities in your network.
2. Message suppression might prevent message IST223I (indicating the completion of the MODIFY SUPP command) from being issued by VTAM.
3. You can use the “MODIFY VTAMOPTS command” on page 498 (SUPP operand) to perform the same function as this command.

**Operands**

**procname**

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

**SUPP**

Specifies the suppression level for VTAM messages. The following list shows suppression level in the order of severity from least to most.

**SUPP=NOSUP**

Specifies that no VTAM messages are to be suppressed.

**SUPP=INFO**

Specifies that only those VTAM messages classified as informational messages are to be suppressed.

**SUPP=WARN**

Specifies that those VTAM messages classified as warning messages and informational messages are to be suppressed.

**SUPP=NORM**

Specifies that those VTAM messages classified as normal messages, warning messages, and informational messages are to be suppressed.

**SUPP=SER**

Specifies that those VTAM messages classified as serious error messages, normal messages, warning messages, and informational messages are to be suppressed.

---

**MODIFY TABLE command**

**Change resource associations or load a new table and associate it with a resource (other than a CoS table):**

```

▶▶—MODIFY— —procname—,—TABLE—,—OPTION—==—ASSOCIATE—,—ID—==—name—→
▶,—,—NEWTAB—==—new_table_name—,—OLDTAB—==—[*—old_table_name—]—→
    
```

## MODIFY TABLE

```
►, —TYPE— == ASLTAB —————►
                FLDTAB
                LOGTAB
                MDLTAB
                MODETAB
                USSTAB
```

### Change resource association with a CoS table or load a new CoS table and associate it with a resource:

```
►► MODIFY —procname—, —TABLE—, —OPTION— == ASSOCIATE —————►
►, —TYPE— == COSTAB, —NETID— == netid, —ORIGIN— == ncp_name —————►
►, —NEWTAB— == new_table_name —————►
```

### Delete resource associations:

```
►► MODIFY —procname—, —TABLE—, —OPTION— == DELETE —————►
►, —TYPE— == ASLTAB, —ID— == name, —OLDTAB— == *  
                FLDTAB, ————— old_table_name —————►
                LOGTAB
                MDLTAB
                MODETAB
                USSTAB
                COSTAB, —NETID— == netid, —ORIGIN— == ncp_name
                FILTER
```

### Load a table to replace an existing table (other than a filter table):

```
►► MODIFY —procname—, —TABLE—, —OPTION— == LOAD —————►
►, —NEWTAB— == new_table_name —————►
                [, —OLDTAB— == old_table_name ]
```

### Load a filter table to replace an existing filter table:

```
►► MODIFY —procname—, —TABLE—, —OPTION— == LOAD, —TYPE— == FILTER —————►
►, —NEWTAB— == new_table_name —————►
```

### Load an updated directory definition file:

```
►► MODIFY —procname—, —TABLE—, —OPTION— == LOAD, —TYPE— == CMIPDDF —————►
```

## Abbreviations

Operand	Abbreviation
MODIFY	F
NETID=name	NET=name
NEWTAB=name	NEW=name
OLDTAB=name	OLD=name

Operand	Abbreviation
OPTION	OPT
OPTION=ASSOCIATE	OPT=ASSOC
OPTION=DELETE	OPT=DEL
TYPE=ASLTAB	TYPE=ASL
TYPE=COSTAB	TYPE=COS
TYPE=FLDTAB	TYPE=FLD
TYPE=LOGTAB	TYPE=LOG
TYPE=MDLTAB	TYPE=MDL
TYPE=MODETAB	TYPE=MODE
TYPE=USSTAB	TYPE=USS

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for OPTION=DELETE, code only OPT=DEL. Do not code OPTION=DEL.

## Purpose

The MODIFY TABLE command dynamically loads VTAM tables, changes VTAM table associations, or both. This command also disassociates resources from tables. MODIFY TABLE does **not** affect existing sessions with the resource named on the ID operand or its subordinate nodes. Only new sessions established after this command is issued are affected. The MODIFY TABLE command supports the following types of tables:

- Associated LU
- Class of Service
- CMIP services directory definition file
- Interpret
- Logon mode
- Message-flooding prevention
- Model name
- Session awareness data filter
- USS

**Note:** Do not use the MODIFY TABLE command for the APPN Class of Service definitions. Use the VARY ACT command to activate the file containing the updated definitions.

The MODIFY TABLE command does not change the value of the DLOGMOD operand. To change the value of the DLOGMOD operand, see the “MODIFY DEFAULTS command” on page 372 or the “MODIFY RESOURCE command” on page 439.

The MODIFY TABLE command can end unsuccessfully if the table being loaded is partially or entirely contained in new extents (data spaces where information is stored) within VTAMLIB. Because VTAMLIB is opened once during VTAM initialization, the table is not accessible until VTAM is halted, restarted, and VTAMLIB is opened again.

## MODIFY TABLE

The MODIFY TABLE command performs several functions, depending on the values you specify on the OPTION and TYPE operands.

- F TABLE,OPT=ASSOC

Using this command, you can change all references to *old\_table\_name* to see *new\_table\_name* for resource *name* and its subordinate nodes. If necessary, *new\_table\_name* is loaded. Values for *old\_table\_name* include:

- Logmode table (TYPE=MODETAB)
- USS table (TYPE=USSTAB)
- Interpret table (TYPE=LOGTAB)
- Associated LU table (TYPE=ASLTAB)
- Message-flooding prevention table (TYPE=FLDTAB)
- Model name table (TYPE=MDLTAB)

- F TABLE,OPT=ASSOC,TYPE=COS

Using this command, you can associate a new Class of Service table with the network *netid* for the gateway NCP or PU type 5 identified by *name*.

- F TABLE,OPT=DEL

Using this command, you can delete the association between *name*, its subordinate nodes, and *old\_table\_name*. If applicable, default tables are used with subsequent session initiation requests.

- F TABLE,OPT=DEL,TYPE=COS

Using this command, you can terminate the association between a COS table and network *netid* for gateway NCP *name*. A COS table is no longer defined for the specified network.

- F TABLE,OPT=DEL,TYPE=FILTER

Using this command, you can delete the current session awareness (SAW) data filter. When you delete the filter, SAW data and trace data for all sessions are sent over the CNM interface.

- F TABLE,OPT=LOAD

Using this command, you can replace *old\_table\_name*, which is in use, with *new\_table\_name*, which is currently not in use, or to reload a table that is in use. All resources currently associated with the old table are reassociated with the new table.

**Note:** If *old\_table\_name* is the current value of the DYNMODTB start option, the value of the DYNMODTB start option is changed to *new\_table\_name*.

If OLDTAB is omitted, it is assumed to be the same as NEWTAB.

- F TABLE,OPT=LOAD,TYPE=FILTER

Using this command, you can replace the current session awareness data filter, which is in use, with a new filter, which is currently not in use, or to reload a filter that is in use.

- F TABLE,OPT=LOAD,TYPE=CMIPDDF

Loads the current version of the CMIP services directory definition file, which lists the systems that are and are not allowed access to CMIP services.

When CMIP services is started, CMIP services reads in the directory definition file. You can update the directory definition file while VTAM is running, but CMIP services is aware of these changes only when the MODIFY TABLE command is issued.

**Note:** If you use the MODIFY TABLE command to change or delete a table association, be aware that later use of a VARY ACT,UPDATE=ALL command for

dynamic reconfiguration can undo the effects of the MODIFY TABLE command. This is because the table name in the definition file overrides the value that was changed or deleted with the MODIFY TABLE command. Even if no table name is coded in the definition file, VTAM assumes a null value for the table name and the null value overrides the MODIFY TABLE value. To prevent the new table name specification from being overridden unintentionally, code the definition statement with the required value.

## Operands

### procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

### ID=name

Identifies the resource. All resources at or below this resource in the hierarchy are considered eligible resources.

The name can be a network-qualified name. If the name specified on the ID operand is network-qualified, this name is considered to be the real name of the resource. If a cross-network CDRSC is to be specified on the ID operand, it must be specified as a network-qualified name if the CDRSC is defined using NQNMODE=NQNAME (either by definition or start option). For a message-flooding prevention table (TYPE=FLDTAB), this value must always be specified as ISTNOP.

**Tip:** If you are specifying a model resource (APPL or CDRSC), you can use wildcard characters in the name you specify. The use of wildcard characters on the ID operand does not depend on the value of the DSPLYWLD start option.

### NETID=netid

Identifies the network attached to a gateway NCP with which the Class of Service table association is to be changed.

**Note:** If a model network is defined by using COPIES as part of the network definition, then \*NETWORK is used to change the Class of Service table for the model network.

### NEWTAB=new\_table\_name

Identifies the table to be used. When the new table is of TYPE=USSTAB, then FORMAT=DYNAMIC must have been coded on the USSTAB macro for the referenced table.

VTAM validates the table type.

### OLDTAB

Specifies a specific old table or all old tables.

#### OLDTAB=old\_table\_name

For OPTION=ASSOCIATE, changes associations for the resource specified by the ID operand (and its subordinate resources) and currently associated with the named table.

For OPTION=DELETE, terminates associations for the resource specified by the ID operand (and its subordinate resources) and currently associated with the named table.

## MODIFY TABLE

For `OPTION=LOAD`, replaces the old table with the table identified by the `NEWTAB` operand. Resources associated with the old table are reassociated with the new table.

**Note:** If *old\_table\_name* is the current value of the `DYNMODTB` start option, the value of the `DYNMODTB` start option is changed to *new\_table\_name*.

### **OLDTAB=\***

For `OPTION=ASSOCIATE`, indicates that the specified table associations should be changed to *new\_table\_name*, regardless of the current table associations.

For `OPTION=DELETE`, changes the associations of all eligible resources specified by the `ID` operand regardless of any current table associations.

### **OPTION**

Specifies whether a table is to have its resource associations changed or deleted, or whether the table is to be loaded.

### **OPTION=ASSOCIATE**

Specifies the table is to have its resource associations changed or load the new table and associate it with a resource. It changes the associations of the specified resources. If the table to be associated is not in use, VTAM loads it. Current table associations for a specific resource can be determined by issuing one of the following commands:

- The `DISPLAY COS` command for the resource named on the `ID` operand
- The `DISPLAY ID` command for the resource named on the `ID` operand or its subordinate nodes

If the `MODETAB`, `LOGTAB`, or `USSTAB` value is omitted from the original resource definition, the default table can be used. However, the name of the default table is not stored with the resource definition. Therefore, `MODIFY TABLE,OLDTAB=default_name,NEWTAB=new_table_name` does not change the table association; however, `OLDTAB=*,NEWTAB=new_table_name` does provide that function.

If `COSTAB` was not specified on either the `BUILD` or `NETWORK` definition statement, `OPTION=ASSOCIATE` adds the appropriate Class of Service specification.

A non-gateway SSCP (`GWSSCP=NO`) can associate a Class of Service table only for the native network of a gateway NCP.

Specifying `MODIFY TABLE,OPTION=ASSOC,TYPE=COS,ORIGIN=host_pu_name,NEWTAB=ISTSDCOS,NETID=host_netid` requests that VTAM attempt to load `ISTSDCOS` if it is not currently loaded. This enables the user to create and load a copy of `ISTSDCOS`, even though one might not have been available during VTAM initialization. *host\_pu\_name* can be either `ISTPUS` or the name specified in the `HOSTPU` start option.

Use `MODIFY TABLE,OPTION=LOAD,NEWTAB=ISTSDCOS` to request VTAM to reload `ISTSDCOS` if it is currently loaded.

### **OPTION=DELETE**

Specifies the table is to have its resource associations deleted. It terminates the association between the specific resources and the table.

If `USSTAB`, `MODETAB`, `LOGTAB`, `ASLTAB`, or `MDLTAB` is not specified when the resource is defined, there is no association to terminate. Where applicable, the default table is still used.



If *old\_table\_name* is an IBM-supplied default table (for example OLDTAB=ISTINCDT or OLDTAB=ISTSDCOS), all explicit table associations are terminated, but the table is not deleted from memory. If *old\_table\_name* is not an IBM-supplied default table, it is deleted from memory as a result of this command.

### **OPTION=LOAD**

Specifies the table is to be loaded to replace an existing table.

#### **When OPTION=LOAD,NEWTAB=new\_table\_name is specified:**

The MODIFY TABLE command loads the table named in the NEWTAB operand. All resources associated with the old table are reassociated with the new table. If the OLDTAB and NEWTAB operand values are identical or OLDTAB is omitted, the indicated table is reloaded into memory.

**Note:** All tables must be associated with resources. OPTION=LOAD replaces a table only if it is already being used by a resource. OPTION=ASSOCIATE can be used to load a new table (which is not in use) and associate it with a resource.

The IBM-supplied tables can be reloaded (*old\_table\_name* is equal to *new\_table\_name*), but cannot be deleted (*old\_table\_name* is not equal to *new\_table\_name*).

#### **When OPTION=LOAD,TYPE=CMIPDDF is specified:**

CMIP services reads in the current version of the directory definition file without disrupting the CMIP application programming interface or any topology manager or topology agent application programs. If the MODIFY command fails, the existing directory definition file remains in use.

If CMIP services is not active when the command is issued, a message indicates that it is not active. When CMIP services becomes active, it reads in the current version of the directory definition file.

If CMIP services is active when the command is issued, it reads in the current version of the directory definition file from SYS1.SISTCMIP. The directory definition file indicates the instances of CMIP services that can have associations with one another. For a description of associations, see *z/OS Communications Server: SNA Network Implementation Guide*. Existing associations are not affected by this command. For example, if the directory definition file denies access to an application program that already has an association with CMIP services, the association remains established. However, if this association ends, it cannot be reestablished, because the directory definition file denies access to that application program.

### **ORIGIN=ncp\_name**

Identifies the NCP major node of a gateway NCP for which the Class of Service table association is to be changed.

### **TYPE**

Specifies the type of table the command will process. This type must be one of the following values:

#### **TYPE=ASLTAB**

Specifies the associated LU table.

#### **TYPE=CMIPDDF**

Specifies the updated CMIP services directory definition file.

## MODIFY TABLE

### TYPE=COSTAB

Specifies the Class of Service table.

### TYPE=FILTER

Specifies the session awareness data filter.

### TYPE=FLDTAB

Specifies the message-flooding prevention table. For TYPE=FLDTAB, ID must be specified as ISTNOP.

### TYPE=LOGTAB

Specifies the interpret table.

### TYPE=MDLTAB

Specifies the model name table.

### TYPE=MODETAB

Specifies the logon mode table.

**Note:** The MODIFY TABLE command does not change the value of the DLOGMOD operand. To change the value of the DLOGMOD operand, see the “MODIFY DEFAULTS command” on page 372 or the “MODIFY RESOURCE command” on page 439.

### TYPE=USSTAB

Specifies the USS table. If message IST116I is received because the USSTAB start option is incorrect, MODIFY TABLE,OPTION=ASSOCIATE,ID=ISTNOP,OLDTAB=\*, NEWTAB=*new\_table\_name* can be issued to supply a new USS table, represented by ISTNOP, for the network operator.

When OPTION=ASSOCIATE or OPTION=DELETE is specified, VTAM does not change the value of USS LANGTAB tables. When OPTION=LOAD is specified, VTAM changes the USS LANGTAB table if *old\_table\_name* or *new\_table\_name* is currently being used as a LANGTAB table. For more information about LANGTAB processing using USS commands, see the z/OS Communications Server: SNA Resource Definition Reference.

## Examples

Load a new USS table and associate it with a resource:

```
F VTAM, TABLE, TYPE=USSTAB, OPTION=ASSOCIATE, NEWTAB=USSTAB1, ID=LU1, OLDTAB=*
```

Change another LU's USS table definition to the table loaded by the previous example:

```
F VTAM, TABLE, TYPE=USSTAB, OPTION=ASSOCIATE, NEWTAB=USSTAB1, ID=LU2, OLDTAB=*
```

Change all resources using an existing USS table to use a new USS table:

```
F VTAM, TABLE, OPTION=LOAD, NEWTAB=USSTAB2, OLDTAB=USSTAB1
```

Change all resources using an existing USS table to use an updated copy of the USS table:

```
F VTAM, TABLE, OPTION=LOAD, NEWTAB=USSTAB2
```

## MODIFY TGP command

```

▶▶—MODIFY— —procname—,—TGP—,—TGPNAME—==—tg_profile_name—————▶▶
▶┌,—ID—==—adjacent_link_station_name—————▶▶
  └,—ID—==—cp_name—,—TGN—==—tg_number—┘

```

### Abbreviations

Operand	Abbreviation
MODIFY	F

### Purpose

Using the MODIFY TGP (transmission group profile) command, you can change the TG profile associated with a type 2.1 connection. A specific connection is identified by the combination of a control point (CP) name and TG number, or by the adjacent link station (PU) name.

If this command is issued while the connection is active and the new TG profile can be located, the topology database is updated and the new characteristics are used immediately. If the connection is not active, the new TG profile name is saved and is reported the next time the connection is activated.

This command is valid only when it is issued at an APPN node (network node, end node, interchange node, or migration data host).

### Operands

#### **procname**

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

#### **ID=name**

Specifies an adjacent control point (CP) name or an adjacent link station (PU) name. If a CP name is specified, then the TGN operand must also be specified.

A CP name can be network-qualified. If the network ID is not specified, VTAM uses the network ID of the host from which the command is issued. You can specify \* (or \*NETWORK) as the network ID portion of a network-qualified adjacent CP name to modify the TG profile for adjacent CPs that do not currently have a network identifier assigned to them. For example, the following command is valid if A01N currently does not have a network ID associated with it:

```
F procname,TGP,TGPNAME=BATCH,ID=*.a01n,TGN=3
```

#### **TGN=tg\_number**

Specifies the transmission group number associated with the CP. For virtual-route-based TG connections, TGN must be specified as 255.

## MODIFY TGP

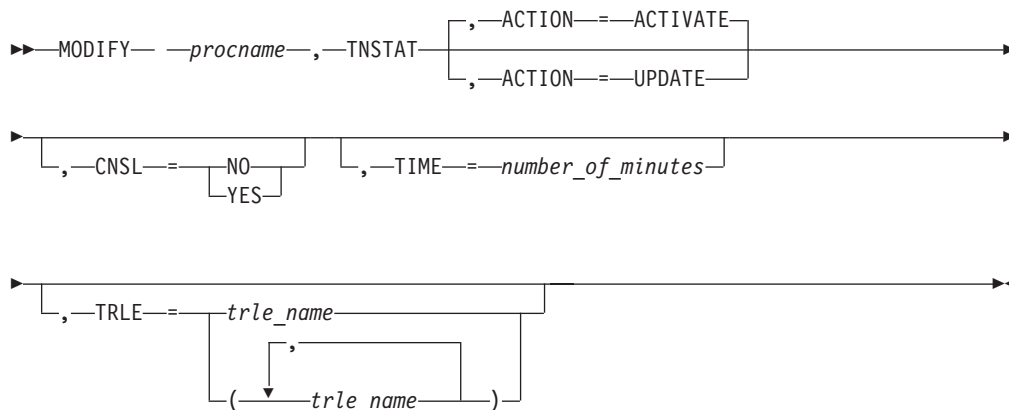
**TGPNAME=***tg\_profile\_name*

Specifies the name of a transmission group profile definition.

**Result:** If you have specified the PSRETRY start option, a TG profile that changes characteristics for a TG triggers path switches for all RTP pipes, regardless of the PSWEIGHT start option value. This means that the RTP pipes might be switched to the same path even if PSWEIGHT is set to LESSTHAN. See z/OS Communications Server: SNA Resource Definition Reference for additional information about the PSRETRY and PSWEIGHT start options.

---

## MODIFY TNSTAT command



### Abbreviations

Operand	Abbreviation
MODIFY	F
ACTION=ACTIVATE	ACTIVATE or A
ACTION=UPDATE	UPDATE or U
CNSL=NO	NOCNSL
CNSL=YES	CNSL

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for `CNSL=YES`, code only `CNSL`.

### Purpose

VTAM can record tuning statistics about some of its activities. You can use these statistics to set the proper values on resource definition operands that control VTAM I/O operations in your system. You can use tuning statistics to gather information about the following connections:

- Channel-to-channel
- Multipath channel
- Remote Direct Memory Access (RDMA) over converged Ethernet (ROCE)
- SNA controller
- TCP

For more information about using tuning statistics, see the z/OS Communications Server: SNA Network Implementation Guide.

You can record external trace data using the system management facility (SMF) in the system during system generation.

MODIFY TNSTAT reopens the tuning statistics file if it was closed by a previous MODIFY NOTNSTAT command.

### Operands

#### **procname**

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

#### **ACTION=ACTIVATE**

Specifies the TNSTAT recording is to be initiated.

#### **ACTION=UPDATE**

Specifies either or both the CNSL and TIME operands are to be processed without initiating recording.

#### **CNSL**

Specifies whether tuning statistics are to be sent to the system console.

The CNSL operand is placed in effect for all devices collecting tuning statistics.

#### **CNSL=YES**

Specifies that tuning statistics records are to be sent to the system console.

#### **CNSL=NO**

Specifies that tuning statistics records are not to be sent to the system console.

#### **TIME=number\_of\_minutes**

Specifies the number of minutes in the tuning statistics reporting interval. At the end of each interval, summary records are sent to SMF (if SMF is active) and to the system console (if CNSL=YES). Specify this number as a decimal integer in the range 1–1440. If the TIME operand is not specified, the following situations will occur:

- If this is the first activation of tuning statistics a default of 60 minutes is used.
- If tuning statistics was previously activated then deactivated, the value that was in effect when tuning statistics was deactivated is reinstated.

#### **TRLE=trle\_name**

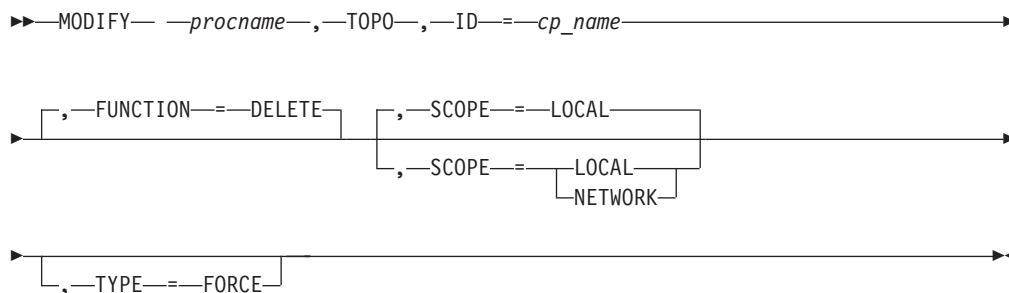
Specifies the Transport Resource List Entry name or names for which statistical recording is to be initiated.

**Note:** Recording is initiated only for those devices within the specified TRLE or TRLEs. If the TRLE operand is not specified, recording is initiated for all devices that collect tuning statistics.

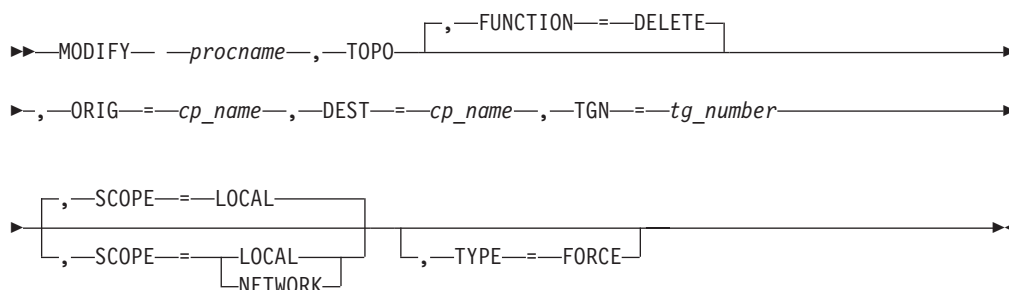
The TRLE operand is mutually exclusive with the ACTION=UPDATE operand.

## MODIFY TOPO command

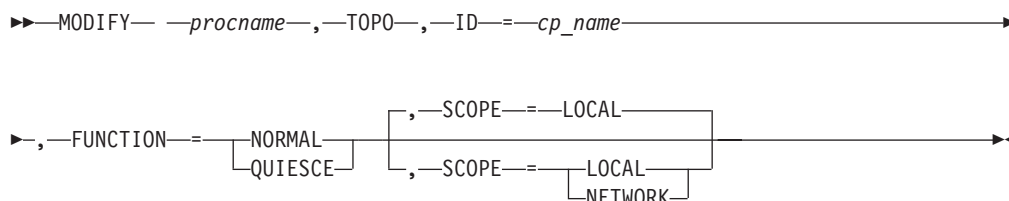
### Delete a node at a network node:



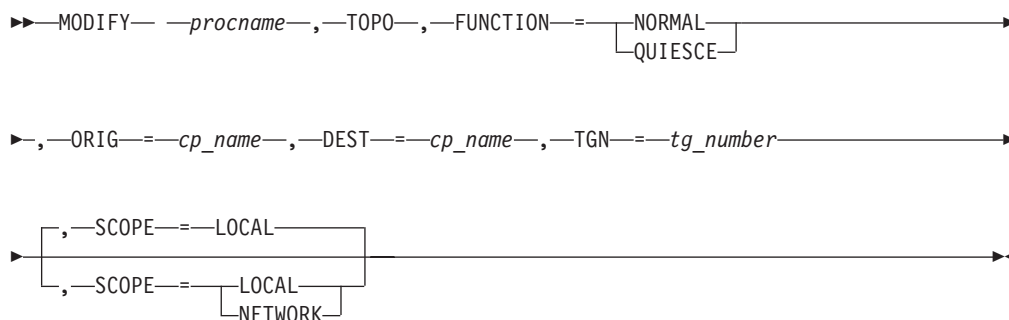
### Delete a transmission group:



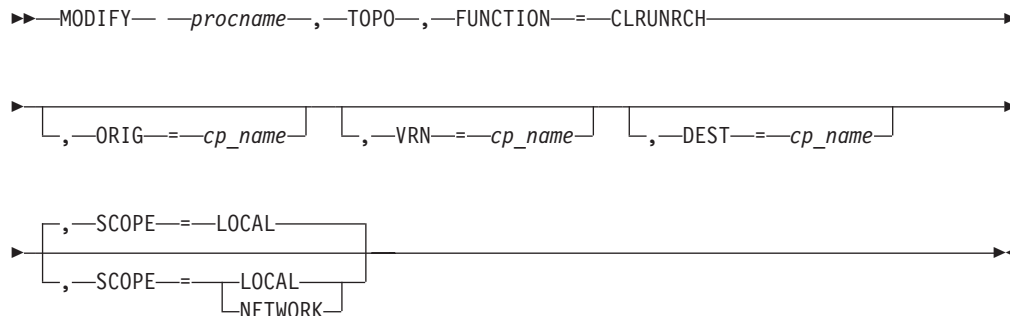
### Modify the status of a node for route calculation at a network node:



### Modify the status a transmission group for route calculation:



**Clear Enterprise Extender connection network unreachable partner information on a network node:**



**Rule:** The ORIG, VRN, and DEST operands are optional on the MODIFY *procname*, TOPO, FUNCTION=CLRNRCH command; however, at least one of these three operands must be specified.

**Clear APPN routing tree information:**



**Rule:** The values FUNCTION=CLRNRCH and FUNCTION=CLRTREES are valid on the MODIFY *procname*, TOPO command only when the command is issued on a network node.

**Abbreviations**

Operand	Abbreviation
FUNCTION=DELETE	DELETE
MODIFY	F
TYPE=FORCE	FORCE or F

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for TYPE=FORCE, code only F or FORCE. Do not code TYPE=F.

**Purpose**

The MODIFY TOPO command performs the following actions:

- Deletes a node or transmission group (TG) from the topology database
- Changes the status of a node or TG in the topology database
- Clears unreachable partner information for Enterprise Extender (EE) connection networks
- Deletes all routing trees, which are used to determine optimal session routes

**Operands**

**procname**

The procedure name for the command. If *procname* in the START command

## MODIFY TOPO

was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

### **DEST=cp\_name**

Specifies the destination node (a control point) for a transmission group or, when used with the FUNCTION=CLRUNRCH operand, the name of an unreachable partner (destination) on an unreachable partner path through an Enterprise Extender connection network. The *cp\_name* value can be network qualified (netid.cpname) or a CP name without a network ID. If just the CP name is entered without a network ID, the network ID of the node on which the command is entered will be used.

### **FUNCTION**

Specifies the function to be performed.

#### **FUNCTION=CLRTREES**

Deletes all existing routing trees that are used to determine optimal session routes. After these routing trees are deleted, new routing trees are created as session routes are requested.

**Restriction:** Typically, you do not need to clear the APPN routing tree information. Do not use this function unless you are advised by IBM service to do so.

**Result:** Clearing the APPN routing trees can temporarily affect VTAM performance because new routing trees are created for session route requests.

**Rule:** The MODIFY *procname*,TOPO,FUNCTION=CLRTREES command is valid only when you enter it on a network node.

#### **FUNCTION=CLRUNRCH**

Specifies that a set of unreachable partner paths for Enterprise Extender connection networks is to be cleared; if these paths were previously unavailable for route calculation as a result of the unreachable partner information, the paths will be made available for route calculation.

**Rule:** The MODIFY *procname*,TOPO,FUNCTION=CLRUNRCH command is valid only when you enter it on a network node.

#### **FUNCTION=DELETE**

Specifies that an entry is to be deleted from the topology database.

**Guideline:** Typically, you do not need to delete entries from the database; however, if for some reason you need to do so, you can use this command. For example, if another node (over which you have no control) has broadcast erroneous or unnecessary topology data into the network, the topology database at this node might choose incorrect or inefficient routes.

**Result:** Existing sessions are not affected when you delete an entry from the topology database or change the status of an entry in the topology database for a node or TG that is currently in use. However, new session requests might fail if no other route is available.

**Rules:**



- You cannot delete the node entry for your own host node.
- You cannot delete an active local transmission group.
- You cannot delete an adjacent node (unless the link to the adjacent node is inactive).
- You cannot delete or change the status of a node at an end node or migration data host.

**FUNCTION=NORMAL**

Specifies that an entry for a resource is to be returned to a normal state (after being quiesced) in the topology database and available for route calculation.

**FUNCTION=QUIESCE**

Specifies that an entry for a resource is to be marked as quiesced in the topology database and not used for route calculation.

**Result:** If you have specified the PSRETRY start option, changing a TG from QUIESCE to NORMAL or from NORMAL to QUIESCE triggers path switches for all RTP pipes, regardless of the PSWEIGHT start option value. This means that the RTP pipes might be switched to the same path even if PSWEIGHT is set to LESSTHAN. See z/OS Communications Server: SNA Resource Definition Reference for additional information about the PSRETRY and PSWEIGHT start options.

**ID=cp\_name**

Specifies the name of a node (control point). The *cp\_name* value can be network qualified (netid.cpname) or a CP name without a network ID. If just the CP name is entered without a network ID, the network ID of the node on which the command is entered will be used.

**Rules:**

- You cannot delete the entry for your own host node.
- This operand is valid only when used in a command entered on a network node.

**ORIG=cp\_name**

Specifies the origin node (a control point) for a transmission group or, when used with the FUNCTION=CLRUNRCH operand, the name of an origin end node or network node on an unreachable partner path through an Enterprise Extender connection network. The *cp\_name* value can be network qualified (netid.cpname) or a CP name without a network ID. If just the CP name is entered without a network ID, the network ID of the node on which the command is entered will be used.

**TGN=tg\_number**

Specifies the transmission group number. The valid range for TG numbers is 1–255.

For FUNCTION=DELETE, the transmission group is deleted in both directions between the origin and destination nodes.

**SCOPE**

Specifies whether the request affects the local topology database only or is propagated to all topology databases in the network.

**SCOPE=LOCAL**

Specifies that the request affects the local topology database only.

## MODIFY TOPO

For FUNCTION=DELETE, the resource is deleted immediately from the local topology database.

### Results:

- When SCOPE=LOCAL is specified or is the default value on the MODIFY TOPO command entered at an end node, the information is always propagated to the end node's network node server (NNS), which performs all route calculation for an end node.
- When FUNCTION=DELETE is specified and SCOPE=LOCAL is also specified or is the default value on an end node to delete a TG, the TG is deleted immediately in the end node. However, the TG can still be displayed on the NNS with a DISPLAY TOPO command as it is with SCOPE=NETWORK. The TG will have an odd resource sequence number (RSN) value and will not be usable for route calculation. The NNS deletes the TG during its next garbage collection cycle.

### SCOPE=NETWORK

Specifies that the request is propagated to all topology databases in the network.

For FUNCTION=DELETE, the resource is marked as unusable for route calculation in all topology databases in the network. Each network node supporting enhanced topology database garbage collection deletes the resource during its next garbage collection cycle. Garbage collection occurs once every 24 hours. Network nodes that do not support enhanced topology database garbage collection reset the time left value to 15 days.

### Rules:

- If SCOPE=NETWORK is specified on the command entered at a network node for an end node resource, the request is not propagated to other network nodes. Topology information for end node resources is kept only in the topology databases of the end node and the network node server of the end node.
- If SCOPE=NETWORK is specified with FUNCTION=QUIESCE on the command entered at a network node for another network node or for a TG owned by another network node, a correction to the status of the resource might be broadcast by the owning node.

### TYPE=FORCE

Required to delete an adjacent node. The link to the adjacent node must be inactive. If you are deleting a node that is not adjacent, this operand is not required.

TYPE=FORCE is also required to delete a local transmission group. A TG is considered to be local if the origin or destination is the host from which you are entering this command. The TG must be inactive. If the TG is not local, this operand is not required.

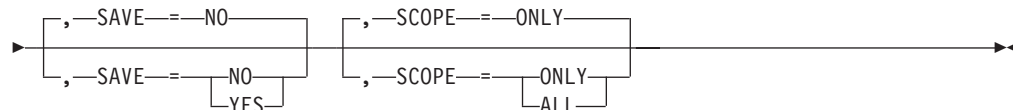
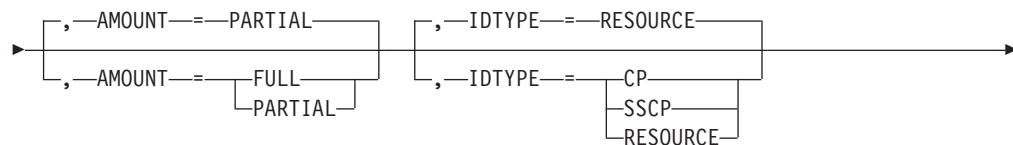
### VRN=*cp\_name*

Specifies the name of a virtual node on an unreachable partner path through an Enterprise Extender connection network. The *cp\_name* value can be network qualified (netid.cpname) or a CP name without a network ID. If just the CP name is entered without a network ID, the network ID of the node on which the command is entered will be used.

## MODIFY TRACE command

### Start or modify a buffer contents trace:

►► MODIFY — *procname* —, —TRACE—, —TYPE—=—BUF—, —ID—=—*node\_name* —►►

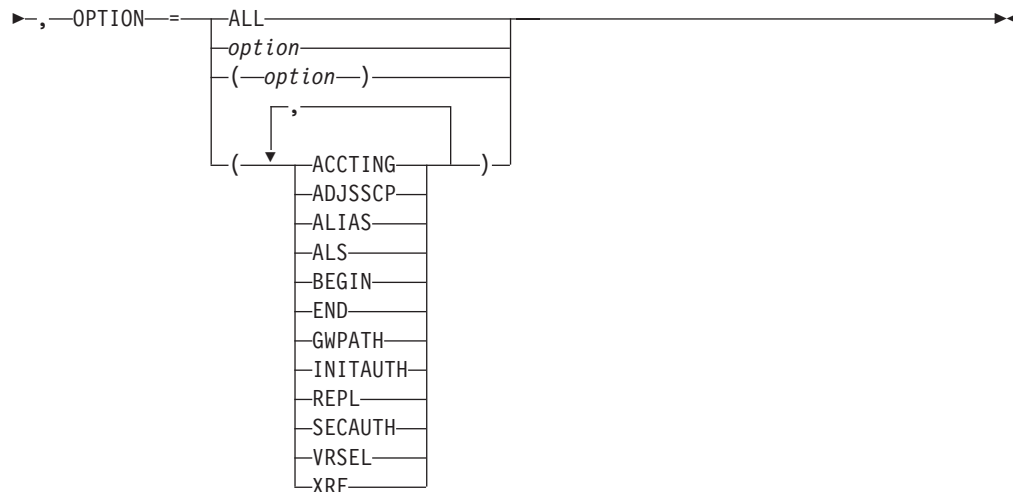


### Start or modify a communication network management trace:

►► MODIFY — *procname* —, —TRACE—, —TYPE—=—CNM—, —ID—=— PDPIUBUF  
SAWBUF —►►

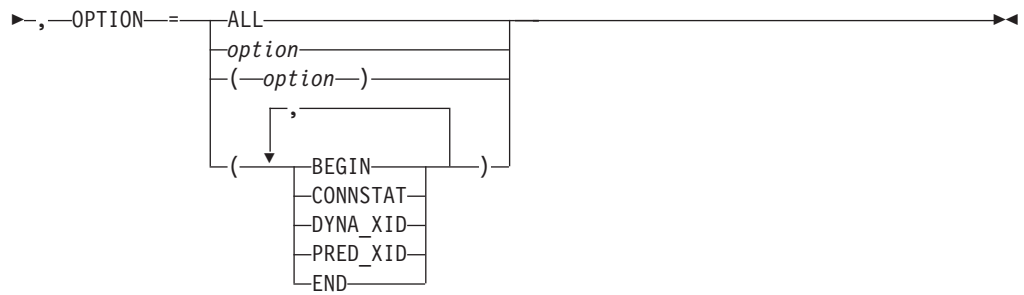
### Start or modify a user Exit buffer trace:

►► MODIFY — *procname* —, —TRACE—, —TYPE—=—EXIT—, —ID—=—ISTEXCAA —►►

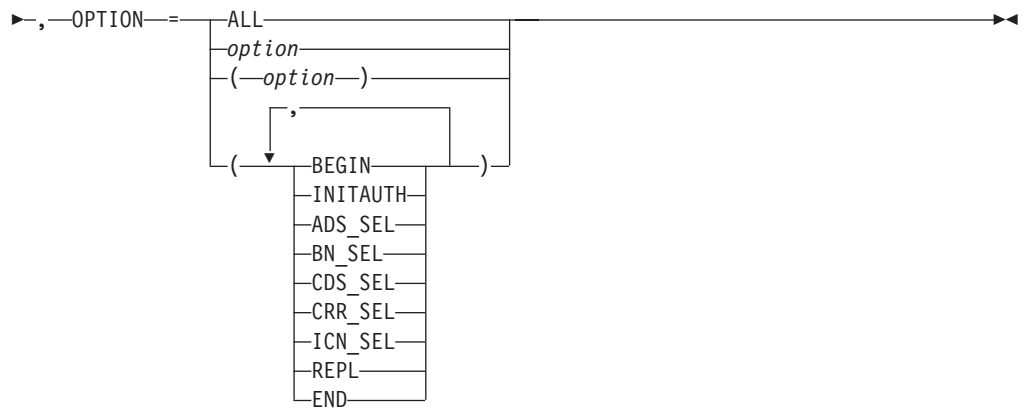


►► MODIFY — *procname* —, —TRACE—, —TYPE—=—EXIT—, —ID—=—ISTEXCCS —►►

## MODIFY TRACE

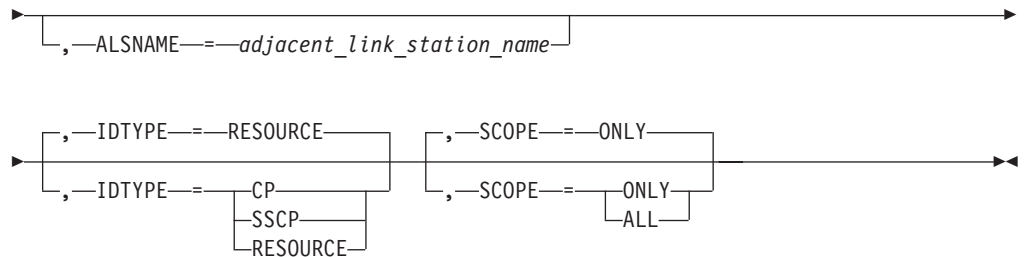


▶▶ MODIFY — *procname* —, —TRACE—, —TYPE=EXIT—, —ID=—ISTEXCDM —▶▶



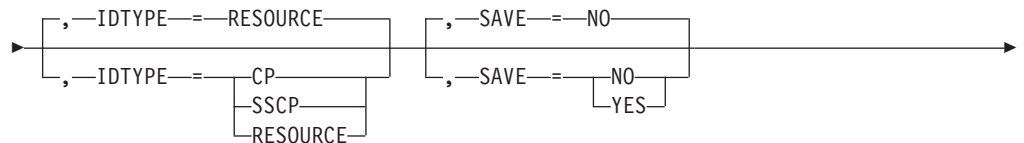
### Start or modify a generalized PIU trace:

▶▶ MODIFY — *procname* —, —TRACE—, —TYPE=GPT—, —ID=—*node\_name* —▶▶



### Start or modify an input/output trace:

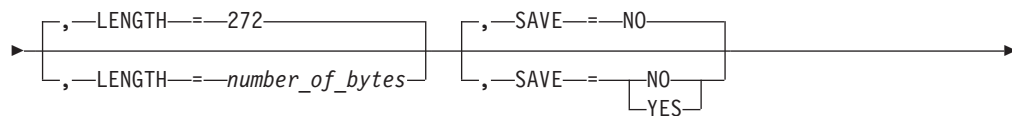
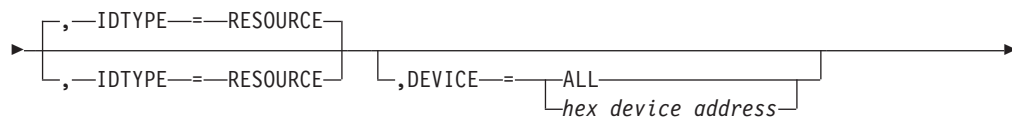
▶▶ MODIFY — *procname* —, —TRACE—, —TYPE=IO—, —ID=—*node\_name* —▶▶





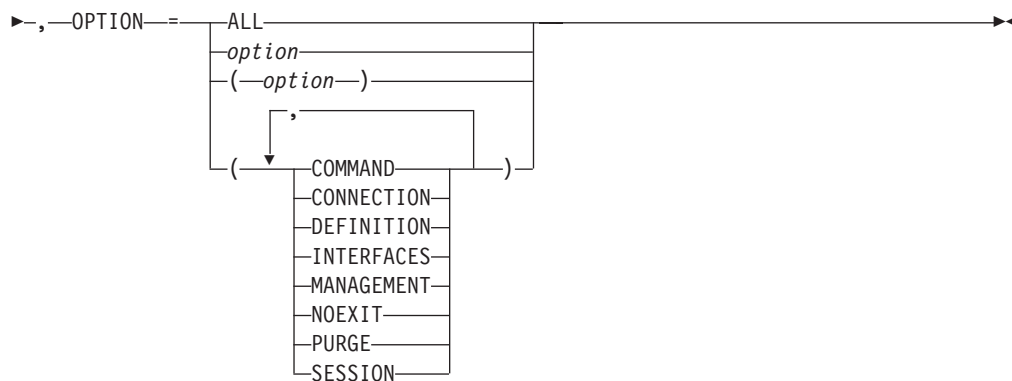
**Start or modify an input/output trace for a TRLE with the DATAPATH operand coded:**

►► MODIFY — *procname* —, —TRACE—, —TYPE—=IO—, —ID—=*trle\_name* —►►



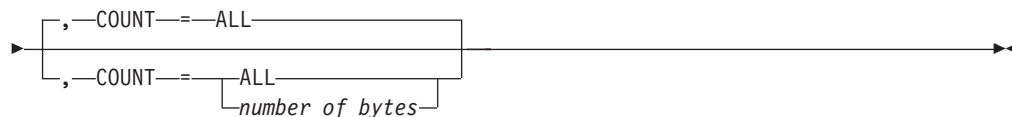
**Start or modify a module trace:**

►► MODIFY — *procname* —, —TRACE—, —TYPE—=MODULE —►►



**Start or modify an NCP line trace:**

►► MODIFY — *procname* —, —TRACE—, —TYPE—=LINE—, —ID—=*line\_name* —►►



## MODIFY TRACE

### Start or modify a 3710 Network Controller line trace:

```

▶▶ MODIFY — procname —, —TRACE—, —TYPE—=—NETCTLR—, —ID—=pu_name —————▶
▶, —LINE—=line_name —, —PU—=3710_pu_name —————▶▶
    |, —FRAMES—=—ALL—|
    | —DATA—|
  
```

### Start or modify OSA-Express2 diagnostic data synchronization for an OSA-Express2 adapter:

```

▶▶ MODIFY — procname —, —TRACE—, —TYPE—=—QDIOSYNC —————▶

▶, —ID—=* —————▶
  |, —ID—=* —————▶
  | — trle_name —|
  |, —OPTION—=—ALLINOUT —————▶
  |, —OPTION—=—ALLIN —————▶
  | —ALLINOUT —|
  | —ALLOUT —|
  | —IN —|
  | —INOUT —|
  | —OUT —|

▶, —SYNCID—=trle_name —————▶
  |, —SYNCID—=identifier —————▶▶
  |, —SAVE—=—NO —————▶
  |, —SAVE—=—NO —————▶
  | —NO —|
  | —YES —|
  
```

### Start the APPN route selection trace in a network node:

```

▶▶ MODIFY — procname —, —TRACE—, —TYPE—=—ROUTE —————▶ (1)

▶, —BFRNUM—=100 —————▶ (2)
  |, —BFRNUM—=buffers —————▶▶
  
```

#### Notes:

- 1 TYPE=ROUTE is allowed only in a network node.
- 2 The initial default value for BFRNUM is 100. When the initial value has been set, it remains until the value is changed with BFRNUM specified on another MODIFY TRACE command.

### Start or modify a scanner interface trace:

```

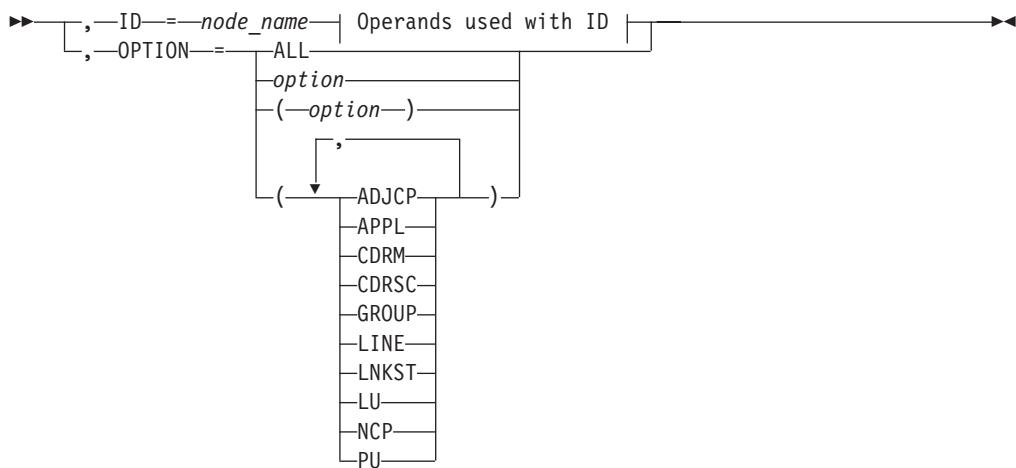
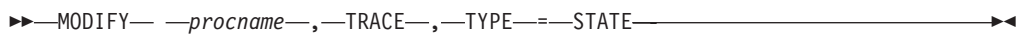
▶▶ MODIFY — procname —, —TRACE—, —TYPE—=—SIT—, —ID—=line_name —————▶

▶, —COUNT—=—ALL —————▶
  |, —COUNT—=—ALL —————▶
  | — number_of_bytes —|
  |, —TRACEPT—=trace_point_id —————▶▶
  
```

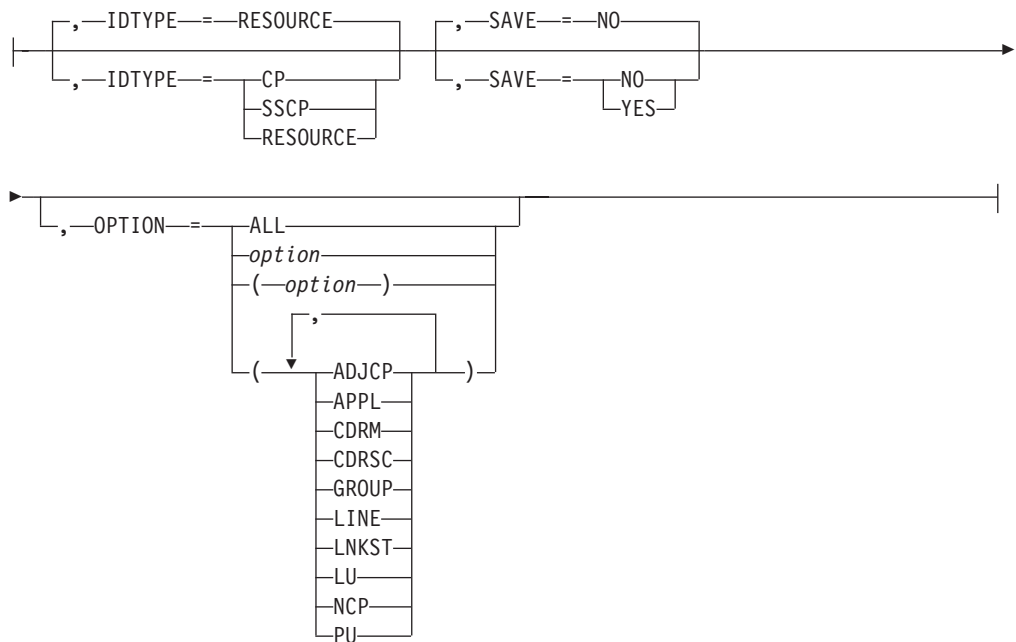
**Start or modify an SMS (buffer use) trace:**



**Start or modify a resource state trace:**



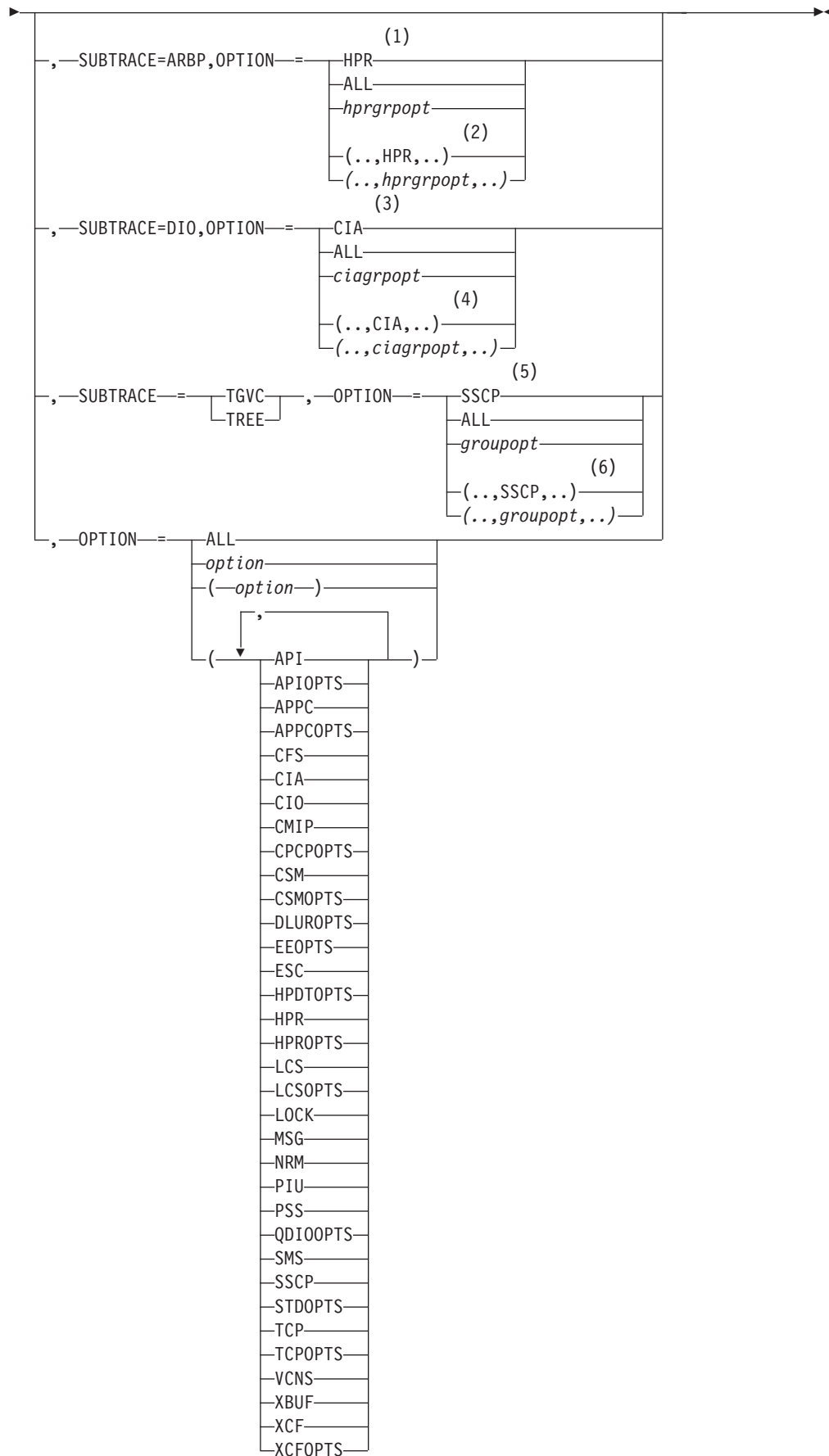
**Operands used with ID:**



**Start or modify a transmission group trace:**







## MODIFY TRACE

### Notes:

- 1 When you specify SUBTRACE=ARBP and you code a single OPTION value, the OPTION value must be HPR, ALL, or one of the group options (*hprgrpopt*) that include HPR as an individual option equivalent. The applicable group options are DLUROPTS, EEOPTS, HPDTPPTS, HPROPTS, QDIOOPTS, and XCFOPTS.
- 2 When SUBTRACE=ARBP is coded and you code multiple trace options in parentheses, you must code either HPR or one of the group options (*hprgrpopt*) that include HPR as an individual option equivalent inside the parentheses.
- 3 When you specify SUBTRACE=DIO and you code a single OPTION value, the OPTION value must be CIA, ALL, or one of the group options (*ciagrpopt*) that include CIA as an individual option equivalent. The applicable group options are EEOPTS, HPDTPPTS, HPROPTS, QDIOOPTS, TCPOPTS and XCFOPTS.
- 4 When SUBTRACE=DIO is coded and you code multiple trace options in parentheses, you must code either CIA or one of the group options (*ciagrpopt*) that include CIA as an individual option equivalent inside the parentheses.
- 5 When you code SUBTRACE=TGVC or SUBTRACE=TREE and you code a single OPTION value, the OPTION value must be either SSCP, ALL, or one of the group options (*groupopt*), all of which include SSCP as an individual option equivalent. The group options are APIOPTS, APPCOPTS, CPCOPTS, CSMOPTS, DLUROPTS, EEOPTS, HPDTPPTS, HPROPTS, LCSOPTS, QDIOOPTS, STDOPPTS, TCPOPTS, and XCFOPTS.
- 6 When you code SUBTRACE=TGVC or SUBTRACE=TREE and you code multiple trace options in parentheses, you must code either SSCP or one of the group options (*groupopt*) inside the parentheses.

### Abbreviations

Operand	Abbreviation
MODIFY	F
ALSNAME	ALS
AMOUNT=FULL	AMT=F
AMOUNT=PARTIAL	AMT=P
OPTION	OPT
OPTION=COMMAND	OPT=CMD
OPTION=CONNECTION	OPT=CON
OPTION=DEFINITION	OPT=DEF
OPTION=INTERFACES	OPT=INT
OPTION=MANAGEMENT	OPT=MGMT
OPTION=SESSION	OPT=SES
SAVE=YES	SAVE
SCOPE=ALL	EVERY or E
SCOPE=ONLY	NONE
TRACES	TRACE

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for SCOPE=ALL, code only EVERY or E. Do not code SCOPE=E.

### Purpose

The MODIFY TRACE command starts traces or modifies the parameters for currently running traces. VTAM traces are also started with the TRACE start option, as described in the z/OS Communications Server: SNA Resource Definition Reference.

Activation and use of VTAM traces have dependencies on the options used to start the system trace facility in each operating system environment. See the z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures for a complete description of the system trace facility requirements, when to use these traces, and how to interpret the results.

General PIU trace (GPT) records are printed by the trace analysis program (ACFTAP) utility. For more information about ACFTAP, see z/OS Communications Server: ACF/TAP Trace Analysis Handbook.

### Operands

#### **procname**

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

#### **ALSNAME=adjacent\_link\_station\_name**

Applies only when TYPE=GPT and specifies the name of the adjacent link station through which you want tracing to occur. The adjacent link station name must be a PU in an NCP major node or a switched PU connected by an NCP link.

The LU can be traced over multiple connections; however, to do so, you must enter a separate command for each connection.

You do not need to specify the ALSNAME operand if either of the following situations is true:

- The ALS list has only one entry (and it is not ISTAPNPU). That entry is selected.
- The ALS list has two entries, one of which is ISTAPNPU. The entry other than ISTAPNPU is selected.

The command fails if ISTAPNPU is specified, or if ISTAPNPU is used by default because it is the only entry in the ALS list.

If no ALS list exists for the resource, specify the adjacent link station on the ALSNAME operand.

Use the DISPLAY ID=*lu\_name*,SCOPE=ALL command to display all sessions for an independent LU and which adjacent link station list is used for each session.

## MODIFY TRACE

### AMOUNT

Applies only when TYPE=BUF. It determines whether VTAM starts a partial buffer contents trace or a full buffer contents trace for the specified node name.

You can run a partial buffer contents trace and a full buffer contents trace at the same time for different resources. (Issue a separate MODIFY TRACE command for each resource.) For example, you can start a partial buffer contents trace for an application program, with partial buffer contents tracing for some resources in session with the application program and full buffer contents tracing for other resources in session with the application program. When the level of tracing differs between two resources on opposite ends of a session (one is partial and the other is full), full buffer tracing is used.

You can switch between partial and full buffer tracing for the same resource by issuing additional MODIFY TRACE commands, without having to deactivate the trace.

### AMOUNT=PARTIAL

Tells VTAM to record the data in trace records with a maximum size of 256 bytes. Each trace record contains a trace record header and data. Data that does not fit in a 256-byte trace record is lost.

### AMOUNT=FULL

Tells VTAM to record all of the data transmitted in message buffers. Multiple trace records might be needed to record all of the data.

### BFRNUM=*number*

- When you specify TYPE=VTAM,MODE=EXT this operand specifies the number of 8-K external trace buffers the VTAM internal trace is to allocate and use for generalized trace facility (GTF) processing. Values in the range of 2 - 50, or 0 can be specified. If you omit this option, the default value is 2. To ensure that enough buffers are available, specify a value that is twice as much as the number of processors in the central processing unit (CPU).

When you specify a value in the range of 2 - 50, VTAM accumulates approximately 8 K of external trace data before sending the data to GTF.

If 0 is specified or there is no buffer available for the trace record, VTAM sends each trace record to GTF as it is recorded. This can incur a significant system overhead, but might be necessary if you need individually timestamped records.

If external trace recording is already active, and the new value specified for BFRNUM is less than the existing value, the number of buffers is not changed; if the new value is greater than the existing value, the number of the buffers is increased.

- When you specify TYPE=ROUTE, the BFRNUM operand specifies the maximum number of 40-K buffers to be allocated for the APPN route selection trace table. Values in the range of 1 - 500 can be specified. Storage for the route selection trace is not completely allocated when the trace is activated, but is allocated in 40-K buffers as it is needed. The APPN route selection trace is allocated in extended private storage.

If you omit the BFRNUM option initially, the default for the maximum number of buffers is 100. After the APPN route selection trace is started, the BFRNUM operand does not have a default value. If successive MODIFY TRACE,TYPE=ROUTE commands are issued, the BFRNUM specification remains the same until you respecify it on a MODIFY command.

If the BFRNUM value is too small, trace information might be lost as a result of wraparound in the route selection trace table. Also, if the BFRNUM value specified on the MODIFY TRACE,TYPE=ROUTE command is smaller than

the previous BFRNUM value, information is lost because the existing trace table is freed. If a MODIFY TRACE,TYPE=ROUTE command is entered with a BFRNUM value larger than the previous BFRNUM value, however, the storage allocated for the trace table will not be freed and additional buffers will be allocated as needed up to the new limit. If an attempt to allocate an additional block of trace table storage fails because of insufficient storage, the route selection trace table size might not reach the maximum size that you requested.

### COUNT

Applies only when TYPE=LINE or TYPE=SIT. It specifies the number of bytes that are traced by either the NCP for a line trace (without the TG operand), or the communication scanner processor for the scanner interface trace. The COUNT operand has no effect on NTRI lines before NCP V5R2.1. NTRI always traces the same amount of data.

#### COUNT=number\_of\_bytes

Specifies the number of bytes of data to be traced. The value must be a decimal integer 0 - 254. COUNT=0 specifies that only the NCP control characters and none of the data is to be traced.

#### COUNT=ALL

Specifies that all of the data is to be traced.

### DEVICE

Applies only when the ID operand is a TRLE that has the DATAPATH operand coded. Use DEVICE to start input/output trace on OSA-Express devices specified on the DATAPATH operand.

#### DEVICE=ALL

Specifies to turn on input/output trace on all devices in the DATAPATH list.

#### DEVICE=hex\_device\_address

Specifies to turn on input/output trace for a specific DATAPATH device.

### FRAMES

Applies only when TYPE=NETCTLR. For a start/stop line, ALL is the only option. If DATA is specified on a start/stop line, it is ignored and the command proceeds as if ALL were specified. For SDLC and BSC lines, either DATA or ALL can be specified, with DATA being the default.

#### FRAMES=ALL

Specifies that all frames (meaning control and data frames) are to be traced by the cluster control unit.

#### FRAMES=DATA

Specifies that only data frames are to be traced by the cluster control unit.

### ID=name

Specifies the name of the resource for which tracing is to be done. Only active resources can be traced. This operand does not apply when TYPE=MODULE or TYPE=VTAM.

Names of various types of resources can be specified, depending on the value of the TYPE operand. The different resources and the traces that can be specified for them (with the TYPE operand) are shown in Figure 5 on page 479 and are described in the following information.

## MODIFY TRACE

For TYPE=BUF, TYPE=IO, TYPE=GPT, or TYPE=STATE, the name can be a network-qualified name. If *name* is an ACB name, and the ACB name matches the name on the APPL definition statement, then you can use a network-qualified ACB name.

For TYPE=BUF, TYPE=IO, or TYPE=STATE for a CDRM, you can specify a network-qualified name, but this does not remove the restriction that the non-network-qualified CDRM name must be unique across networks.

For TYPE=BUF, TYPE=IO, or TYPE=STATE, the name can be a model resource (APPL or CDRSC). If SCOPE=ALL is specified, the command also applies to the clone resources created from the model. If SCOPE=ONLY is specified, current clone resources are unaffected, but future clone resources will be affected when they are created.

For TYPE=QDIOSYNC, the ID operand specifies the TRLE name of the OSA-Express2 adapter for which diagnostic data synchronization and filtering is to be started. Specify ID=\* to start QDIOSYNC for all TRLEs that define OSA-Express2 adapters. When ID=\* is specified with SAVE=NO, ID=\* indicates that the QDIOSYNC command is to be applied to all currently active TRLEs that define OSA-Express2 adapters. When ID=\* is specified with SAVE=YES, ID=\* indicates that the QDIOSYNC command is to be applied to all currently active TRLEs that define OSA-Express2 adapters and to those that are activated by this VTAM in the future.

When multiple QDIOSYNC NOTRACE or TRACE commands are specified, the last one that is applicable to a specific *trle\_name* value takes precedence. For example, TRACE TYPE=QDIOSYNC,ID=TRLE1 requests synchronization for a single OSA-Express2 adapter, but the request is canceled if it is followed by NOTRACE TYPE=QDIOSYNC, ID=\*. TRACE TYPE=QDIOSYNC, ID=\* requests synchronization of all OSA-Express2 adapters and, if it is followed by NOTRACE TYPE=QDIOSYNC,ID=TRLE1, results in synchronization of all OSA-Express2 adapters except TRLE1.

MODIFY TRACE														ID=				
BUF	BUF	CNM	EXIT	GPT	GPT	IO	IO	LINE	MODULE	NETCTLR	QDIOSYNC	SIT	SMS	STATE	TG	TSO	VTAM	
•																		Adjacent CP major node
																		Application program major node
•	•															•		Application program minor node
						•												Channel-attachment major node
							•											Channel link
																		Channel link station
				•														CDRSC major node
•	•			•														CDRSC minor node
																		Dynamic CDRSC major node
•	•																	Dynamic CDRSC minor node
																		CDRM major node
•	•					•	•											CDRM minor node
							•											XCA major node
																		Nonswitched line
																		Link station
																		Switched line
•																		Local non-SNA major node
•	•																	Local non-SNA logical unit
																		Local SNA major node
•	•																	Local SNA physical unit
	•																	Local SNA logical unit
•	•			•	•	•	•											NCP major node
•						•	•					•				•		Nonswitched line
•						•	•					•						Switched line
																		Link station
•	•					•	•	•										Physical unit
•	•					•	•											Logical unit
																		Switched major node
•	•					•	•	•										Switched physical unit
																		Switched link station
•	•					•	•											Switched logical unit
																		Dynamic switched major node
•	•					•	•	•										Dynamic switched physical unit
•	•					•	•											Dynamic switched logical unit
•																		TCP/IP major node
•	•					•	•											Nonswitched line
•	•					•	•											Physical unit
																		IBM 3710-attached resource
	•																	Host physical unit
				•														ISTEXCAA
																		ISTIRN
	•																	ISTNOTIF
	•																	ISTTOPAG
				•														PDPIUBUF
				•														SAWBUF
•	•					•	•											VTAM
													•					VTAMBUF
		•	•	•	•			•	•	•	•	•	•	•	•	•	•	RTP major node
						•					•							TRLE

Figure 5. Resource and trace reference

- For **TYPE=BUF** or **TYPE=IO**, any of the following names can be specified along with the **SCOPE=ALL** operand to trace message activity with the named resource and, if applicable, all of the resource's subordinate nodes:

## MODIFY TRACE

- The name of an NCP major node
- The name of the following major nodes (only TYPE=IO,SCOPE=ALL can be specified):
  - Channel-attachment major node
  - XCA major node
- The name of a line attached to a communication adapter (only TYPE=IO,SCOPE=ONLY can be specified)
- The name of a switched line that has a physical unit attached to it
- The name of a TRLE (only TYPE=IO,SCOPE=ONLY can be specified)

**Restriction:** I/O tracing is not supported for a TRLE that represents a 10GbE RoCE Express feature.

- The name of one of following types of physical units:
  - Channel-attached SNA physical unit
  - Switched physical unit
- The name of a logical unit
- The name of the host CDRM

**Note:** If you do a trace for a host CDRM, any subordinate minor nodes also have trace turned on.

Any of the following names can be specified to trace message activity with the named resource:

- Host physical unit (for a trace of all PIUs between this host and another PU type 4 or PU type 5)
- ISTIRN (with TYPE=IO only, for an IO trace of all PIUs passing through this host that are received from a channel-attached PU type 4 or type 5 and are being sent to another channel-attached PU type 4 or type 5)
- VTAM (for a trace of all SSCP sessions)
- The name of an NCP
- The name of a logical unit (including application programs)
- The name of a local non-SNA minor node
- The name of a CDRM (only in a multiple-domain or multiple-network environment)
- The name of a CDRSC
- The name of the internal or external CMIP application program (for TYPE=BUF only). For the VTAM topology agent, *node\_name* is ISTTOPAG. For notification services, *node\_name* is ISTNOTIF. For external CMIP application programs, *node\_name* is the application name defined as the ACB name of the application program major node. In the following example, APPL1 is the name of the CMIP application program, as defined in the name field of the APPL definition statement.

```
APPL1    APPL    PRTCT=ADRAPL01
```

The host CP can be traced as an application program minor node, and adjacent CPs can be traced as CDRSC minor nodes.

- For **TYPE=CNM**, the ID operand specifies one of the following values:
  - PDPIUBUF, to start the problem determination PIU buffer trace
  - SAWBUF, to start the session awareness buffer trace
- For **TYPE=EXIT**, the ID operand is required and must be specified as ISTECCA, ISTECCS, or ISTECCDM.



- For **TYPE=GPT**, the ID operand specifies the name of the NCP resource for which tracing is to be done:
  - An NCP major node (and all of its resources) that is active or pending active
  - An NCP switched or nonswitched line

**Note:** The ID operand of MODIFY TRACE cannot specify an NCP switched line that is a switched subarea connection.

- An active LU that has been dynamically reconfigured within the NCP
- An active PU on an NCP switched line
- An active or inactive PU on an NCP nonswitched line
- An active PU that is dynamically reconfigured within the NCP
- An active or inactive LU associated with an active PU on a switched line
- An active or inactive LU associated with a PU (active or inactive) on a nonswitched line
- An active or inactive independent LU associated with a PU (ALS) in an NCP major node or a switched PU connected by an NCP link. The state (active or inactive) of the PU with which the independent LU is associated must be as follows:
  - If it has been dynamically reconfigured within the NCP, the PU must be active
  - If it is on an NCP switched line, the PU must be active.
  - If it is on an NCP nonswitched line, the PU can be either active or inactive.

The SSCP and host CP are not valid resources for a GPT trace, but the adjacent CP can be traced as a CDRSC minor node.

- For **TYPE=NETCTLR**, the ID operand specifies the name of the physical unit representing the device for which the trace is to be started. (VTAM is not required to own or have knowledge of the 3710.) VTAM sends the name of the PU specified on the ID operand to the 3710 specified on the PU operand.

If a 3710 is to be simultaneously traced over more than one line, use a separate MODIFY TRACE command to start each trace.

**Note:** It is not necessary that the resource specified by the ID operand be another 3710.

- For **TYPE=LINE** or **TYPE=SIT**, the ID operand specifies the name of the line for which tracing is to be done.

ID cannot specify a line attached to a communication adapter or the name of a transmission group through a communication adapter.

- For **TYPE=SMS** the ID operand is optional. If it is omitted, ID=VTAMBUF will be used for an SMS trace.
- For **TYPE=STATE**, the ID operand specifies the name of the resource for which state tracing is to be done.
- For **TYPE=TG**, the ID operand specifies the name of a nonswitched line currently within the transmission group to be traced. All the lines in the transmission group are traced as if they were a single logical line.
- For **TYPE=TSO**, the ID operand specifies the TSO user ID for which tracing is to be done.

## MODIFY TRACE

### IDTYPE

Specifies the type of resource that the ID operand names. If several types of resources share the same name, IDTYPE identifies which resources the command should act on. IDTYPE applies to TYPE=BUF, TYPE=IO, TYPE=GPT, and TYPE=STATE.

#### IDTYPE=CP

Starts tracing for the control point (CP) with the name specified on the ID operand. The CP that is traced can be the host CP or a CDRSC representing an adjacent CP.

#### IDTYPE=SSCP

Starts tracing for the system services control point (SSCP) with the name specified on the ID operand.

#### IDTYPE=RESOURCE

Starts tracing for a CP, an SSCP, or another resource with the name specified on the ID operand. If both an SSCP and a CP are found, VTAM starts tracing for both of them.

### LENGTH

Applies only when the DEVICE operand is specified and the ID operand is a TRLE that has the DATAPATH operand coded. Use LENGTH to specify the number of bytes from each packet to trace. Valid values are 56 - 9016. Values are rounded up to 56 and values above 9016 are rounded down to 9016. All values are rounded up, if necessary, to an even multiple of 28.

**Note:** The default value is 272 for a TRLE that has the DATAPATH operand coded.

### LINE=line\_name

Applies only to TYPE=NETCTLR. It specifies the name of a link that is attached to the 3710 that is to be traced. The 3710 performing the trace (named on the PU operand) copies the SDLC, BSC, and S/S data link control frames that are transmitted or received on that link for the physical unit named by the ID operand. VTAM has no knowledge of this link. VTAM sends the name of the link specified on the LINE operand to the 3710 specified on the PU operand.

### MODE

Applies only to TYPE=VTAM. It specifies that the VTAM internal trace is to record its data on an internal, wraparound table (MODE=INT) or an external trace file (MODE=EXT).

You can record trace data internally and externally at the same time. If required, you can have different sets of trace options active for internal and external recording. VTAM always runs with MODE=INT and the default trace options, regardless of whether you request tracing.

You must run specific operating system utilities to trap, format, and view external trace output. See *z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures* for more information about use of these operating system utilities.

Do not specify MODE=EXT and SIZE on the same command.

#### MODE=INT

Specifies that the VTAM internal trace is to record its data on an internal, wraparound table.

**MODE=EXT**

Specifies that the VTAM internal trace is to record its data on an external trace file and on an internal, wraparound table.

**OPTION**

Applies to TYPE=EXIT, TYPE=MODULE, TYPE=QDIOSYNC, TYPE=STATE and TYPE=VTAM.

For **TYPE=EXIT**, OPTION specifies the functions of the session management exit (SME), directory services management exit (DSME), or configuration services XID exit for which tracing is to be started.

If more than one option is selected, separate them with commas and enclose the list in parentheses; for example OPTION=(BEGIN,INITAUTH,ACCTING).

For **TYPE=MODULE**, OPTION specifies the types of processing modules for which tracing is to be started.

If more than one option is selected, separate them with commas and enclose the list in parentheses; for example OPTION=(COMMAND,SESSION).

For **TYPE=QDIOSYNC**, OPTION specifies the scope and filter to be applied by the OSA-Express2 adapter. OPTION specifies the devices and the direction for which diagnostic data is to be gathered.

For **TYPE=STATE**, OPTION specifies the types of resources for which resource states are to be recorded. The data is recorded using the mode (internal or external) specified for the SSCP VIT option.

If more than one option is selected, separate them with commas and enclose the list in parentheses; for example OPTION=(APPL,GROUP,NCP).

For **TYPE=VTAM**, OPTION specifies the VTAM internal functions for which trace data is to be recorded.

The API, CIO, MSG, NRM, PIU, and SSCP VIT options are kept active by VTAM for internal recording (MODE=INT). If you stop them, VTAM immediately restarts them. For external recording (MODE=EXT), there are no default options. You can start or stop any options.

**Note:** Although the default options are always active, these options do not appear in DISPLAY TRACES output unless you have specified them on the MODIFY TRACE command or the TRACE,TYPE=VTAM start option.

If more than one option is selected, separate them with commas and enclose the list in parentheses; for example OPTION=(API,NRM,SSCP). For information about what is traced for each internal function, see the z/OS Communications Server: SNA Diagnosis Vol 2, FFST Dumps and the VIT.

**OPTION=ALL**

Applies to TYPE=EXIT, TYPE=MODULE, TYPE=STATE, and TYPE=VTAM.

**Note:** Turning on all traces slows performance.

For TYPE=EXIT, it starts the tracing of all functions.

For TYPE=MODULE, it starts the tracing of all the modules shown on the OPTION operand for which TYPE=MODULE apply.

For TYPE=STATE, it starts the tracing of resource states for all of the resource types shown on the OPTION operand for which TYPE=STATE apply.

## MODIFY TRACE

For **TYPE=VTAM**, it starts the VTAM internal trace for all of the VTAM internal functions for which the VTAM internal trace is available. Exception trace entries continue to be recorded.

For **TYPE=EXIT** where **ID=ISTEXCAA**, you can also specify the following options:

**OPTION=ALL**

Starts the tracing of all functions.

**OPTION=ACCTING**

Starts tracing the initial and final accounting function of the session management exit (SME).

**OPTION=ADJSSCP**

Starts tracing the adjacent SSCP selection function of the session management exit (SME).

**OPTION=ALIAS**

Starts tracing the alias translation function of the session management exit (SME).

**OPTION=ALS**

Starts tracing the adjacent link station function of the session management exit (SME).

**OPTION=BEGIN**

Starts tracing the begin function of the session management exit (SME).

**OPTION=END**

Starts tracing the end function of the session management exit (SME).

**OPTION=GWPATH**

Starts tracing the gateway path list function of the session management exit (SME).

**OPTION=INITAUTH**

Starts tracing the initial authorization function of the session management exit (SME).

**OPTION=REPL**

Starts tracing the exit replacement function of the session management exit (SME).

**OPTION=SECAUTH**

Starts tracing the secondary authorization function of the session management exit (SME).

**OPTION=VRSEL**

Starts tracing the virtual route selection function of the session management exit (SME).

**OPTION=XRF**

Starts tracing the XRF session switch function of the session management exit (SME).

For **TYPE=EXIT** where **ID=ISTEXCCS**, you can also specify the following options:

**OPTION=ALL**

Starts the tracing of all functions.

**OPTION=BEGIN**

Starts tracing the begin function.

**OPTION=CONNSTAT**

Starts tracing the connection status.

**OPTION=DYNA\_XID**

Starts tracing the XIDs for dynamic PUs function.

**OPTION=END**

Starts tracing the end function.

**OPTION=PRED\_XID**

Starts tracing the XIDs for predefined PUs function.

For **TYPE=EXIT** where **ID=ISTEXCDM**, you can also specify the following options:

**OPTION=ALL**

Starts the tracing of all the functions.

**OPTION=ADS\_SEL**

Starts tracing the alternate central directory server selection function.

**OPTION=BEGIN**

Starts tracing the begin function.

**OPTION=BN\_SEL**

Starts tracing the border node selection function.

**OPTION=CDS\_SEL**

Starts tracing the central directory server selection function.

**OPTION=CRR\_SEL**

Starts tracing the central resource registration selection function.

**OPTION=END**

Starts tracing the end function.

**OPTION=ICN\_SEL**

Starts tracing the interchange node selection function.

**OPTION=INITAUTH**

Starts tracing the initial authorization function.

**OPTION=REPL**

Starts tracing the exit replacement function

For **TYPE=MODULE**, you can also specify the following options:

**OPTION=COMMAND**

Starts tracing modules involved in command processing.

**OPTION=CONNECTION**

Starts tracing modules involved in setting up connections between nodes.

**OPTION=DEFINITION**

Starts tracing modules involved in resource definition processing.

**OPTION=INTERFACES**

Starts tracing modules involved in the interface with the host SSCP or the host CP.

**OPTION=MANAGEMENT**

Starts tracing modules involved in network management.

**OPTION=NOEXIT**

Specifies that module exits are not traced for modules associated with other **OPTION** values for **TYPE=MODULE**. Module exits are not traced for

## MODIFY TRACE

any modules until a subsequent MODIFY NOTRACE,TYPE=MODULE,OPTION=NOEXIT command is issued.

Starting a module trace for any OPTION with TYPE=MODULE starts the tracing of the module exits also, unless you specify OPTION=NOEXIT.

### **OPTION=PURGE**

Causes all information currently held in module tracing buffers to be written to VTAM internal trace (VIT) entries. Upon completion of the command, new information is written to the module tracing buffers.

### **OPTION=SESSION**

Starts tracing modules involved in session establishment.

For **TYPE=QDIOSYNC**, you can specify the following options:

### **OPTION=ALLIN**

Indicates that the adapter should gather diagnostic data for all devices, including any that might be controlled by other operating systems. This option also indicates that the adapter should collect records pertinent to events and data flowing from the adapter to the host. Code the value **OPTION=ALLIN** only when advised by IBM service to do so.

### **OPTION=ALLINOUT**

Indicates that the adapter should gather diagnostic data for all devices, including any that might be controlled by other operating systems. This option also indicates that the adapter should collect both inbound and outbound diagnostic data.

### **OPTION=ALLOUT**

Indicates that the adapter should gather diagnostic data for all devices, including any that might be controlled by other operating systems. This option also indicates that the adapter should collect records pertinent to events and data flowing from the host to the adapter. Code **OPTION=ALLOUT** only when advised by IBM service to do so.

### **OPTION=IN**

Indicates that the adapter should gather diagnostic data for devices defined to this VTAM only. This option also indicates that the adapter should collect records pertinent to events and data flowing from the adapter to the host. Code **OPTION=IN** only when advised by IBM service to do so.

### **OPTION=INOUT**

Indicates that the adapter should gather diagnostic data for devices defined to this VTAM only. This option also indicates that the adapter should collect both inbound and outbound diagnostic data. Code **OPTION=INOUT** only when advised by IBM service to do so.

### **OPTION=OUT**

Indicates that the adapter should gather diagnostic data for devices defined to this VTAM only. This option also indicates that the adapter should collect records pertinent to events and data flowing from the host to the adapter. Code **OPTION=OUT** only when advised by IBM service to do so.

For **TYPE=STATE**, you can also specify the following options:

### **OPTION=ADJCP**

Starts tracing the states of all adjacent control points.

**OPTION=APPL**

Starts tracing the states of all application programs.

**OPTION=CDRM**

Starts tracing the states of all CDRMs.

**OPTION=CDRSC**

Starts tracing the states of all CDRSCs.

**OPTION=GROUP**

Starts tracing the states of all line groups.

**OPTION=LINE**

Starts tracing the states of all lines.

**OPTION=LNKST**

Starts tracing of link stations.

**OPTION=LU**

Starts tracing the states of all logical units.

**OPTION=NCP**

Starts tracing the states of all NCPs.

**OPTION=PU**

Starts tracing the states of all physical units.

For **TYPE=VTAM**, you can also specify the following options:

**OPTION=API**

Starts tracing the application programming interface.

**OPTION=APIOPTS**

Starts tracing events related to the application programming interface (API). Specifying this value is equivalent to specifying **OPTION=(API,MSG,NRM,PIU,PSS,SMS,SSCP)**.

**OPTION=APPC**

Starts tracing LU 6.2 communication.

**OPTION=APPCOPTS**

Starts tracing events related to LU 6.2 application programs. Specifying this value is equivalent to specifying **OPTION=(API,APPC,MSG,NRM,PIU,PSS,SMS,SSCP)**.

**OPTION=CFS**

Starts tracing coupling facility services.

**OPTION=CIA**

This option helps isolate problems related to channel I/O. CIA entries are the remaining trace records from the CIO option.

**OPTION=CIO**

Starts tracing channel I/O for channel-attached devices and for lines attached to a communication adapter.

**OPTION=CMIP**

Starts tracing internal events in CMIP services and the VTAM topology agent.

**OPTION=CPCPOPTS**

Starts tracing events related to CP-CP sessions. Specifying this value is equivalent to specifying **OPTION=(API,APPC,MSG,NRM,PIU,PSS,SMS,SSCP)**.

## MODIFY TRACE

### **OPTION=CSM**

Starts tracing of the communications storage manager.

### **OPTION=CSMOPTS**

Starts tracing events related to communications storage manager (CSM). Specifying this value is equivalent to specifying  
OPTION=(API,APPC,CIO,CSM,MSG,NRM,PIU,PSS,SMS,SSCP,XBUF).

### **OPTION=DLUROPTS**

Starts tracing events related to dependent LU requester (DLUR). Specifying this value is equivalent to specifying  
OPTION=(API,APPC,HPR,MSG,NRM,PIU,PSS,SMS,SSCP).

### **OPTION=EEOPTS**

Starts tracing events related to Enterprise Extender (EE). Specifying this value is equivalent to specifying  
OPTION=(CIA,CIO,HPR,MSG,NRM,PIU,PSS,SMS,SSCP,TCP).

### **OPTION=ESC**

Starts tracing execution sequence control.

### **OPTION=HPDPTOPTS**

Starts tracing events related to high performance data transfer (HPDT). Specifying this value is equivalent to specifying  
OPTION=(CIA,CIO,HPR,MSG,PIU,PSS,SMS,SSCP).

### **OPTION=HPR**

Starts tracing for HPR.

### **OPTION=HPROPTS**

Starts tracing events related to high performance routing (HPR). Specifying this value is equivalent to specifying  
OPTION=(API,APPC,CIA,CIO,HPR,MSG,NRM,PIU,PSS,SMS,SSCP).

### **OPTION=LCS**

Starts tracing LAN channel stations.

### **OPTION=LCSOPTS**

Starts tracing events related to LAN channel station (LCS). Specifying this value is equivalent to specifying  
OPTION=(CIO,LCS,MSG,NRM,PIU,PSS,SMS,SSCP).

### **OPTION=LOCK**

Starts tracing locking.

### **OPTION=MSG**

Starts tracing messages.

### **OPTION=NRM**

Starts tracing network resource management

### **OPTION=PIU**

Starts tracing path information units.

### **OPTION=PSS**

Starts tracing process scheduling services.

### **OPTION=QDIOOPTS**

Starts tracing events related to queued direct I/O (QDIO). Specifying this value is equivalent to specifying  
OPTION=(CIA,CIO,HPR,MSG,NRM,PIU,PSS,SMS,SSCP).

### **OPTION=SMS**

Starts tracing Storage Management services.



**OPTION=SSCP**

Starts tracing the system services control point.

**OPTION=STDOPTS**

Starts tracing events related to the application programming interface, channel I/O, messages, network resource management, path information units, process scheduling services, Storage Management services, and the system services control point. Specifying this value is equivalent to specifying `OPTION=(API,CIO,MSG,NRM,PIU,PSS,SMS,SSCP)`.

**OPTION=TCP**

Starts tracing the Enterprise Extender events.

**OPTION=TCPOPTS**

Starts tracing events related to TCP/IP. Specifying this value is equivalent to specifying `OPTION=(CIA,CIO,MSG,NRM,PIU,PSS,SMS,SSCP,TCP)`.

**OPTION=VCNS**

Starts tracing VTAM common network services.

**OPTION=XBUF**

Starts tracing of extended buffer list information.

**OPTION=XCF**

Starts tracing XCF communication.

**OPTION=XCFOPTS**

Starts tracing events related to the cross-system coupling facility (XCF). Specifying this value is equivalent to specifying `OPTION=(CIA,CIO,HPR,MSG,NRM,PIU,PSS,SMS,SSCP,XCF)`.

**PU=3710\_pu\_name**

Applies only when `TYPE=NETCTLR`. It specifies the name of the IBM 3710 Network Controller that is to perform the trace. VTAM rejects the command if the physical unit is not known to VTAM.

**SAVE**

Applies to `TYPE=BUF`, `TYPE=IO`, `TYPE=QDIOSYNC`, and `TYPE=STATE`. It specifies whether the trace command should be saved for the resource named on the ID operand.

**SAVE=YES**

VTAM saves the trace command for the resource named on the ID operand. If the resource exists when this command is issued, the trace starts immediately. If the resource does not exist when this command is issued, VTAM saves the trace command and starts the trace when the resource is defined.

**Note:** For `TYPE=BUF`, `TYPE=IO`, and `TYPE=STATE`, if you start a trace with `IDTYPE=RESOURCE` and a CP or an SSCP (but not both) exists when the command is issued, VTAM starts the trace for the existing resource and saves the trace commands for both resources. If both a CP and an SSCP exist when the command is issued, VTAM starts tracing for them immediately.

You can also issue this command to update a previously saved trace command.

For `TYPE=QDIOSYNC`:

- If `ID=trlename` is specified, any saved command from a previous `TRACE TYPE=QDIOSYNC` command or start option for the TRLE specified by the `trle_name` value is deleted.

## MODIFY TRACE

- If ID=\* is specified, all saved commands from previous TRACE TYPE=QDIOSYNC commands and start options are deleted.

Use the “MODIFY NOTRACE command” on page 417 to delete a saved trace command. VTAM will not delete a saved trace command until you issue a MODIFY NOTRACE command for it, even though the resource might be created and freed or activated and deactivated several times. Saved trace commands are lost when VTAM is halted and restarted.

### SAVE=NO

Does not save the MODIFY TRACE command. If the resource does not exist when you issue MODIFY TRACE, the command fails.

### SCOPE

Applies when TYPE=BUF, TYPE=IO, or TYPE=GPT. It specifies the scope of the trace.

You can specify the SCOPE operand for TYPE=GPT, but it is meaningful only for the NCP node. SCOPE=ALL is assumed for a GPT trace of all other node types.

### SCOPE=ALL

Starts traces for all nodes subordinate to the specified node. If an LU that is subordinate to a node is an independent LU, it is not considered to be subordinate to the node for the purpose of tracing.

SCOPE=ALL is not valid for the host PU trace or for the host intermediate routing node trace (ID=ISTIRN). If SCOPE=ALL is specified, VTAM issues a message and uses SCOPE=ONLY.

For an I/O trace of a channel-attached NCP, SCOPE=ALL provides a trace of all channel I/O, including network message traffic routed through the channel-attached NCP.

If the specified node is a model application, SCOPE=ALL turns on the trace option for the model application and starts traces for all existing dynamic applications created using the model. Traces will be started for future dynamic applications created using the model.

### SCOPE=ONLY

Starts a trace only for the specified node.

SCOPE=ONLY on a GPT trace command for the NCP PU limits the trace to RUs that flow on the SSCP-PU session for the NCP.

If the specified node is a model application, SCOPE=ONLY turns on the trace option for the model application. Traces for all existing dynamic applications created using the model are unaffected. Traces will be started for future dynamic applications created using the model.

### SIZE=*size*

Applies only when you specify TYPE=VTAM,MODE=INT. The size operand specifies the number of megabytes to be allocated for the internal trace table. Valid values are in the range 4M - 2048M. The VTAM internal trace table is allocated in 64-bit common (HVCOMMON) storage.

If the VTAM internal trace is not already started and you omit this option, the default size is 4M.

After the VTAM internal trace is started, the SIZE operand does not have a default value. If successive MODIFY commands change other options, the SIZE specification remains the same until you respecify it on a MODIFY command.

If the SIZE value is too small, trace information might be lost as a result of wraparound in the internal trace table. Also, if the SIZE operand specifies a size different from the current table size, information is lost because the trace table is freed when another table with a new size is obtained. When an attempt to increase the SIZE value fails because of insufficient storage, the internal trace table size is set to the minimum size, not the size that you requested.

**Restriction:** If you specify a SIZE value that is larger than the default value, z/OS will perform paging on portions of the VIT table. Before you specify a large SIZE value, ensure that you have sufficient real or auxiliary storage to contain the entire VIT. Failure to ensure that sufficient storage might result in an auxiliary storage shortage. If an SVC dump is taken that includes common storage, the size of the dump data set also increases. You must also take the increase in the size of the dump data set into consideration.

### SUBTRACE

Specifies that SUBTRACE can be used to turn on a subset of trace entries under a trace option. Of the SUBTRACE types defined, subtrace DIO is defined under the CIA trace option, subtrace TREE, and TGVC are defined under the SSCP trace option, and subtrace ARBP is defined under the HPR trace option.

**Note:** All of the SUBTRACE options are defaulted to off. They can generate many records in the VTAM trace and can incur a significant overhead, but may be necessary in some cases for diagnostic purposes. It is not recommended to activate them at VTAM start time. If used, the SUBTRACE options should be turned off when the necessary trace output has been obtained.

#### SUBTRACE=ARBP

Specifies that OPTION is a required keyword when SUBTRACE is specified and HPR must be one of the trace options specified when SUBTRACE=ARBP is coded. After subtrace ARBP is activated, the following trace records will be generated for the ARB algorithm processing: ARBR (Generated when ARB Responsive Mode algorithm is used) and ARBB (Generated when ARB Base Mode algorithm is used).

#### SUBTRACE=DIO

Specifies that OPTION is a required keyword when SUBTRACE is specified and CIA must be one of the trace options specified when SUBTRACE=DIO is coded. After subtrace DIO is activated, the following trace records may be generated for QDIO and Hipersockets processing: QAPL, QDIP and QSRB.

#### SUBTRACE=TGVC

Specifies that OPTION is a required keyword when SUBTRACE is specified and SSCP must be one of the trace options specified when SUBTRACE=TGVC is coded. After subtrace TGVC is activated, the following trace records will be generated for various TG Vector requests: TGVC and TGV2. If large amounts of data are being traced, additional TGVC records (plus subsequent TGV2 records) may occur.

#### SUBTRACE=TREE

Specifies that OPTION is a required keyword when SUBTRACE is specified and SSCP must be one of the trace options specified when SUBTRACE=TREE is coded. After subtrace TREE is activated, the following trace records will be generated for routing trees used by APPN route computation: TRRT, TRR2, TRR3, TRR4, TRR5, HLST, and HLS2.

## MODIFY TRACE

### SYNCID

Valid for TYPE=QDIOSYNC. The OSA-Express2 uses this value as part of an identifier when it captures diagnostic data.

**Restriction:** If you specify a value for SYNCID, it must conform to the rules for names. See *z/OS Communications Server: SNA Resource Definition Reference* for more information.

### TRACEPT=trace\_point\_id

Applies to TYPE=SIT and is valid only if you are tracing connectivity subsystem (CSS) resources on an IBM 3745 Communication Controller. This operand specifies the point in the microcode at which tracing should be activated. If you omit this operand, tracing is done for all valid trace points. Using the TRACEPT operand, you can limit the tracing to a single trace point if too much output is being produced.

VTAM accepts any integer in the range 1 - 255; however, only a few values are defined by the NCP. For information about which values are defined and what they mean, see the *NCP, SSP, and EP Diagnosis Guide*.

### TYPE

Specifies the kind of trace that is to be affected. More than one kind of trace can be active at the same time, but you must start or change each trace with a separate MODIFY TRACE command.

#### TYPE=BUF

Starts the tracing of text that passes through VTAM buffers on the way to or from the node identified by the ID operand. The SCOPE operand can be used to extend the scope of the trace to all nodes subordinate to the specified node. This trace is useful when one of the logical units in the session is an application program in this domain.

#### TYPE=CNM

Starts a communication network management trace.

**Note:** When this option is specified, the generalized trace facility (GTF) must be active with the TRACE=USR option specified.

#### TYPE=EXIT

Starts the tracing of functions of the session management exit (SME).

#### TYPE=GPT

Starts an NCP generalized PIU trace (GPT) for the resources identified by the ID operand.

**Note:** The ID operand of MODIFY TRACE cannot specify:

- An NCP switched line that is a switched subarea connection
- A dynamic CDRSC

#### TYPE=IO

Starts a trace of I/O activity associated with the node identified by the ID operand. The SCOPE operand can be used to extend the scope of the trace to all nodes subordinate to the specified node. In addition, for an NCP major node with an active channel attachment, the SCOPE=ALL operand provides a trace of all I/O going across the channel, including cross-domain session I/O.

**Note:** The external VIT is now used to record the IO trace entries. PIU, NLPI, NLPO, LSNA, and MPTNFMT entries may be written for a specific IO trace invocation.

### TYPE=LINE

Starts an NCP line trace for the line identified by the ID operand.

### TYPE=MODULE

Starts module tracing for the options specified on the OPTION operand.

### TYPE=NETCTLR

Sends a trace request to the 3710 named on the PU operand.

### TYPE=QDIOSYNC

Use TYPE=QDIOSYNC to synchronize and optionally filter OSA-Express2 diagnostic data.

Arming the OSA-Express2 adapter directs it to capture diagnostic data when there is an unexpected loss of host connectivity. Diagnostic data is also captured when the following situations occur:

- The VTAM-supplied message processing facility (MPF) exit IUTLLCMP is driven.
- Either the VTAM or TCP/IP functional recovery routine (FRR) is driven with the ABEND06F abend. ABEND06F is the result of a SLIP PER trap command specifying ACTION=RECOVERY.

**Restriction:** The SLIP must be a SLIP PER trap in order to specify ACTION=RECOVERY.

See z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures for more information about the QDIOSYNC facility.

### TYPE=ROUTE

Starts the APPN route selection trace.

### TYPE=SIT

Starts a scanner interface trace (SIT) through the communication scanner processor located in the IBM 3720 or 3745 Communication Controller containing the NCP identified by the line specified by the ID operand.

The scanner interface trace and the NCP line trace can be started separately, and can be active at the same time.

### TYPE=SMS

Starts a Storage Management services (SMS) trace to record VTAM buffer pool usage data.

### TYPE=STATE

Starts a resource state trace to record the changing states of resources.

### TYPE=TG

Starts an NCP transmission group trace for the transmission group (TG) containing the NCP line identified by the ID operand. A line is part of a transmission group only when both the line and its subordinate link station are active. A transmission group trace can be started by naming any line within the transmission group. When a transmission group trace is started, another trace of the same transmission group cannot be requested by naming the same or another line within the transmission group in another MODIFY TRACE command.

If the line or its link station subsequently fails or is deactivated (that is, if the line is removed from the transmission group), the transmission group

## MODIFY TRACE

trace is ended, even though the transmission group continues to operate if there are any remaining lines in the transmission group. The trace can be restarted, naming another line in the transmission group.

The NCP line trace and the transmission group trace are mutually exclusive for a particular line. Therefore, when starting a transmission group trace, select a line that is not being used, and is not likely to be used, for a line trace.

### TYPE=TSO

Starts a TSO component trace for the user ID identified by the ID operand. GTF must be active when this trace option is specified.

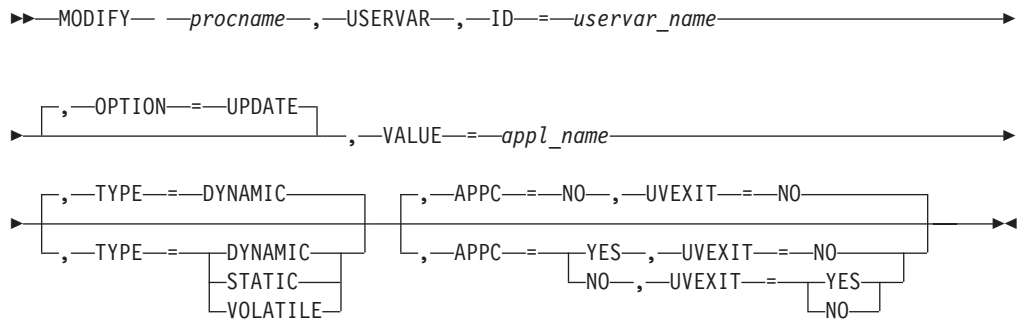
### TYPE=VTAM

Starts the VTAM internal trace (VIT) for the components specified by the OPTION operand. If OPTION is omitted, no new component internal traces are initiated; rather, VTAM issues messages identifying the components for which the internal trace is currently active.

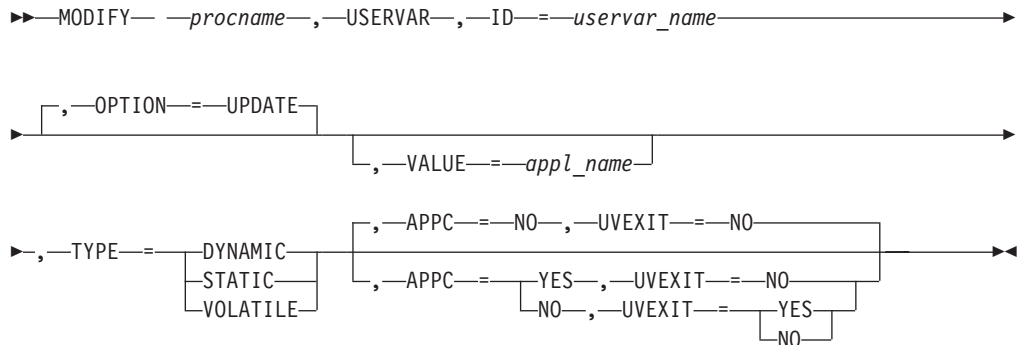
---

## MODIFY USERVAR command

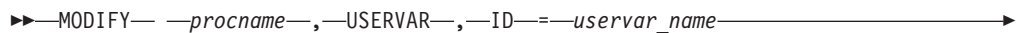
### Create a new USERVAR:

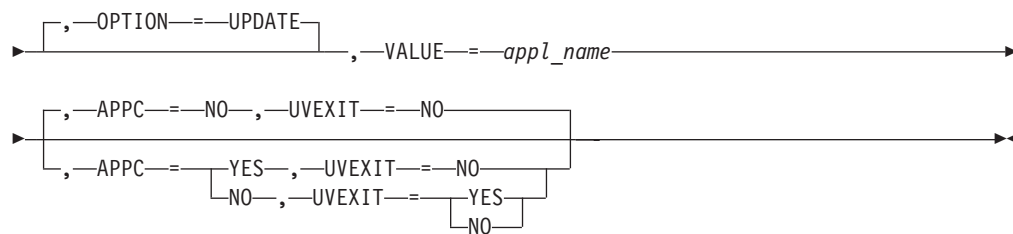


### Update an existing USERVAR and change the TYPE:

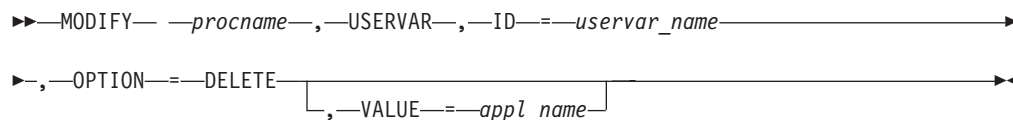


### Update an existing USERVAR, leaving the TYPE unchanged:





**Delete a USERVAR:**



**Abbreviations**

Operand	Abbreviation
MODIFY	F
NO	N
OPTION	OPT
OPTION=DELETE	OPT=DEL
OPTION=UPDATE	OPT=UP
TYPE=DYNAMIC	TYPE=DYN
TYPE=STATIC	TYPE=STA
TYPE=VOLATILE	TYPE=VOL
VALUE=value	VAL=value
YES	Y

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for OPTION=DELETE, code only OPT=DEL. Do not code OPTION=DEL.

**Purpose**

The MODIFY USERVAR command is issued by a network operator or application subsystem to define, change, or delete the name of an application associated with a USERVAR.

You cannot create or modify automatic (VTAM-managed) USERVARs using the MODIFY command; they are created and maintained by VTAM. If you issue a MODIFY command that specifies the name of an automatic USERVAR as its target, VTAM assumes that you are taking over control of the USERVAR (by changing its class from automatic to user) and that you are responsible for any future updates to that USERVAR. Whenever an automatic USERVAR is changed to a user-managed USERVAR, the operator should delete the USERVAR for VTAM to take control of it once again.



## MODIFY USERVAR

### Operands

#### **procname**

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

#### **APPC**

Specifies how the USERVAR ID affects LU 6.2 sessions that were established with APPC/VTAM application programs.

This operand is valid only when the application program specified on the VALUE operand runs on the same host that is processing this operator command. This operand is valid only when OPTION=UPDATE and UVEXIT=NO are specified or assumed by default.

If you specify OPTION=DELETE, APPC=NO is assumed by default. If you specify APPC=YES and UVEXIT=YES, both APPC=NO and UVEXIT=NO are assumed by default.

If you are updating an existing USERVAR and you do not specify a value for APPC, the previously defined value will be replaced with the default value found in the operation-level USS table (ISTINCNO). The IBM-supplied default value is APPC=NO.

#### **APPC=NO**

Specifies that the USERVAR ID is not used to replace the application program's name when establishing LU 6.2 sessions for any application programs identified in the VALUE operand.

#### **APPC=YES**

Specifies that the USERVAR ID is used to replace the application program's name when establishing LU 6.2 sessions only for APPC/VTAM application programs identified in the VALUE operand.

If an LU 6.2 application uses a USERVAR ID with the operand APPC=YES, you cannot define another USERVAR ID with APPC=YES for that application.

#### **ID=uservar\_name**

Specifies the USERVAR. It can be used to specify any valid USERVAR (1–8 alphanumeric characters, the first of which must be alphabetic). VTAM uses this USERVAR during the logon process to send the session request to the currently active application subsystem. The USERVAR is also specified in the LOGCHAR operand used to add an entry to the interpret table.

**Note:** If ID is specified using a reserved name (for example, ID=VTAM), inconsistent results will occur.

#### **OPTION**

Specifies whether the USERVAR identified by the ID operand is to be assigned a value, have its current value changed, or be deleted.

#### **OPTION=UPDATE**

Specifies that the USERVAR identified by the ID operand is to be assigned a value, or that the current value of an existing USERVAR is to be changed.



**OPTION=DELETE**

Specifies that the USERVAR identified by the ID operand is to be deleted. If used with the VALUE operand, the USERVAR is deleted only if the specified value matches that of the USERVAR.

**TYPE**

Specifies the type (or attributes) of a USERVAR.

**TYPE=DYNAMIC**

Specifies that, in event of failure, the value of the USERVAR identified by the ID operand is to be queried again by those SSCPs having automatic USERVARs with the same name. The default value for the TYPE operand is used only when a USERVAR table entry is being created. It is not used on each execution of the MODIFY USERVAR command.

**TYPE=STATIC**

Specifies that the value of the USERVAR will not change. Those SSCPs having automatic USERVARs with the same name need to query the USERVAR only if the value is unknown.

**TYPE=VOLATILE**

Specifies that the value of the USERVAR identified by the ID operand is to be queried again before any session setup is attempted because the value is likely to change.

**UVEXIT**

Specifies whether an installation-wide exit routine is to be used for the USERVAR. For more information about installation-wide exit routines identified by the UVEXIT operand, see *z/OS Communications Server: SNA Customization*. This operand is valid only when APPC=NO and OPTION=UPDATE are specified or assumed by default.

If you specify OPTION=DELETE, UVEXIT=NO is assumed by default. If you specify APPC=YES and UVEXIT=YES, both APPC=NO and UVEXIT=NO are assumed by default.

If you are updating an existing USERVAR and you do not specify a value for UVEXIT, the previously defined value will be replaced with the default value found in the operation-level USS table (ISTINCNO). The IBM-supplied default value is UVEXIT=NO.

**UVEXIT=NO**

Specifies that the USERVAR installation exit is not used for this USERVAR.

**UVEXIT=YES**

Specifies that the USERVAR installation exit is used for this USERVAR.

**VALUE=app1\_name**

Specifies the name of an application program. Any session initiated with the USERVAR name specified in the ID operand is initiated with the application program named by *appl\_name*.

**Note:** If VALUE is specified using a reserved name (for example VALUE=VTAM), inconsistent results will occur. The name can be a network-qualified name. If *appl\_name* is a network-qualified name, the name (both the network identifier and the resource name) is considered to be a real name and cannot change.

If the *appl\_name* value is not a network-qualified name, the name uses the network identifier that is specified on the session request, if one is specified. If a network identifier is not specified on the session request, and if the

## MODIFY USERVAR

USERVAR is in the OLU domain, the name can represent any resource with that name in any network; the network identifier is filled in when a resource is found with that name. If the USERVAR name is *not* in the OLU domain, the value must be predefined in the VTAM that contains the USERVAR name. In addition, if the USERVAR name is represented by a CDRSC, the CDRSC (or a model CDRSC) must be predefined *with a network identifier*.

### Restrictions:

- In a subarea-only network, the user-managed USERVAR can be defined on the VTAM that owns the real destination resource, on the VTAM where the session originates, or on any VTAM along the session path. Because there might be attempts from many different VTAMs to establish sessions with the destination resource using the USERVAR name, the best results are achieved when the user-managed USERVAR is defined on the VTAM that owns the real resource, or on a VTAM that is as close to the owning VTAM as possible.
- In an APPN network, or in a mixed APPN and subarea network, the location of the user-managed USERVAR is more restrictive. If the real resource is on a VTAM end node (EN), network node (NN), or migration data host (MDH), the user-managed USERVAR must be defined on that VTAM (the owning VTAM). When the real resource is on an EN, define the USERVAR on the EN and not on its network node server. If the real resource is on an interchange node (ICN), or on a VTAM located in or through a subarea network attached to an ICN, the user-managed USERVAR must be defined on the ICN or on one of the VTAMs along the subarea portion of the session path.

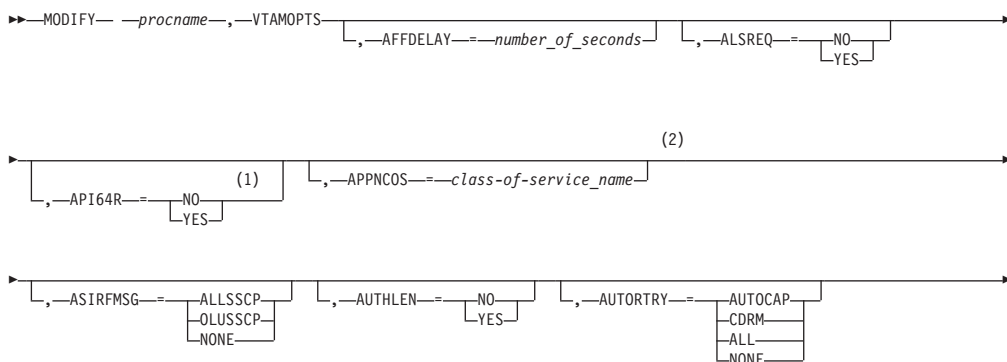
When the MODIFY USERVAR command is issued on an EN, the USERVAR name is registered to the network node server of the EN unless UVEXIT=NO is coded (or is the default value) and the value specified for the real resource name is a dynamic CDRSC or is not defined.

The output from the DISPLAY USERVAR command for this USERVAR includes network-qualified names only if *appl\_name* is a network-qualified name on the MODIFY USERVAR command.

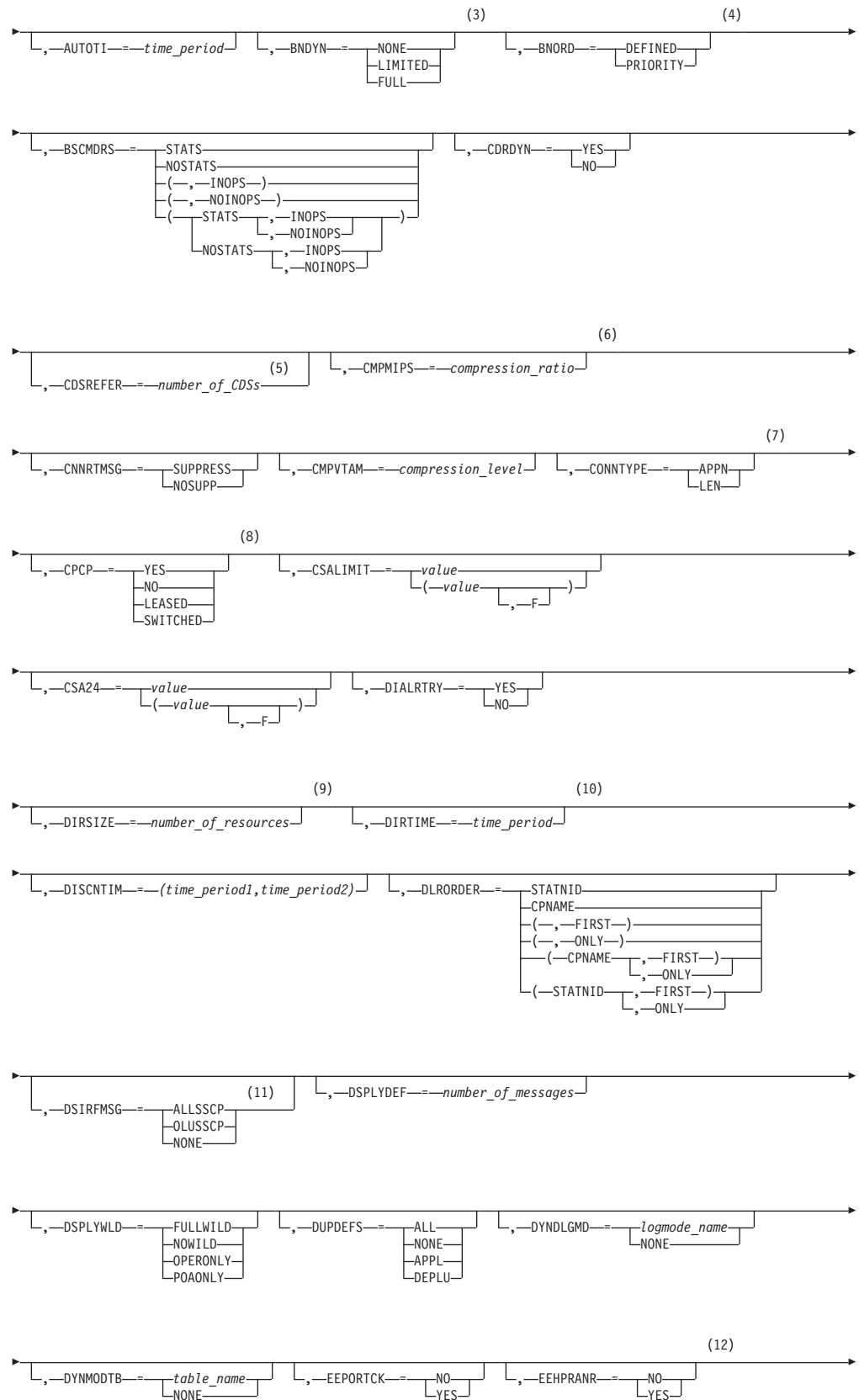
If *appl\_name* is an ACB name, and the ACB name matches the name on the APPL definition statement, then you can use a network-qualified ACB name.

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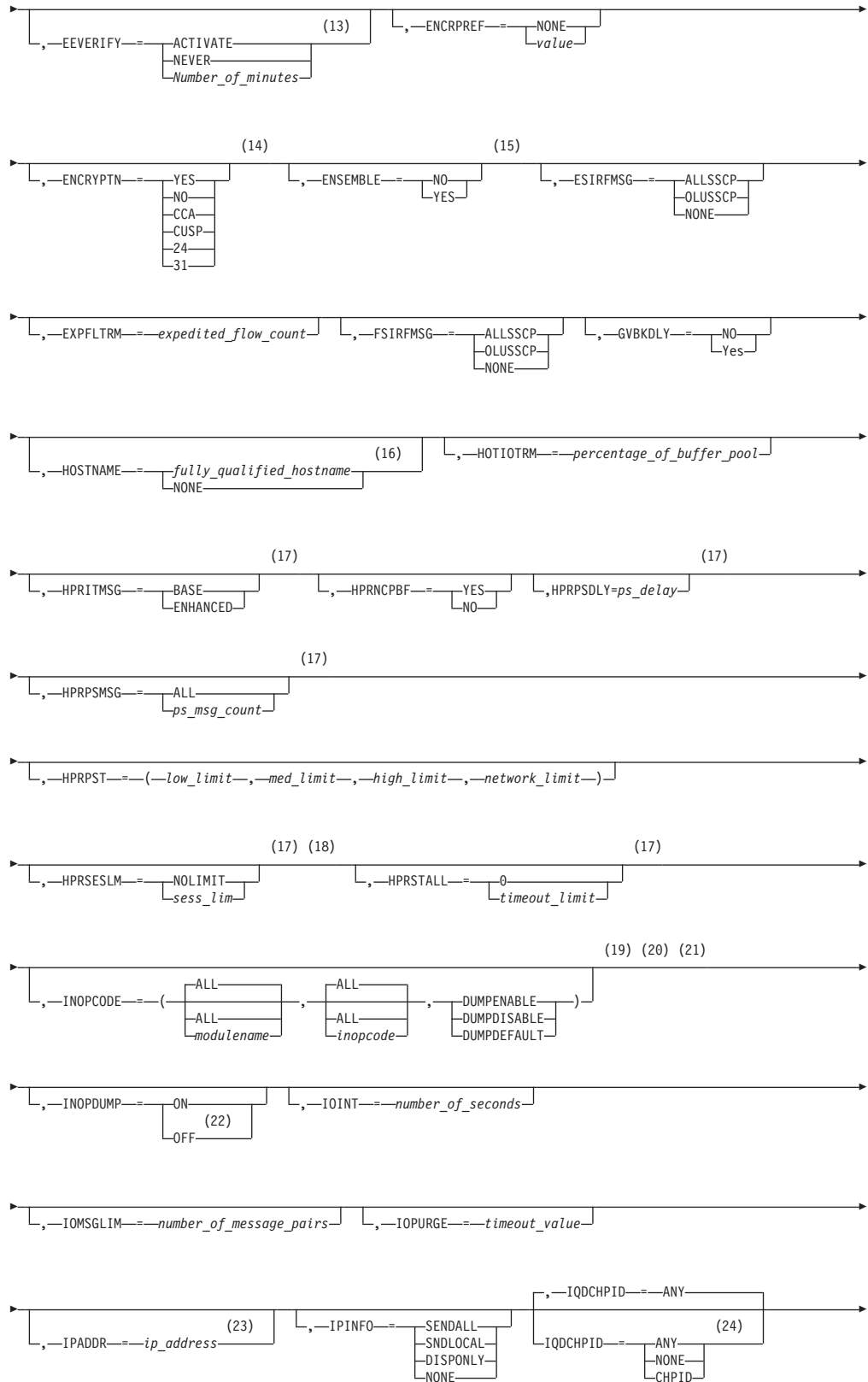
## MODIFY VTAMOPTS command

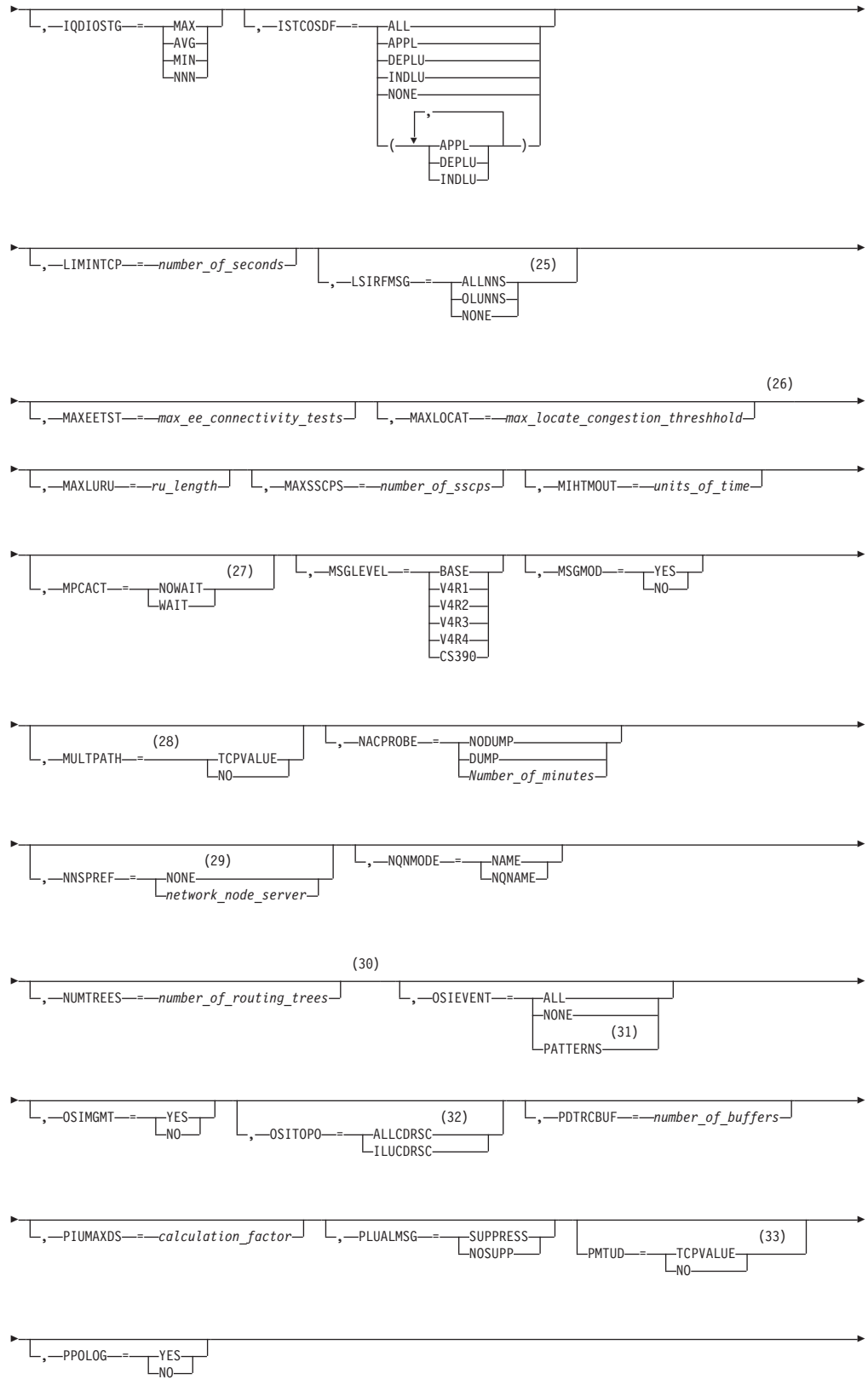


# MODIFY VTAMOPTS

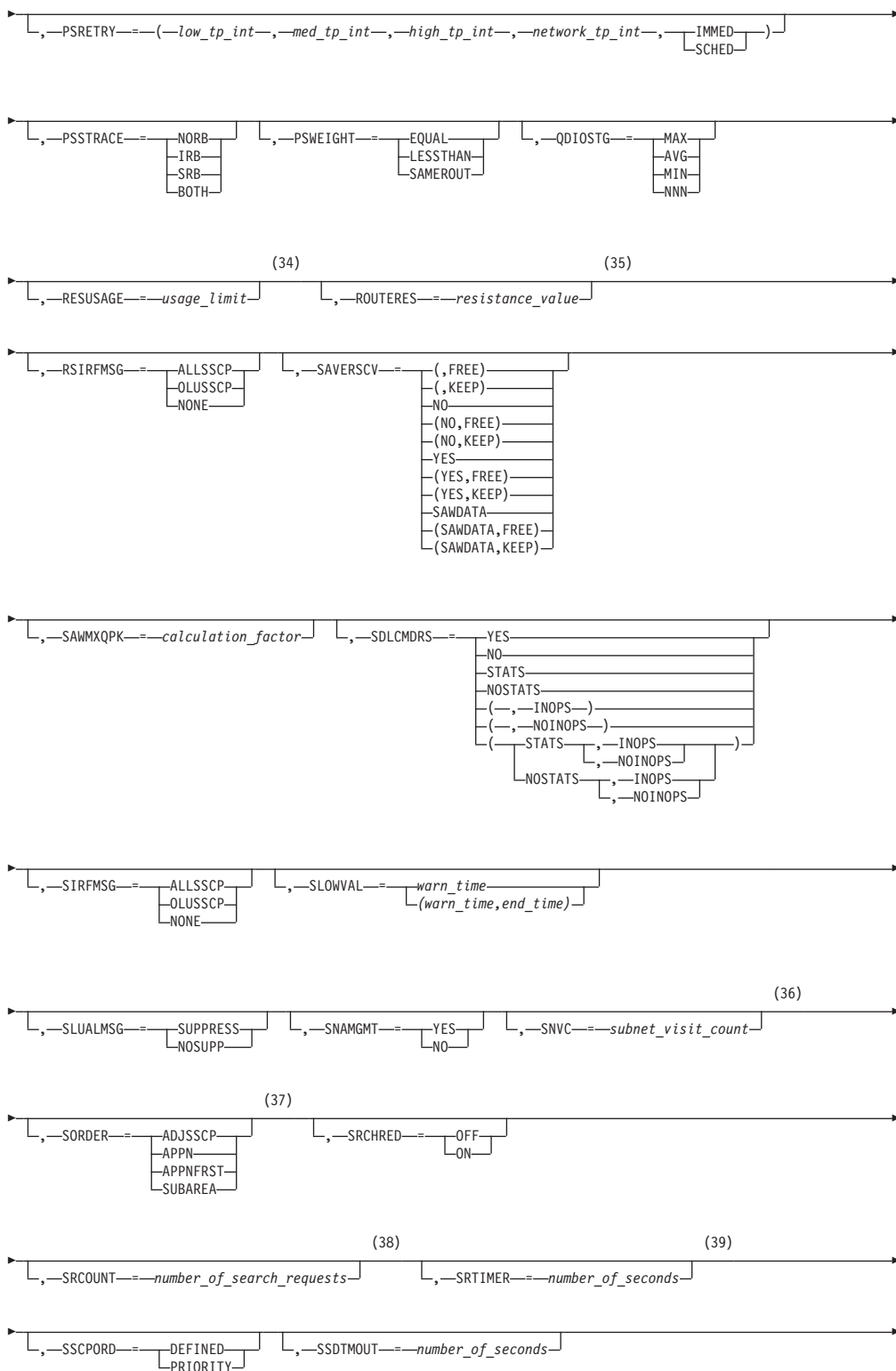


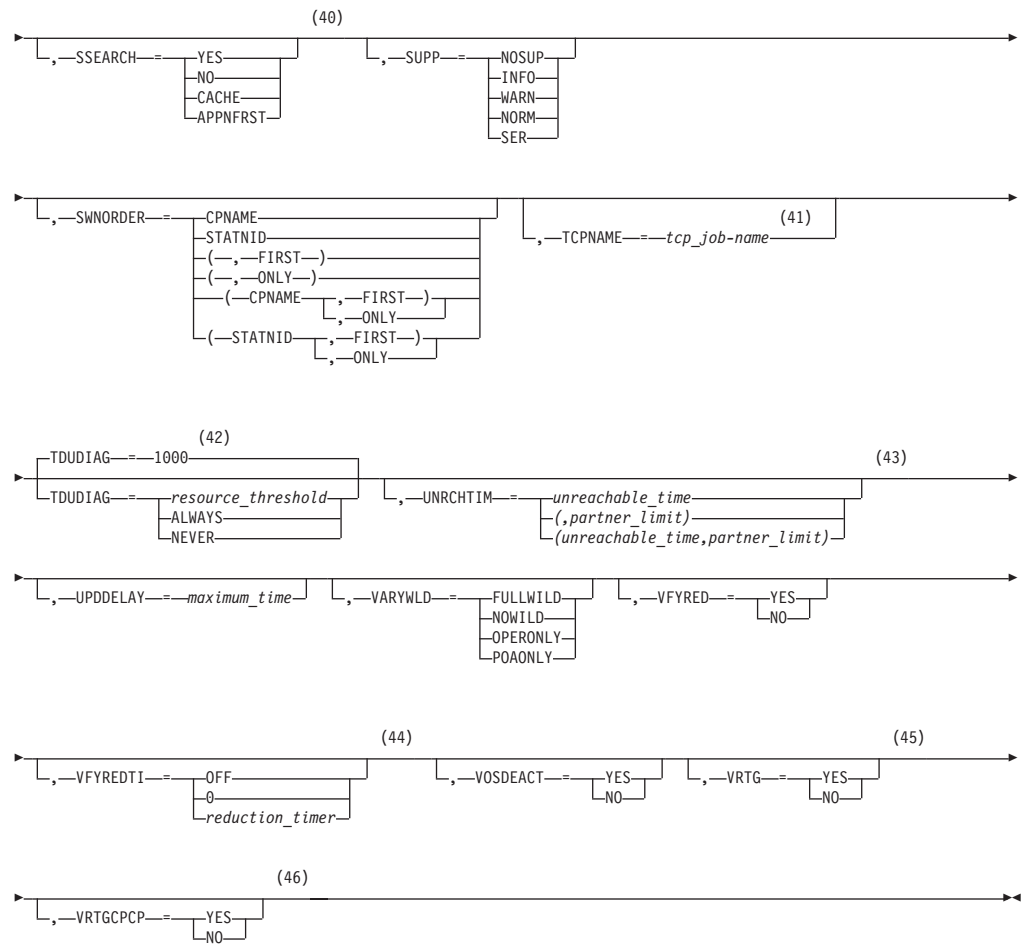
# MODIFY VTAMOPTS





# MODIFY VTAMOPTS





**Notes:**

- 1 API64R can be modified only when running in z/Architecture® mode.
- 2 APPNCOS can be modified only if NODETYPE was specified during VTAM START processing.
- 3 BNDYN can be modified only if BN=YES was specified during VTAM START processing.
- 4 BNORD can be modified only if BN=YES was specified during VTAM START processing.
- 5 CDSREFER can be modified only if NODETYPE=NN and CDSERVR=NO were specified during VTAM START processing.
- 6 CMPMIPS is meaningful only if the value for CMPVTAM is greater than 1.
- 7 CONNTYPE can be modified only if NODETYPE was specified during VTAM START processing.
- 8 CPCP can be modified only if NODETYPE was specified during VTAM START processing.
- 9 DIRSIZE can be modified only if NODETYPE=NN was specified during VTAM START processing.
- 10 DIRTIME can be modified only if NODETYPE=NN was specified during VTAM START processing.

## MODIFY VTAMOPTS

- 11 Because of the volume of messages that can be generated, it is not recommended that this option be enabled during normal operation. Instead, it is recommended that this option be enabled (using the MODIFY VTAMOPTS command) on all necessary hosts only when trying to diagnose specific problems. After the problem has been diagnosed or documentation has been collected, this option should be disabled once again (using the MODIFY VTAMOPTS command).
- 12 EEHPRANR is meaningful only when the NODETYPE=NN start option is also used.
- 13 The EEVERIFY start option is meaningful only if VTAM provides RTP-level HPR support. The EEVERIFY start option can be modified only if the NODETYPE start option is specified and the RTP value is specified on the HPR start option.
- 14 The ENCRYPTN start option cannot be modified if ENCRYPTN=NO was specified during VTAM START processing.
- 15 The ENSEMBLE setting is used to either permit or deny connectivity to the intraensemble data network and the intranode management network. The ensemble setting permits or denies connectivity by either allowing or denying activation of OSX and OSM interfaces. Modifying the ENSEMBLE start option does not cause z/OS Communications Server to take action on active OSX or OSM interfaces.
- 16 HOSTNAME can be modified only if NODETYPE was specified during VTAM START processing. Displays of VTAM start options will show the new value immediately; however, the new value will not be used until all Enterprise Extender lines, whose GROUP definition statements do not have HOSTNAME explicitly coded, are inactive. Any subsequent line activation from the Enterprise Extender XCA major node, whose GROUP definition statements do not have HOSTNAME explicitly coded, will make use of the new HOSTNAME start option value. The IPADDR start option, if it is in effect at the time when the MODIFY VTAMOPTS,HOSTNAME=*hostname* is specified, will be reset (that is, set to a value of 0.0.0.0) as part of the MODIFY processing. The value NONE can be used to clear the setting of the HOSTNAME start option. HOSTNAME and IPADDR cannot be modified using one MODIFY VTAMOPTS command. If both start options are specified on the same MODIFY command, they will both be ignored and message IST1917I will be generated.
- 17 This option is meaningful only if VTAM provides RTP-level HPR support.
- 18 If the current value of the HPRSESLM start option is DISABLED, then the HPRSESLM value can be changed only by stopping and restarting VTAM.
- 19 When specifying an InOpCode for the second parameter, always specify three digits by including any leading zeros.
- 20 If an InOpCode is specified for the second parameter, the first parameter cannot be ALL.
- 21 INOPCODE has no effect unless INOPDUMP is active for the resource when an inoperative condition is detected. See the section called MODIFY INOPCODE command for more details.
- 22 When altering the INOPDUMP VTAM start option, the resulting INOPDUMP status is propagated to all TRLEs in the TRL major node and becomes the default status for any subsequently activated TRLEs.
- 23 IPADDR can be modified only if NODETYPE was specified during VTAM



START processing. The new value will not be used until all lines, defined with or defaulting to the old value of the IPADDR start option, in the XCA major node used for Enterprise Extender are inactive. However, displays of VTAM start options will show the new value immediately. Any subsequent line activation from the Enterprise Extender XCA major node, whose GROUP definition statement does not specify the IPADDR operand, will make use of the new IPADDR start option value. The HOSTNAME start option, if it is in effect at the time when the MODIFY VTAMOPTS,IPADDR=*ip\_address* is specified, will be reset (that is, set to a value of NONE) as part of the MODIFY processing. The value of 0.0.0.0, or an IPv6 address of all zeros, usually written as ::, can be used to clear the setting of the IPADDR start option. HOSTNAME and IPADDR cannot be modified using one MODIFY VTAMOPTS command. If both start options are specified on the same MODIFY command, they will both be ignored and message IST1917I will be generated.

- 24 The IQDCHPID option controls which IQD CHPID (and related subchannel devices) VTAM selects to dynamically build the iQDIO (IUTIQDIO) MPC group. The IUTIQDIO MPC group is used for TCP/IP dynamic XCF communications within System z. Although this option can be modified (and the modification will immediately be displayed) while the IUTIQDIO MPC group is currently active, any modifications have the effects shown in the section called IQD CHPID modifications.
- 25 Because of the volume of messages that can be generated, it is not recommended that this option be enabled during normal operation. Instead, it is recommended that this option be enabled (using the MODIFY VTAMOPTS command) on all necessary hosts only when trying to diagnose specific problems. After the problem has been diagnosed or documentation has been collected, this option should be disabled once again (using the MODIFY VTAMOPTS command).
- 26 MAXLOCAT can be modified only if NODETYPE was specified during VTAM START processing.
- 27 The option does not take effect for MPC groups that are in the process of being activated when the command is issued until those MPC groups are deactivated and reactivated.
- 28 MULTPATH is meaningful only if the NODETYPE start option is also specified.
- 29 NNSPREF can be modified only if NODETYPE=EN was specified during VTAM START processing.
- 30 NUMTREES can be modified only if NODETYPE=NN was specified during VTAM START processing.
- 31 OSIEVENT=PATTERNS is not valid when OSIMGMT=YES.
- 32 OSITOP0=ALLCDRSC is not valid when OSIMGMT=YES.
- 33 PMTUD is meaningful only if the NODETYPE start option is also specified.
- 34 RESUSAGE can be modified only if NODETYPE=NN was specified during VTAM START processing.
- 35 ROUTERES can be modified only if NODETYPE=NN was specified during VTAM START processing.
- 36 SNVC can be modified only if BN=YES was specified during VTAM START processing.

## MODIFY VTAMOPTS

- 37 SORDER can be modified only if VTAM has been started as an interchange node or a migration data host.
- 38 SRCOUNT is meaningful only when SRCHRED=ON.
- 39 SRTIMER is meaningful only when SRCHRED=ON.
- 40 SSEARCH can be modified only if NODETYPE=NN was specified during VTAM START processing.
- 41 TCPNAME can be modified only if NODETYPE was specified during VTAM START processing. The new value will not be used until all lines in the XCA major node used for Enterprise Extender are inactive. However, displays of VTAM start options will show the new value immediately. Any subsequent line activation from the Enterprise Extender XCA major node will make use of the new TCPNAME value.
- 42 TDUDIAG is meaningful only if the NODETYPE=NN start option is also available.
- 43 UNRCHTIM is meaningful only if the NODETYPE start option is also used.
- 44 VFYREDTI can be modified only if NODETYPE=NN was specified during VTAM START processing.
- 45 VRTG can be modified only if NODETYPE and HOSTSA are specified.
- 46 VRTGCPCP can be modified only if NODETYPE and HOSTSA are specified.

### Abbreviations

Operand	Abbreviation
MODIFY	F
MSGLEVEL	MSGLVL
PLUALMSG=NOSUPP	PLUALMSG=NOSUP
PLUALMSG=SUPPRESS	PLUALMSG=SUPP
SLUALMSG=NOSUPP	SLUALMSG=NOSUP
SLUALMSG=SUPPRESS	SLUALMSG=SUPP

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for PLUALMSG=SUPPRESS, code only PLUALMSG=SUPP.

### Purpose

The MODIFY VTAMOPTS (VTAM start options) command enables you to change certain values that might have been specified on VTAM start options. See the *z/OS Communications Server: SNA Resource Definition Reference* for descriptions of each of the start options that you can change with this command.

There are no default values on the MODIFY VTAMOPTS command. In general, only the values that you specify are affected, and operands that are not specified on the command are unaffected. The exceptions are the IPADDR and HOSTNAME operands, which do affect each other when specified on the MODIFY VTAMOPTS command.

**Note:** If a start option affects individual resources, and you change the value of the start option with this command, the change does not go into effect until the

major nodes for those resources are deactivated and reactivated. The command takes effect for major nodes that are activated after you issue this command and for dynamic cross-network resources that are dynamically defined after the command is issued.

### Operands

#### procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

## START command

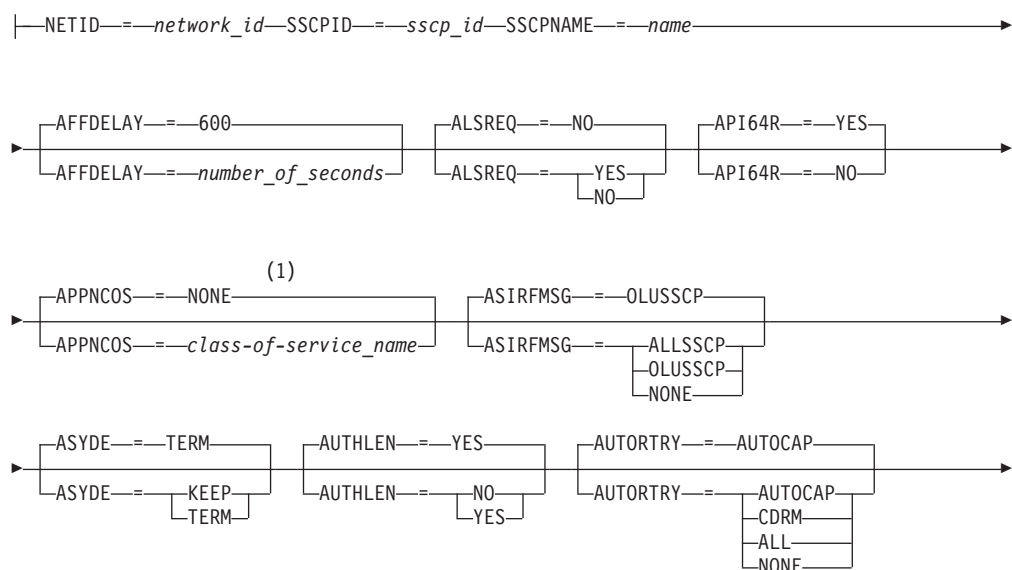
### Starting VTAM in an MVS environment:

▶▶—START— *—procname—*,—,——,——(—| Options |—)▶▶

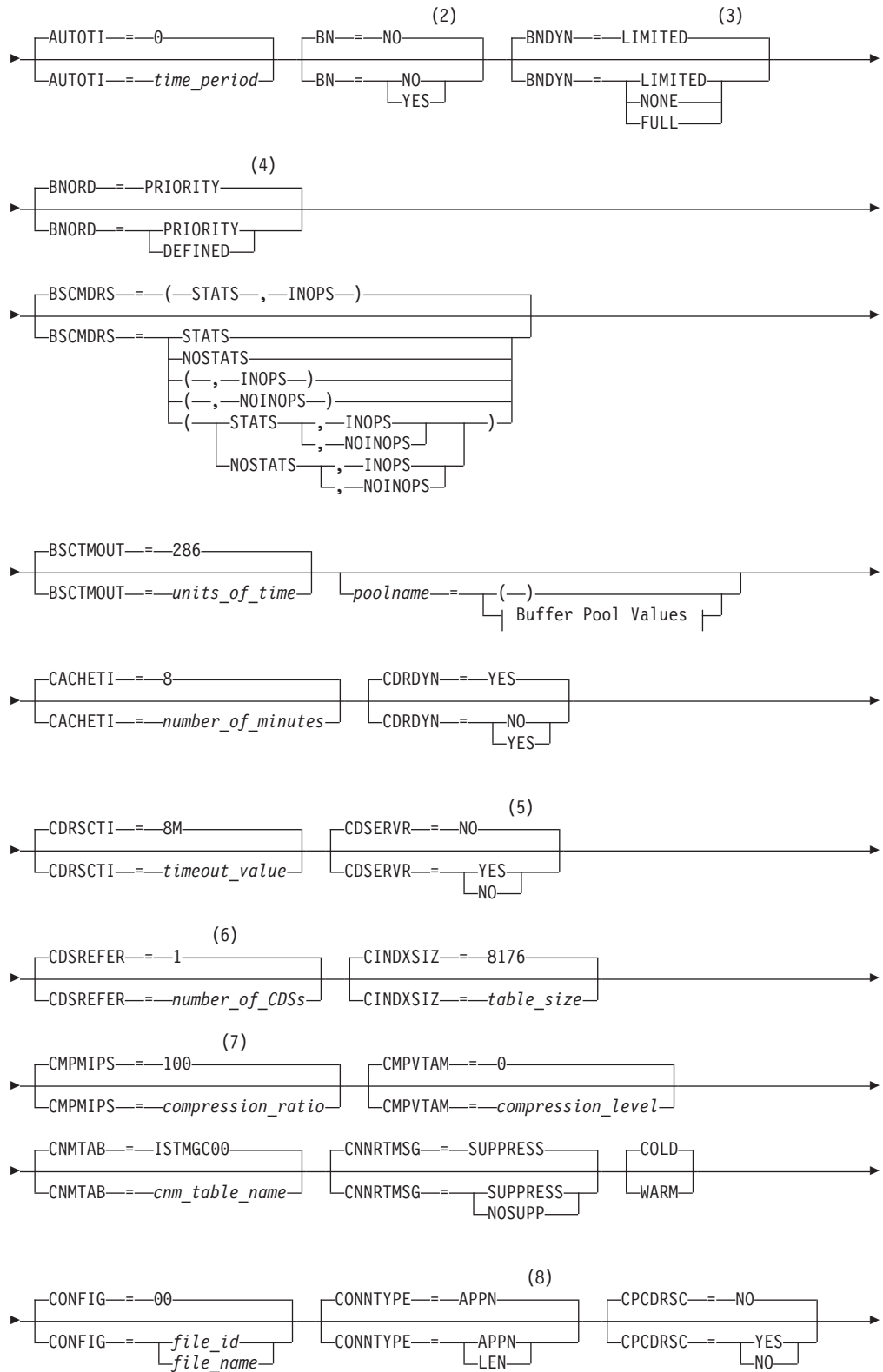
#### Note:

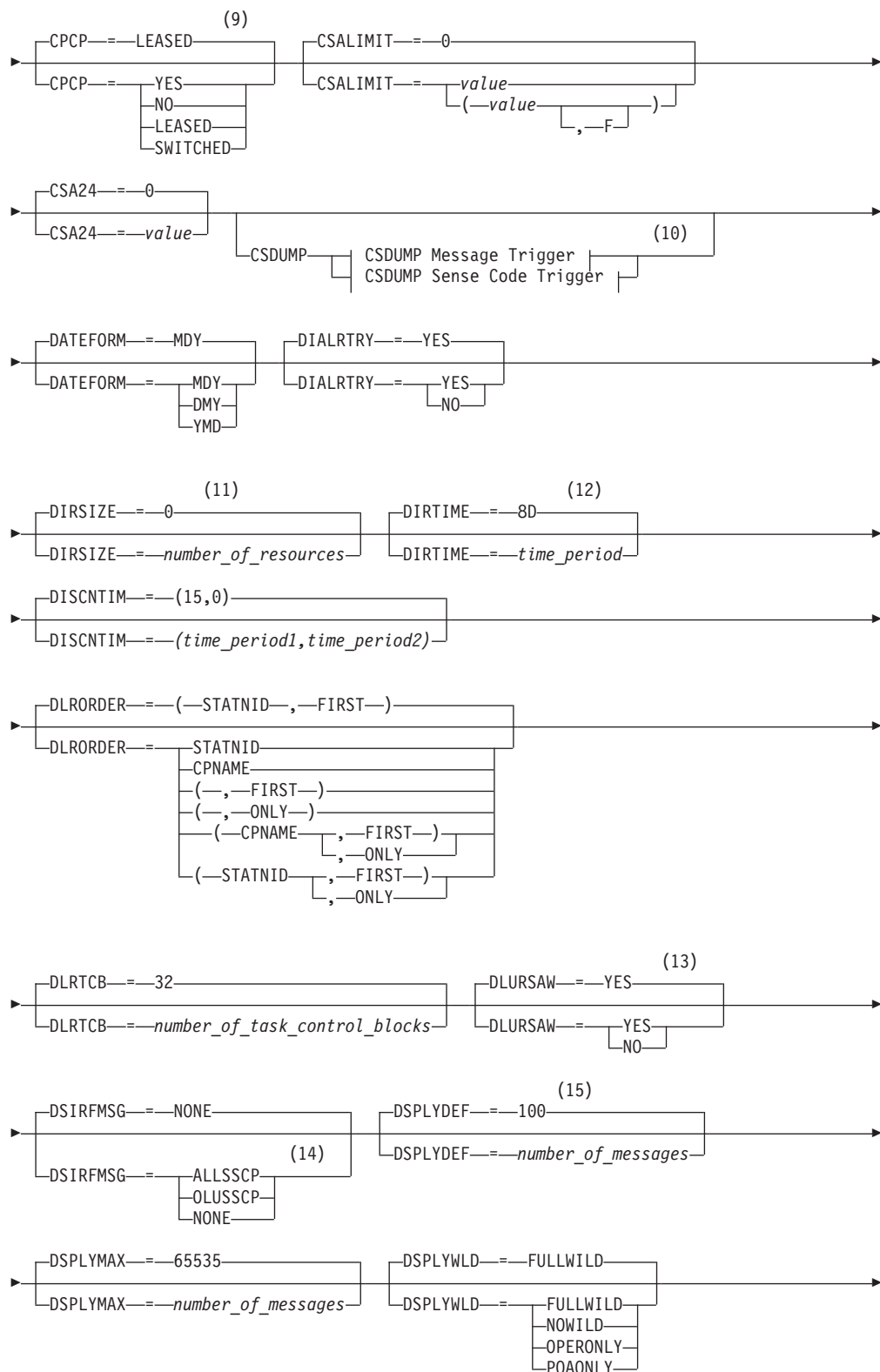
1. The start options are listed in this information alphabetically; however, you can code them in any order.
2. Precede the option list with three commas and enclose the group of options in parentheses.
3. Start options that are entered on the START command must be separated by commas. Do not leave any blanks between options.

#### Options:

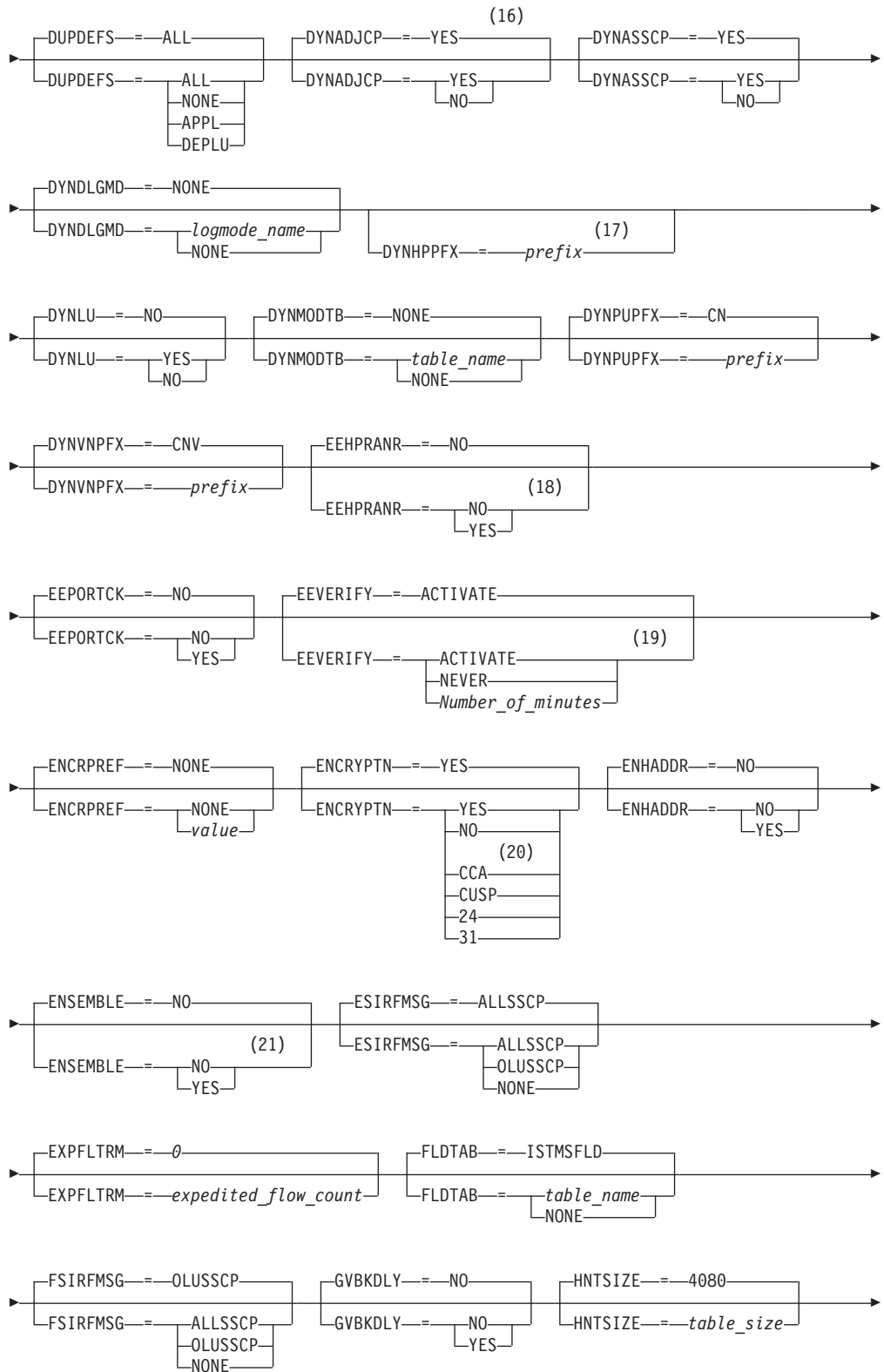


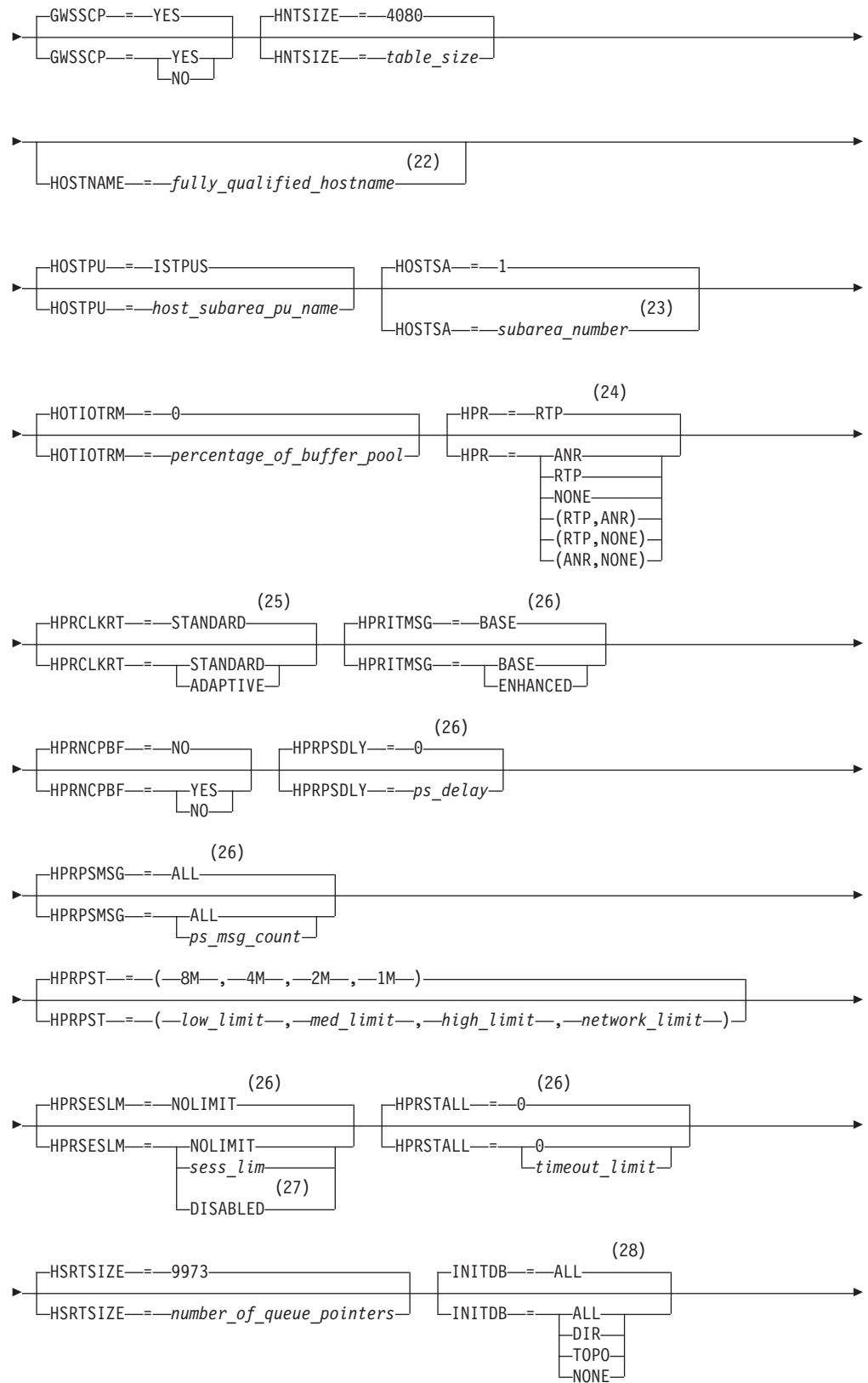
# START



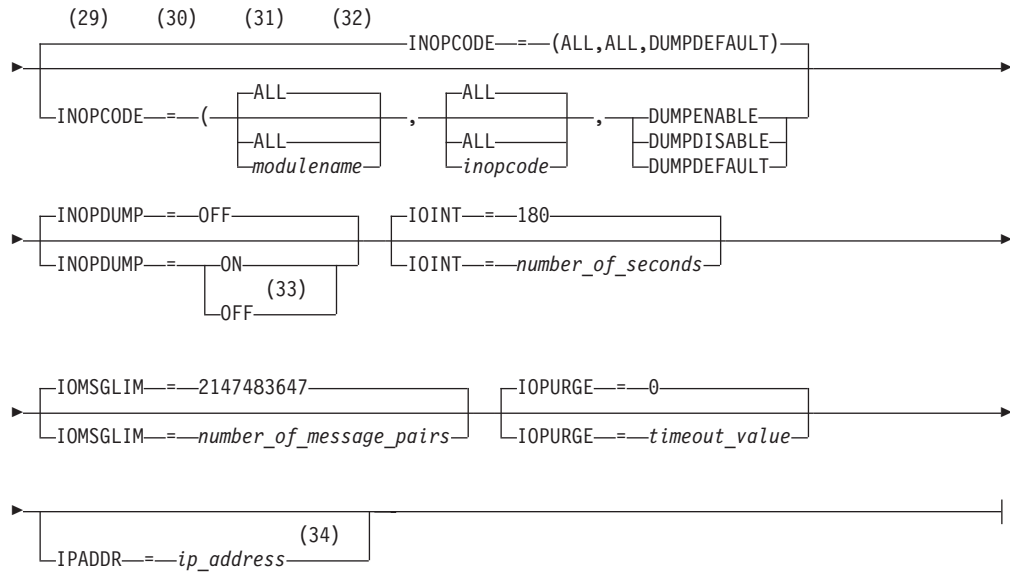


**START**





## START



### Notes:

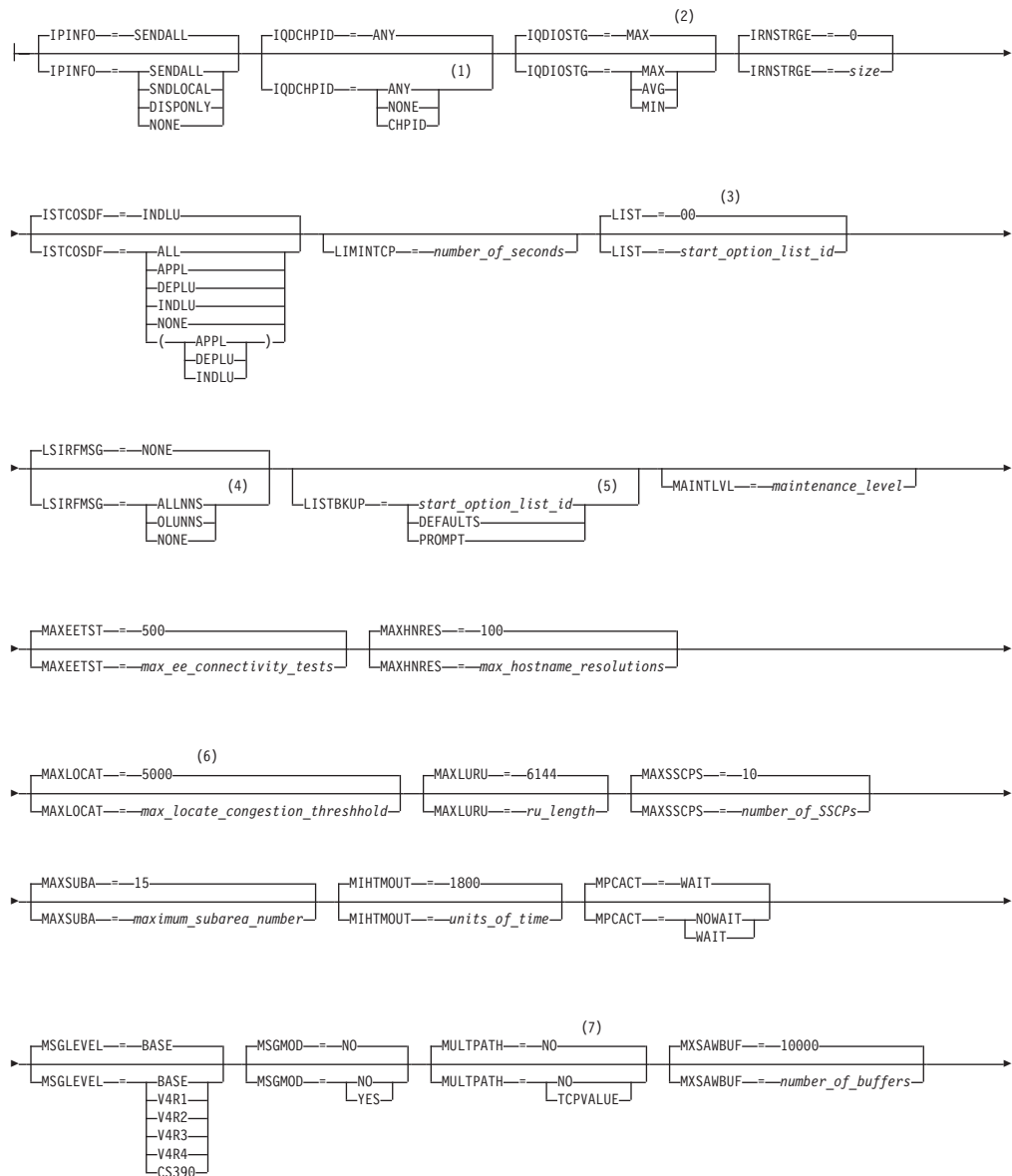
- 1 APPNCOS is meaningful only if the NODETYPE start option is also used.
- 2 BN is meaningful only if the NODETYPE=NN start option is also used.
- 3 BNDYN is meaningful only if the BN=YES start option is also used.
- 4 BNORD is meaningful only if the BN=YES start option is also used.
- 5 CDSERVR is meaningful only if the NODETYPE=NN start option is also used.
- 6 CDSREFER is meaningful only if the NODETYPE=NN and CDSERVR=NO start options are also used.
- 7 The CMPMIPS start option is meaningful only if the value for CMPVTAM is greater than 1.
- 8 CONNTYPE is meaningful only if the NODETYPE start option is also used.
- 9 CPCP is meaningful only if the NODETYPE start option is also used.
- 10 Specify the CSDUMP start option twice to set both message and sense code triggers.
- 11 DIRSIZE is meaningful only if the NODETYPE=NN start option is also used.
- 12 DIRTIME is meaningful only if the NODETYPE=NN start option is also used.
- 13 DLURSAW is meaningful only if the NODETYPE=NN start option is also used.
- 14 Because of the volume of messages that can be generated, it is not recommended that this option be enabled during normal operation. Instead, it is recommended that this option be enabled (using the MODIFY VTAMOPTS command) on all necessary hosts only when trying to diagnose specific problems. After the problem has been diagnosed or documentation has been collected, this option should be disabled once again (using the MODIFY VTAMOPTS command).
- 15 If the DSPLYMAX start option value is less than 100, that value is the default for DSPLYDEF.

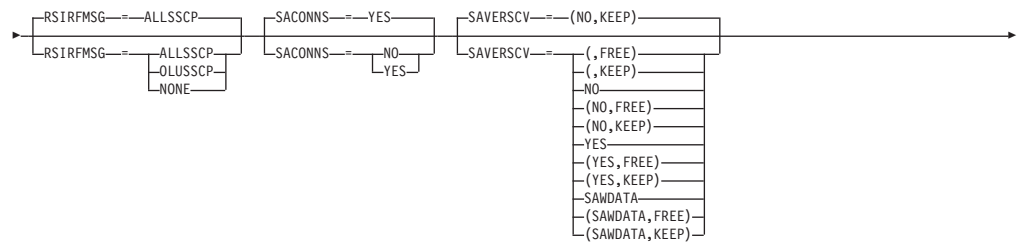
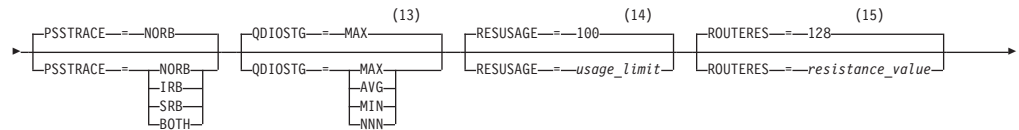
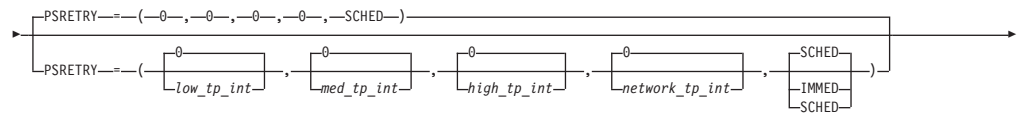
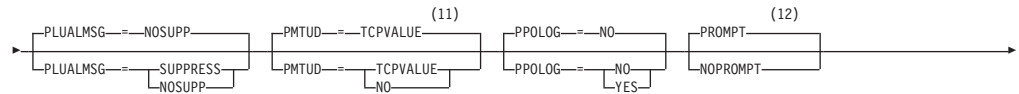
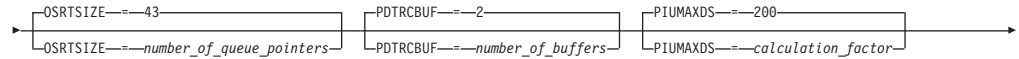
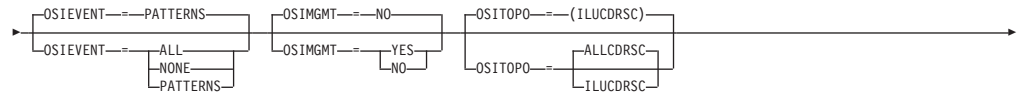
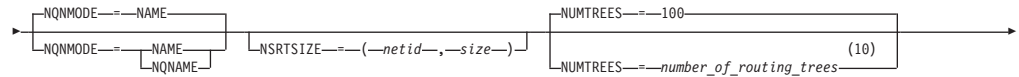
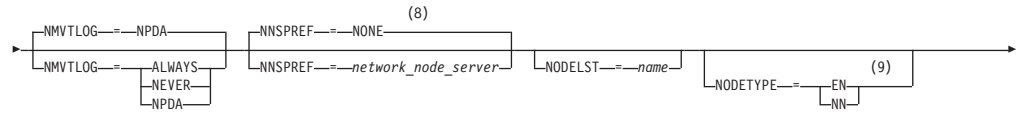
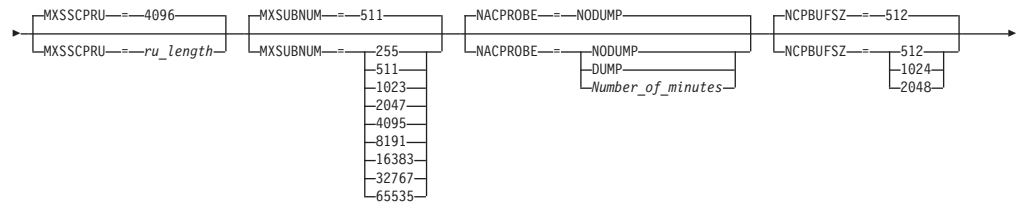


- 16 DYNADJCP is meaningful only if the NODETYPE start option is also used.
- 17 Two character prefix.
- 18 EEHPRANR is meaningful only when the NODETYPE=NN start option is also used.
- 19 The EEVERIFY start option is meaningful only if VTAM provides RTP-level HPR support. The NODETYPE start option must be coded and the RTP value must be specified on the HPR start option.
- 20 ENCRYPTN=CCA needs to be coded when Triple Des Encryption is required.
- 21 The ENSEMBLE setting is used to either permit or deny connectivity to the intraensemble data network and the intranode management network. It does this by either allowing or denying activation of OSX and OSM interfaces.
- 22 HOSTNAME is meaningful only if the NODETYPE start option is also used. If neither HOSTNAME nor IPADDR is specified on any of the GROUP definition statements within the Enterprise Extender XCA major node, then either the HOSTNAME, TCPNAME, or IPADDR start options must be specified in order to activate an Enterprise Extender link. The HOSTNAME start option specifies the default hostname to be used for name-to-address resolution as part of activating an Enterprise Extender connection, and must resolve at this node to a static VIPA address associated with a TCP/IP stack at this node. If IPADDR is specified along with HOSTNAME on the START command, the IPADDR value is ignored.
- 23 HOSTSA specifies the subarea number of this VTAM. If HOSTSA is not coded, then a default subarea number of 1 is used.
- 24 HPR is meaningful only if NODETYPE is also used.
- 25 HPRCLKRT=ADAPTIVE is meaningful only in Enterprise Extender configurations that have a defined capacity of 1 Gb (gigabit) or higher access speeds.
- 26 This option is meaningful only if VTAM provides RTP-level HPR support.
- 27 HPRSESLM=DISABLED is meaningful only on interchange nodes.
- 28 INITDB is meaningful only if the NODETYPE=NN start option is also used.
- 29 When specifying an InOpCode for the second parameter, always specify three digits by including any leading zeros.
- 30 If an InOpCode is specified for the second parameter, the first parameter cannot be ALL.
- 31 INOPCODE has no effect unless INOPDUMP is active for the resource when an inoperative condition is detected. See the MODIFY INOPCODE command for more details.
- 32 Multiple INOPCODE parameters can be specified by the START command, and will be processed left to right as they are entered. This is different from specifying the INOPCODE parameter on either the MODIFY INOPCODE command or the MODIFY VTAMOPTS command, where only one INOPCODE parameter is allowed for each entry of these commands.
- 33 INOPDUMP status is propagated to resources that are defined within a TRLE when the entry is activated and the TRLE InOpDump status has not been explicitly set.
- 34 IPADDR is meaningful only if the NODETYPE start option is also used. If neither IPADDR nor HOSTNAME is specified on any of the GROUP

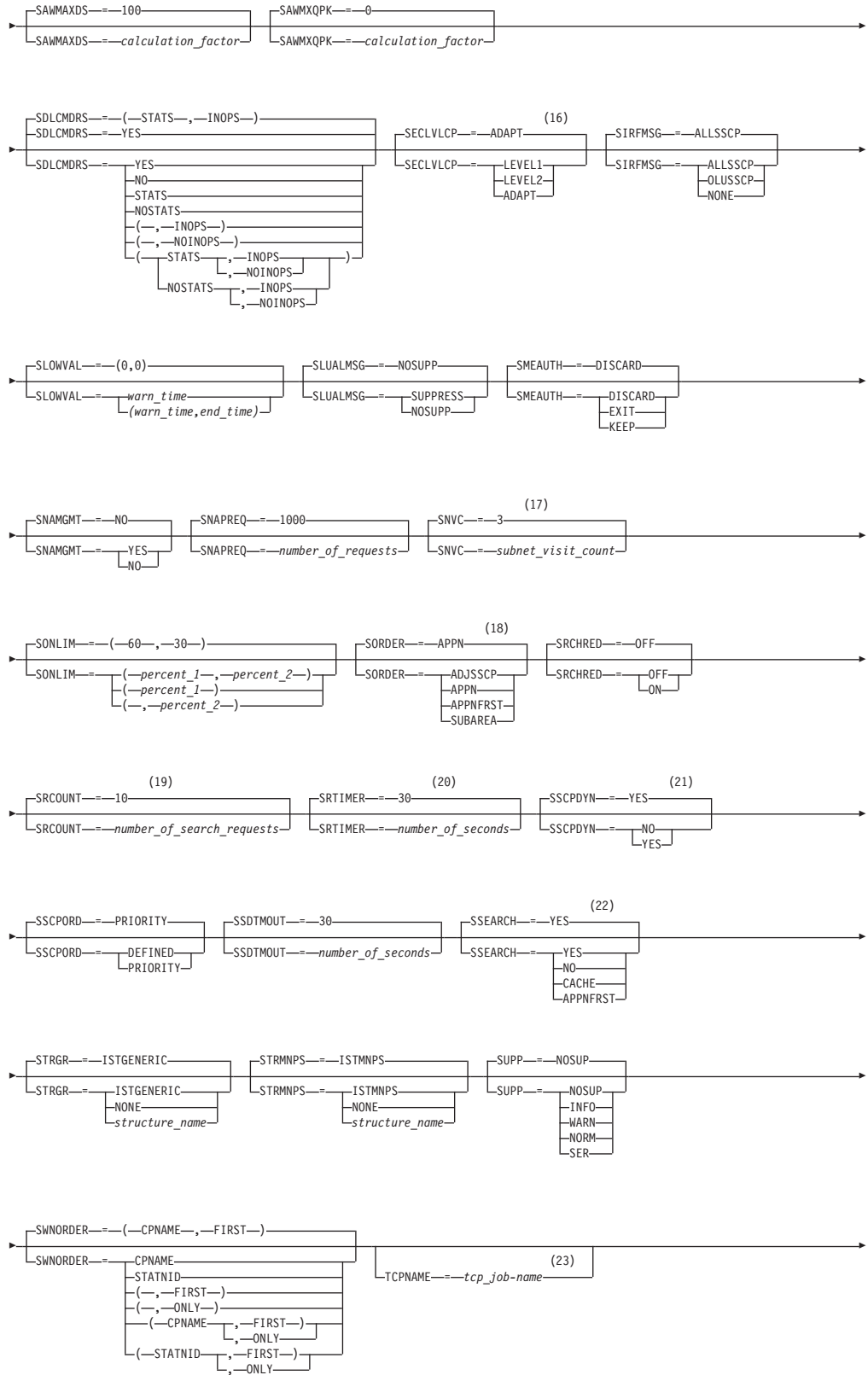
# START

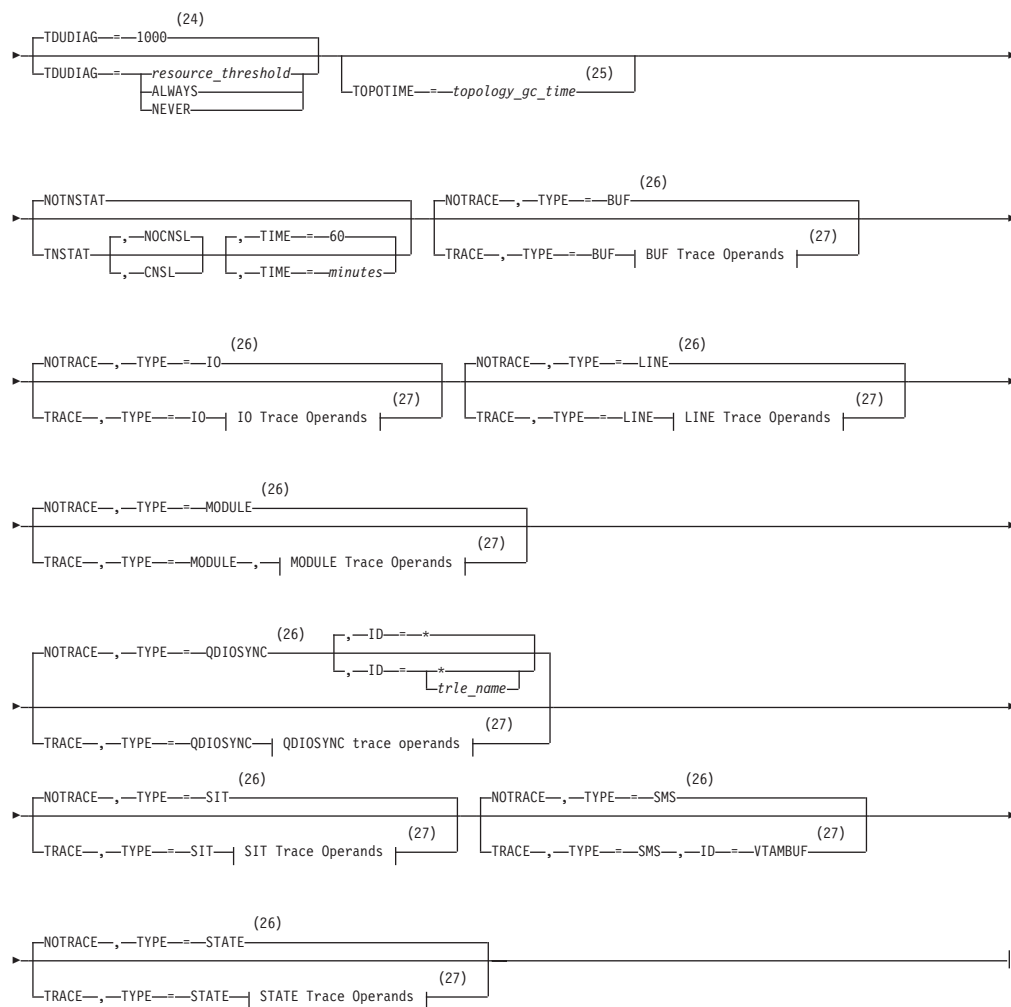
definition statements within the Enterprise Extender XCA major node, then either the HOSTNAME, TCPNAME, or IPADDR start option must be specified in order to activate an Enterprise Extender link. The IPADDR start option specifies the default IPv4 or IPv6 static VIPA address to be used when activating an Enterprise Extender connection. If HOSTNAME is specified along with IPADDR on the START command, the IPADDR value is ignored.





# START





**Notes:**

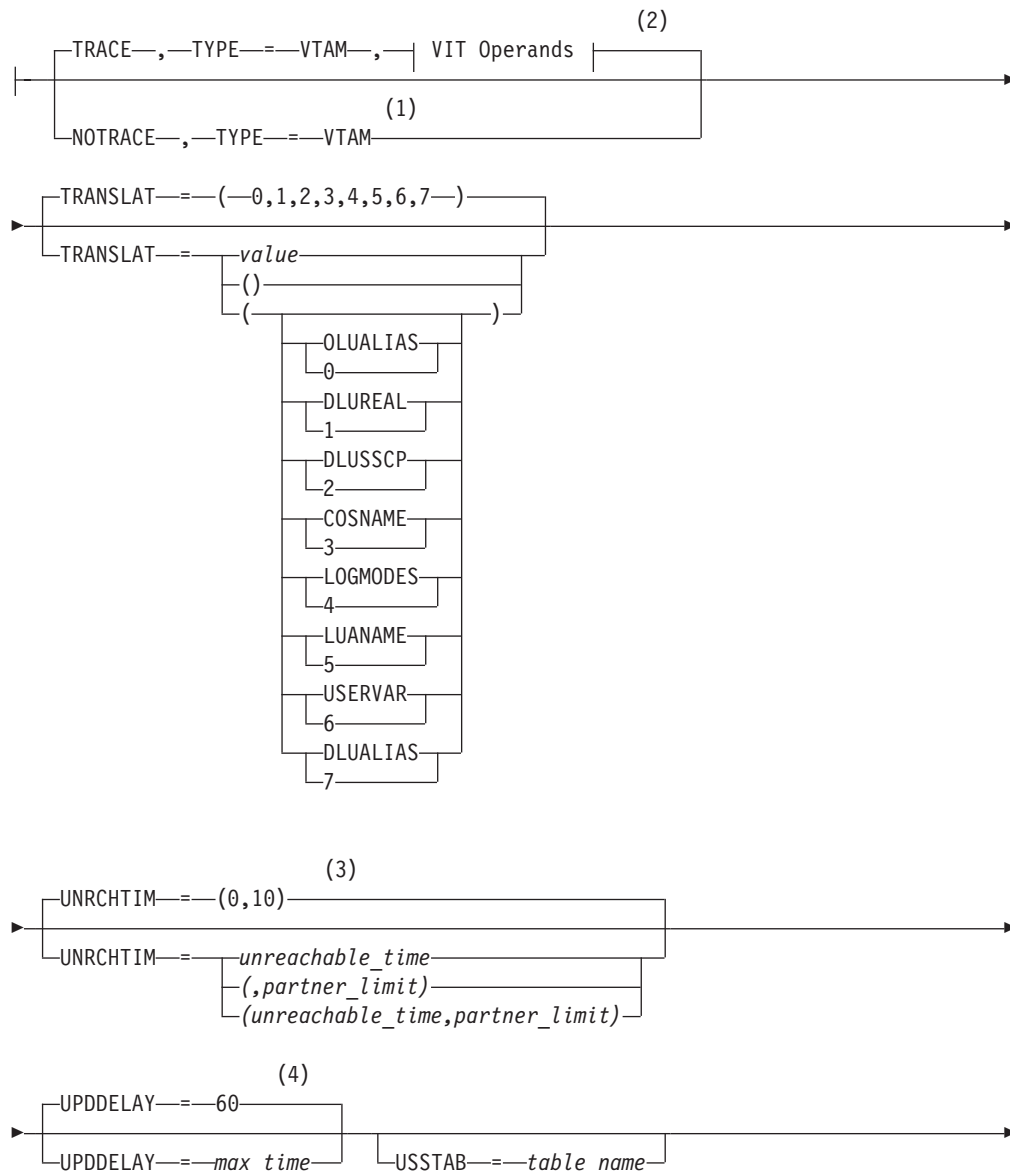
- 1 The IQDCHPID option controls which IQD CHPID (and related subchannel devices) VTAM selects to dynamically build the iQDIO (IUTIQDIO) MPC group. The IUTIQDIO MPC group is used for TCP/IP dynamic XCF communications within System z. Although this option can be modified (and the modification will immediately be displayed) while the IUTIQDIO MPC group is currently active, any modifications have the effects shown in the section called IQD CHPID modifications.
- 2 This option affects only iQDIO devices that use a MFS of 64k. The smaller frame sizes will always use 126 SBALs. You can override this option on a per-device basis using the READSTORAGE parameter on the LINK or INTERFACE statement in the TCP/IP profile. See z/OS Communications Server: IP Configuration Reference for more details.
- 3 LIST can be entered by a VTAM operator only. If LIST is coded in an ATCSTRxx file, it is considered to be an error and is ignored.
- 4 Because of the volume of messages that can be generated, it is not recommended that this option be enabled during normal operation. Instead, it is recommended that this option be enabled (using the MODIFY VTAMOPTS command) on all necessary hosts only when trying to diagnose specific

## START

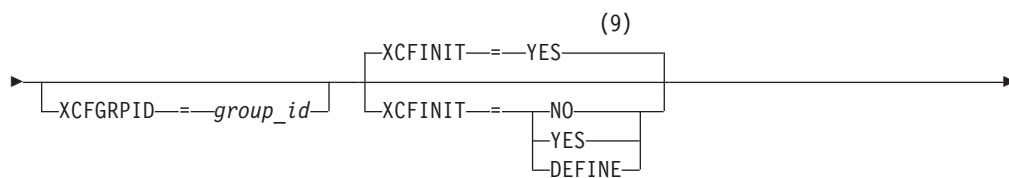
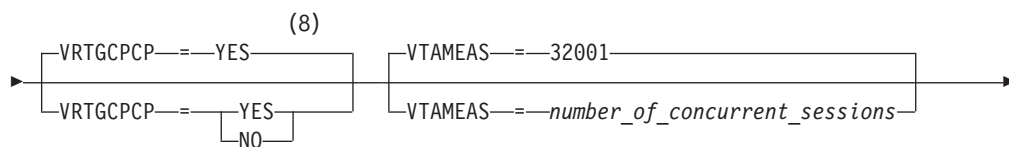
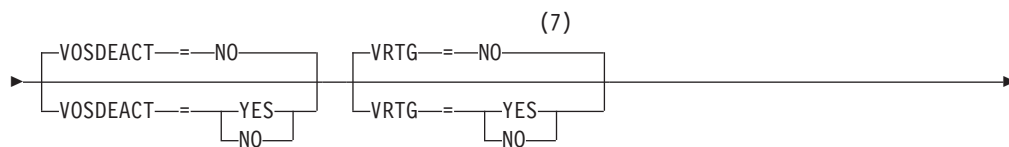
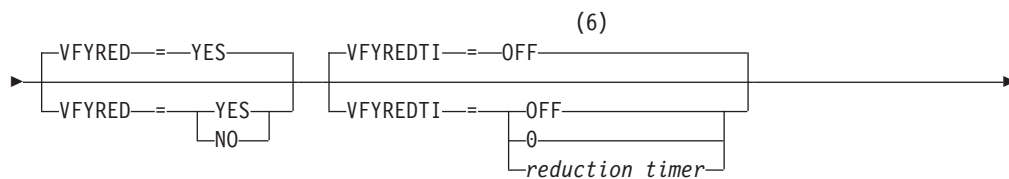
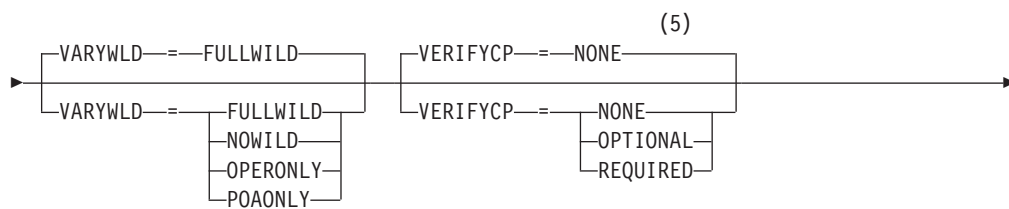
problems. After the problem has been diagnosed or documentation has been collected, this option should be disabled once again (using the MODIFY VTAMOPTS command).

- 5 LISTBKUP can be coded only in a start option file. If you enter it on the START command or at an operator prompt, VTAM will ignore it.
- 6 MAXLOCAT is meaningful only if NODETYPE is specified.
- 7 MULTPATH is meaningful only if the NODETYPE start option is also specified.
- 8 NNSPREF can be specified only if NODETYPE=EN is specified during VTAM START processing.
- 9 NODETYPE enables APPN function. The combination of HOSTSA, NODETYPE, and SACONNS determines the configuration (subarea node, interchange node, migration data host, network node, or end node).
- 10 NUMTREES is meaningful only if the NODETYPE=NN start option is also used.
- 11 PMTUD is meaningful only if the NODETYPE start option is also specified.
- 12 A VTAM operator cannot enter the PROMPT or NOPROMPT start option; it can be coded only in ATCSTR00. The value coded in ATCSTR00 is ignored if start options are entered on the START command or if VTAM finds an error in a start list. Upon finding an error in a start list, VTAM prompts the operator so that the operator can specify the option correctly.
- 13 QDIOSTG defaults to MAX for 64-bit (z/Architecture) machines and MIN for non 64-bit machines. You can override this option on a per-device basis using the READSTORAGE parameter on the LINK or INTERFACE statement in the TCP/IP profile. See z/OS Communications Server: IP Configuration Reference for more details.
- 14 RESUSAGE is meaningful only if the NODETYPE=NN start option is also used.
- 15 ROUTERES is meaningful only if the NODETYPE=NN start option is also used.
- 16 The SECLVLCPC start option is meaningful only if the NODETYPE and VERIFYCP start options are also used.
- 17 SNVC is meaningful only if the BN=YES start option is also used.
- 18 SORDER is meaningful only in an interchange node or a migration data host.
- 19 SRCOUNT is meaningful only if the SRCHRED=ON start option is also used.
- 20 SRTIMER is meaningful only if the SRCHRED=ON start option is also used.
- 21 The SSCPDYN start option applies only for interconnected networks (that is, GWSSCP=YES is used).
- 22 SSEARCH is meaningful only if the NODETYPE=NN start option is also used.
- 23 TCPNAME is meaningful only if the NODETYPE start option is also used. If neither IPADDR nor HOSTNAME is specified on any of the GROUP definition statements within the Enterprise Extender XCA major node, then either the HOSTNAME, TCPNAME, or IPADDR start options must be specified in order to activate an Enterprise Extender link.

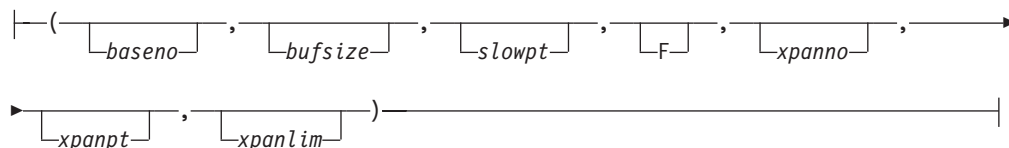
- 24 TDUDIAG is meaningful only if the NODETYPE=NN start option is also available.
- 25 TOPOTIME is meaningful only if the NODETYPE start option is also used.
- 26 Do not use NOTRACE when starting VTAM, except to override a TRACE start option coded in a predefined list.
- 27 You can code TRACE and its qualifiers through position 71, even if you are in the middle of the start option. Continue the remainder of the item in the next record. Code the TYPE qualifier immediately after you code the TRACE start option.



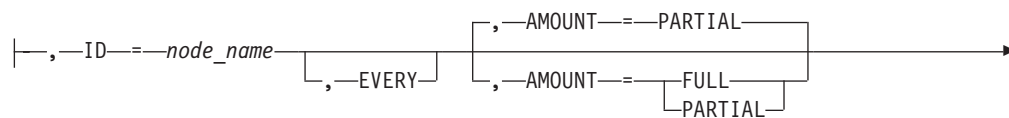
# START



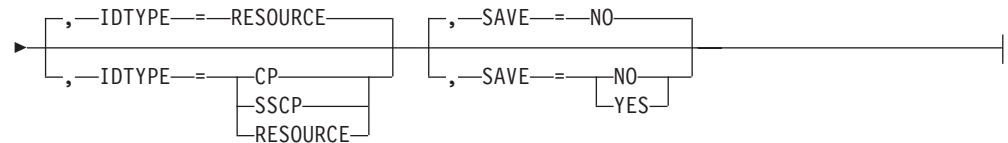
## Buffer Pool Values:



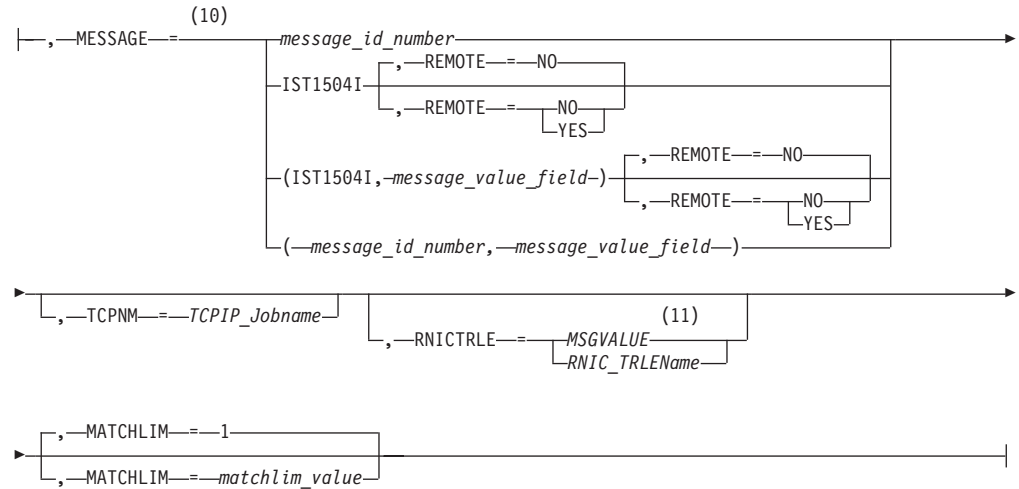
## BUF Trace Operands:



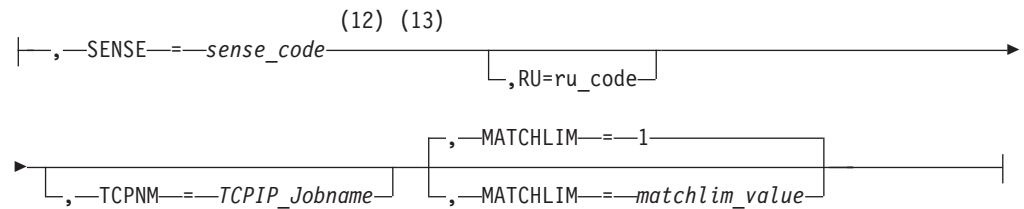




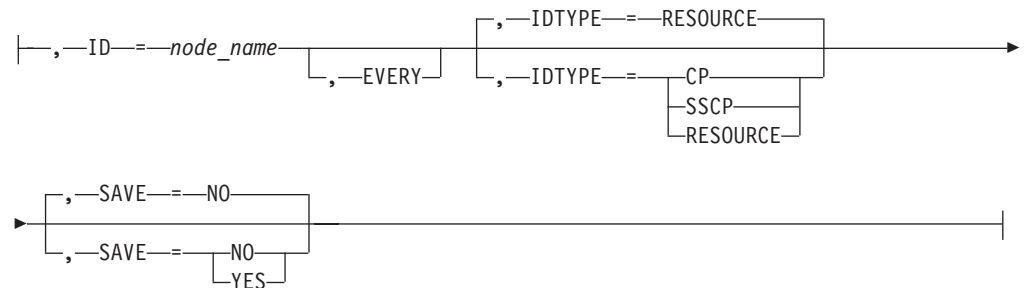
**CSDUMP message trigger:**



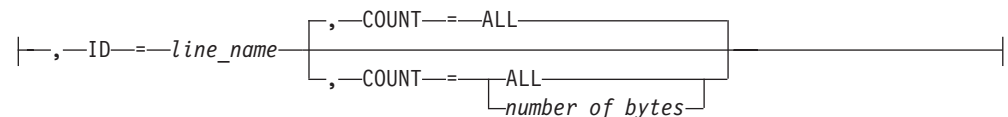
**CSDUMP sense code trigger:**



**IO Trace Operands:**

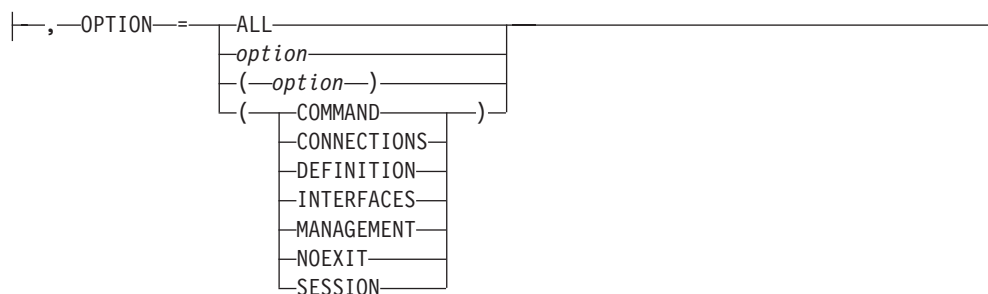


**LINE Trace Operands:**

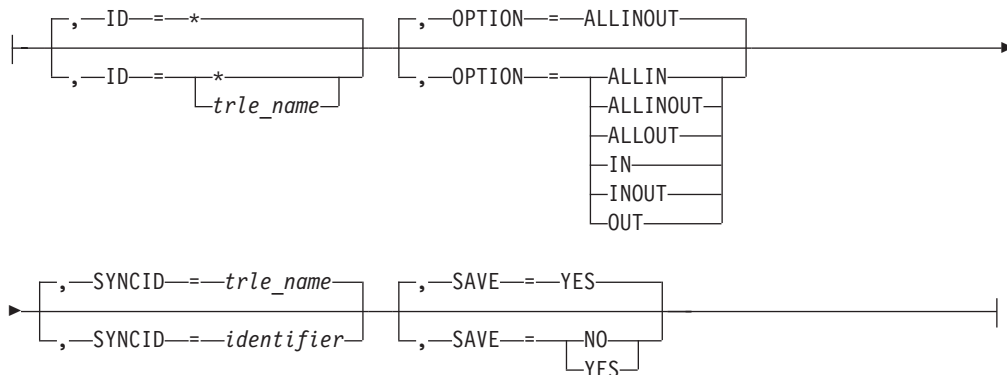


# START

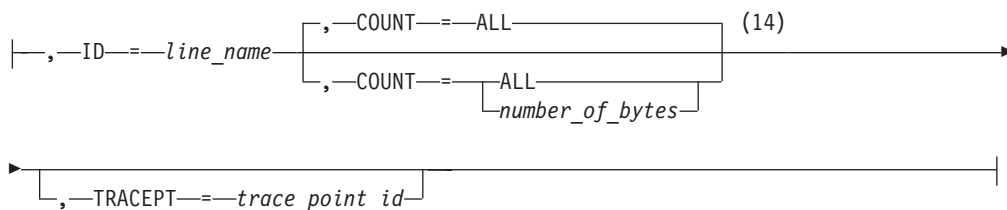
## MODULE Trace Operands:



## QDIOSYNC trace operands:



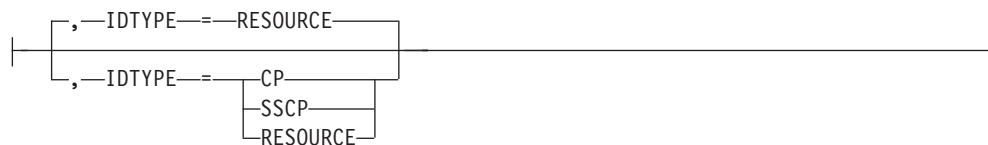
## SIT Trace Operands:



## STATE Trace Operands:



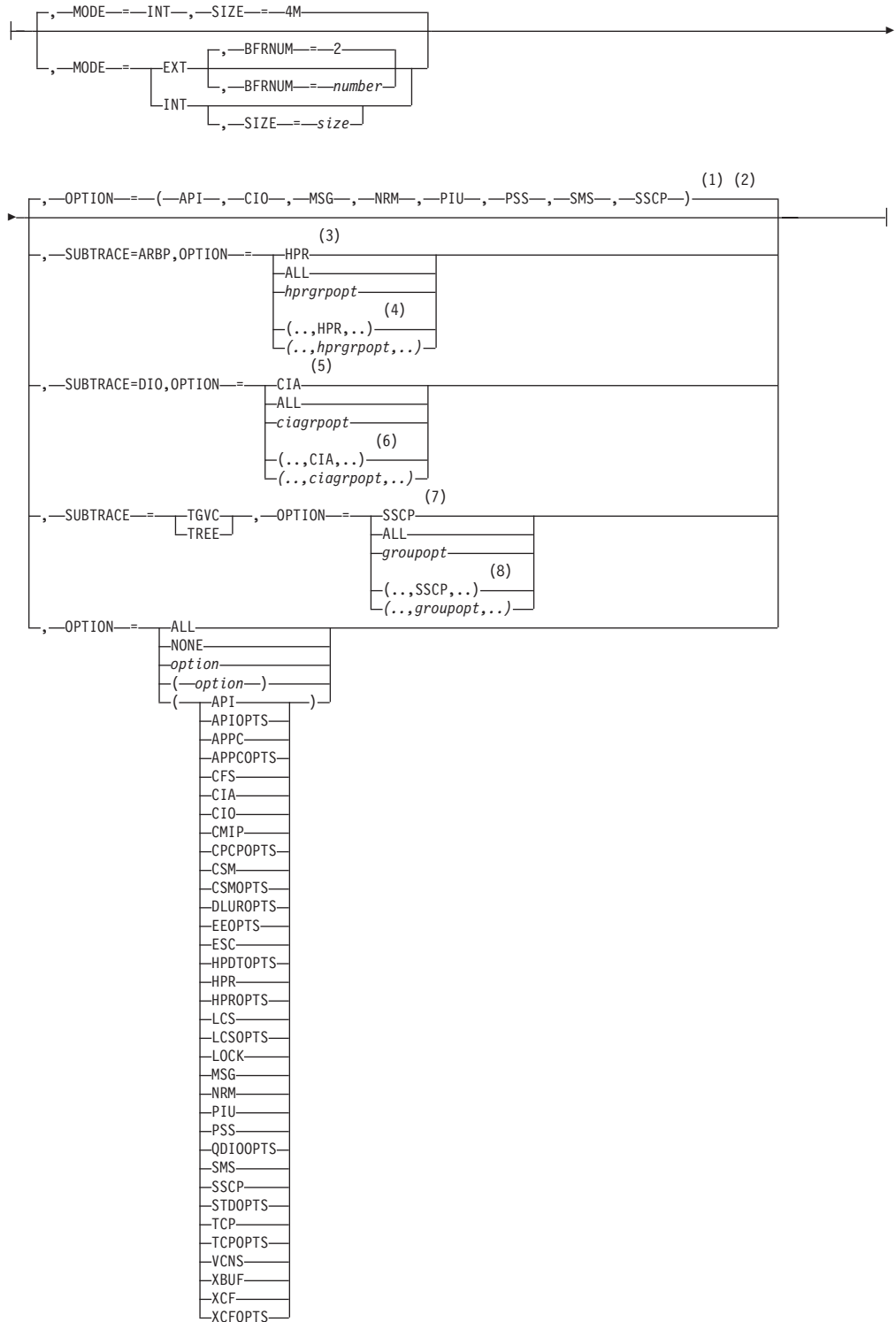
## Operands used with ID:





# START

## VIT Operands:



### Notes:

- 1 The default options apply only to `MODE=INT`.
- 2 `PSS` and `SMS` can be turned off.
- 3 When you specify `SUBTRACE=ARBP` and you code a single `OPTION` value,

the OPTION value must be HPR, ALL, or one of the group options (*hprgrpopt*) that include HPR as an individual option equivalent. The applicable group options are DLUROPTS, EEOPTS, HPDPTOPTS, HPROPTS, QDIOOPTS, and XCFOPTS.

- 4 When SUBTRACE=ARBP is coded and you code multiple trace options in parentheses, you must code either HPR or one of the group options (*hprgrpopt*) that include HPR as an individual option equivalent inside the parentheses.
- 5 When you specify SUBTRACE=DIO and you code a single OPTION value, the OPTION value must be CIA, ALL, or one of the group options (*ciagrpopt*) that include CIA as an individual option equivalent. The applicable group options are EEOPTS, HPDPTOPTS, HPROPTS, QDIOOPTS, TCPOPTS and XCFOPTS.
- 6 When SUBTRACE=DIO is coded and you code multiple trace options in parentheses, you must code either CIA or one of the group options (*ciagrpopt*) that include CIA as an individual option equivalent inside the parentheses.
- 7 When you code SUBTRACE=TGVC or SUBTRACE=TREE and you code a single OPTION value, the OPTION value must be either SSCP, ALL, or one of the group options (*groupopt*), all of which include SSCP as an individual option equivalent. The group options are APIOPTS, APPCOPTS, CPCPOPTS, CSMOPTS, DLUROPTS, EEOPTS, HPDPTOPTS, HPROPTS, LCSOPTS, QDIOOPTS, STDOPST, TCPOPTS, and XCFOPTS.
- 8 When you code SUBTRACE=TGVC or SUBTRACE=TREE and you code multiple trace options in parentheses, you must code either SSCP or one of the group options (*groupopt*) inside the parentheses.

## IQD CHPID modifications

While the IUTIQDIO MPC group is currently active, any modifications to the IQDCHPID option have the following effects:

- Modified from ANY (or CHPID) to NONE - no effect on current usage but blocks subsequent activations
- Modified from NONE to ANY (or CHPID) - no effect on current usage but allows subsequent activations
- Modified from CHPID\_X to CHPID\_Y - no effect on current usage

**Note:** VTAM uses the CHPID value only when building the IUTIQDIO MPC group. To change CHPIDs for an active MPC group, the following must be done:

1. All TCP/IP iQDIO (HiperSocket) devices must be stopped.
2. Make any necessary HCD/IOCDS changes.
3. Verify that new subchannel devices are varied online.
4. Verify that the MPC group has deactivated (with no usage, it times out after approximately two minutes).
5. Modify IQDCHPID=CHPID (to new CHPID).
6. Restart the TCP/IP iQDIO device or devices.

**Note:** In order to use iQDIO communications, the processor must have the necessary hardware support. If the processor does not support iQDIO communications, then modifications to this start option will not be accepted and the IQDCHPID option will not be displayed (displayed as \*\*\*NA\*\*\*).

## START

### Abbreviations

Operand	Abbreviation
START	S
AMOUNT=FULL	AMT=F
AMOUNT=PARTIAL	AMT=P
DATEFORM	DATEFRM
EVERY	E
MSGLEVEL	MSGLVL
OPTION	OPT
OPTION=COMMAND	OPT=CMD
OPTION=CONNECTION	OPT=CON
OPTION=DEFINITION	OPT=DEF
OPTION=INTERFACES	OPT=INT
OPTION=MANAGEMENT	OPT=MGMT
OPTION=SESSION	OPT=SES
PLUALMSG=NOSUPP	PLUALMSG=NOSUP
PLUALMSG=SUPPRESS	PLUALMSG=SUPP
SECLVLCP=LEVEL1	SECLVLCP=LVL1
SECLVLCP=LEVEL2	SECLVLCP=LVL2
SLUALMSG=NOSUPP	SLUALMSG=NOSUP
SLUALMSG=SUPPRESS	SLUALMSG=SUPP
TRANSLAT=COSNAME	TRANSLAT=3
TRANSLAT=DLU_ALIAS	TRANSLAT=7
TRANSLAT=DLUREAL	TRANSLAT=1
TRANSLAT=DLUSSCP	TRANSLAT=2
TRANSLAT=LOGMODES	TRANSLAT=4
TRANSLAT=LUANAME	TRANSLAT=5
TRANSLAT=OLU_ALIAS	TRANSLAT=0
TRANSLAT=USERVAR	TRANSLAT=6

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for PLUALMSG=SUPPRESS, code only PLUALMSG=SUPP.

### Purpose

VTAM is started with the START command.

You can enter the START command only at the master or a secondary system console.

### Operands

#### procname

Procedure name for the command.

*procname* can be specified as either *startname.ident* or *startname*, where *startname* is the name of the JCL procedure used to start VTAM and *ident* is an optional identifier.

*procname* used for this command determines the *procname* used for all MODIFY commands as follows:

- If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, then either *startname.ident* or *ident* can be specified for *procname*.
- If *procname* in the START command was *startname*, then *startname* must be specified for *procname*.

Therefore, if you use NET as the optional identifier on this command, you can consistently use NET as *procname* for all VTAM commands.

### options

VTAM start options supplied by the system programmer. The VTAM operator can enter one or more options. For a description of the start options, see z/OS Communications Server: SNA Resource Definition Reference.

If more than one line is necessary for the start options, enter a comma and a closing parenthesis after the last option.

The values established by the start options go into effect when VTAM is started and remain in effect until VTAM is halted. Many of the options, however, can be modified with the MODIFY VTAMOPTS command while VTAM is running. You can use the DISPLAY VTAMOPTS command to display the values of the start options.

### Examples

```
s net,,, (list=01) s net,,, (list=01)
...
IST020I VTAM INITIALIZATION COMPLETE FOR level
IST1349I COMPONENT ID IS dddd-ddddd-ddd
IST1348I VTAM STARTED AS nodetype
```

For further information about these messages, see z/OS Communications Server: SNA Messages.

---

## VARY ACQ command

**Acquire an NCP, and optionally its subordinate resources, from another host:**

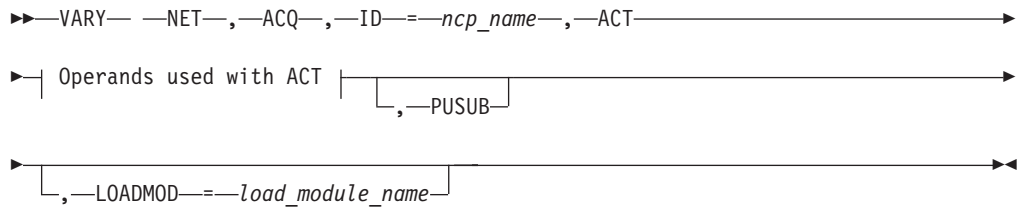
```
►► VARY NET, ACQ, ID=ncp_name [OWNER=host_name]
[ PUSUB ] [ ACT ] Operands used with ACT
```

**Acquire inactive NCP, and optionally its subordinate resources, without activating them:**

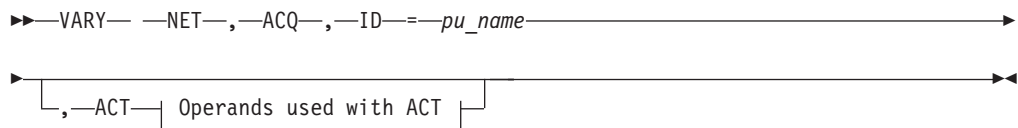
```
►► VARY NET, ACQ, ID=ncp_name [ PUSUB ]
```

## VARY ACQ

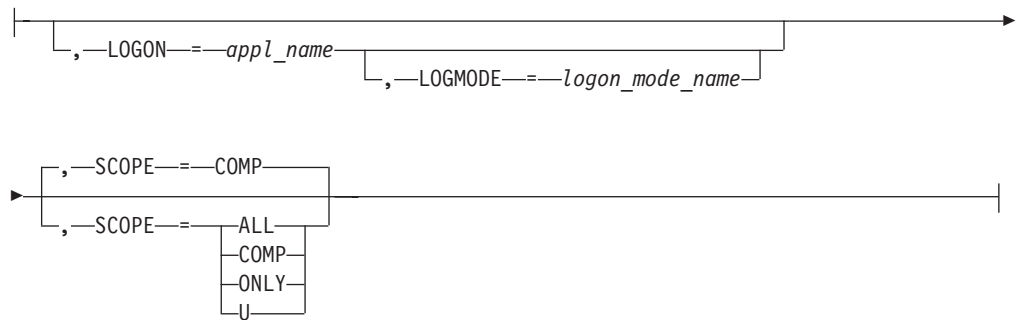
**Acquire inactive NCP, and optionally its subordinate resources, and activate them:**



**Acquire nonswitched PU and its LUs:**



**Operands used with ACT:**



## Abbreviations

Operand	Abbreviation
VARY	V
LOADMOD	LM
PUSUB	P

## Purpose

The VARY ACQ (acquire) command is used to acquire an NCP, or to acquire a peripheral PU (except for switched and local SNA PUs) attached by a nonswitched line. An NCP or a peripheral physical unit attached to an NCP can be acquired as part of a backup and recovery procedure in a multiple-domain network. A physical unit attached to an NCP can also be acquired as part of a switched network backup procedure in either a single-domain or multiple-domain network.

The purpose of the VARY ACQ command is to acquire ownership of:

- NCP resources that are normally owned by another host. In that case, the NCP must have been previously activated.



See the z/OS Communications Server: SNA Resource Definition Reference for additional information regarding the association of a resource with a particular host.

- All resources within an NCP, including the NCP itself. In that case, the NCP major node must be inactive and contacted through an active link station.
- An individual peripheral physical unit and its logical units.

Acquiring an NCP makes that NCP's resources known to VTAM until the NCP is released or deactivated. Likewise, acquiring a physical unit makes its logical units known until the physical unit is released.

Acquiring a physical PU in a logical hierarchy results in the acquisition of the logical lines in addition to any LUs. Also, the logical lines can be acquired only if the physical PU is acquired. This means that acquiring an NCP acquires the logical lines only if PUSUB is specified. Otherwise, a VARY ACQ command must be entered for the physical PU.

For a switched physical PU with a logical hierarchy, PUSUB must be specified when the NCP is acquired in order to acquire the associated logical lines and establish the hierarchy. It is not possible to acquire the switched physical PU individually. Therefore, the logical lines must be acquired when the physical line is acquired. (VTAM acquires physical lines when the NCP major node is acquired). If the physical line is acquired without PUSUB specified, then the physical/logical hierarchy will not be established. The physical units under the logical lines can be acquired individually, but their lines will not be considered subordinate to the switched physical PU.

If a subarea VTAM takes over an NCP owned by an APPN VTAM, it is possible that some resources will no longer be known. To avoid this situation, it is recommended that only APPN VTAMs take over resources from other APPN VTAMs.

The VARY ACQ command can also be entered for a physical unit when terminating a switched network backup procedure. The purpose of the VARY ACQ command is to make a nonswitched physical unit's logical units known to VTAM after a switched physical unit definition (representing the same physical device with a different physical unit name but with the same logical unit names) is deactivated.

## Operands

### ACT

If you use the ACT operand on the VARY ACQ command, other operands of the VARY ACT command are available. The operands you can use are:

- For resources subordinate to the NCP:
  - LOGON
  - LOGMODE
  - SCOPE
- For the NCP and resources subordinate to the NCP:
  - LOGON
  - LOGMODE
  - SCOPE
  - LOADMOD

## VARY ACQ

- For PUs and LUs:
  - LOGON
  - LOGMODE
  - SCOPE

See the “VARY ACT command” on page 531 for a complete description of the operands from the VARY ACT command that apply.

### **ID=name**

Specifies the name of the resource that is to be acquired. The resource must be either an NCP major node or a physical unit within an NCP major node.

If the resource being acquired is an inactive NCP, it is possible to specify any name for the ID operand, and then use the LOADMOD operand to identify the actual NCP major node. If PUNAME is specified in the BUILD definition statement, the NCP's name must match that PUNAME value.

### **LOADMOD=load\_module\_name**

Specifies the member name in VTAMLST of the NCP major node to be acquired. This operand applies to the acquisition of inactive NCPs only. If LOADMOD is not specified, the name specified for the ID operand is used as the member name.

See the **LOADMOD** operand on the “VARY ACT command” on page 531 for a complete description.

### **OWNER=host\_name**

Applies only when ID specifies an NCP that has previously been activated. VTAM acquires only the resources that have an owner name matching the one on this operand. You can specify only one owner name on this command. However, you can enter multiple acquire commands, each specifying a different owner name. If you do not specify OWNER on this command, all resources that have OWNER coded in their resource definition are acquired, regardless of which host is defined as the owner. However, resources that do not have OWNER coded are not acquired.

The *host\_name* operand is defined in the NCP PCCU macro or coded on specific resources within an NCP, such as LINE or PU. This name specified on the OWNER operand cannot match the name of the VTAM host from which you are issuing the command (that is, VTAM cannot acquire resources that it already owns).

### **PUSUB**

Applies only when ID specifies an NCP. PUSUB specifies that physical units and their logical units, subordinate to the acquired NCP are to be acquired in addition to the higher-level resources. If an NCP has previously been acquired without PUSUB, specifying PUSUB in a subsequent VARY ACQ command for the NCP can be used to acquire subordinate PUs and LUs.

If PUSUB is not specified, no PUs and associated LUs are acquired.

### **SCOPE**

Specifies the scope of the command.

WARM and SCOPE cannot be specified on the same command. If both are specified, the command fails.

The only SCOPE value applicable to model major node, LUGROUP major node, path definition set, or adjacent SSCP tables is SCOPE=SYNTAX.

SCOPE has no effect for a TRL major node. If the SCOPE value is specified for this resource, VTAM issues message IST1275I to indicate that the operand was ignored and continues processing.

For configuration restart, the checkpoint data set is updated with information about these resources, unless SCOPE=SYNTAX is specified. No information is stored in the checkpoint data set if the SYNTAX option is used.

**SCOPE=ALL**

Specifies that the resource named in the ID operand and all of the appropriate subordinate resources are to be activated (regardless of their defined ISTATUS values).

**SCOPE=COMP**

Specifies one of the following actions:

- For the initial activation of a major node, activates all subordinate minor nodes according to the ISTATUS specification. (This is the same as SCOPE=U.)
- For a major node that is already active:
  - If UPDATE=ADD|ALL is specified on the same command, VTAM updates the current configuration to match the VTAMLST definition and activates minor nodes based on the ISTATUS value.
  - If UPDATE=IMPLICIT is specified or assumed by default, VTAM activates all subordinate minor nodes that were not previously active. (Logical units are activated according to their ISTATUS specification if the PU was not previously active. Otherwise, they are not activated.)
- For a minor node, the action depends on the node type, as follows:

Node	Action
Group, PU	Same as SCOPE=U
Line, LU, APPL, CDRSC, link station	Same as SCOPE=ONLY

LU activation varies according to the owning PU status when processing a SCOPE=COMP on an active major node. A previously inactive PU is activated and its subordinate LUs are activated according to their ISTATUS specification. The LUs of a previously active PU are ignored.

**SCOPE=ONLY**

Specifies that only the resource named in the ID operand is to be activated; none of its subordinate resources are to be activated (regardless of their defined ISTATUS values).

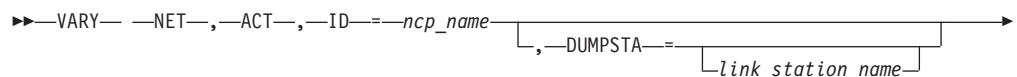
**SCOPE=U**

Specifies that the resource named in the ID operand, and all the appropriate subordinate resources defined with ISTATUS=ACTIVE, are to be activated.

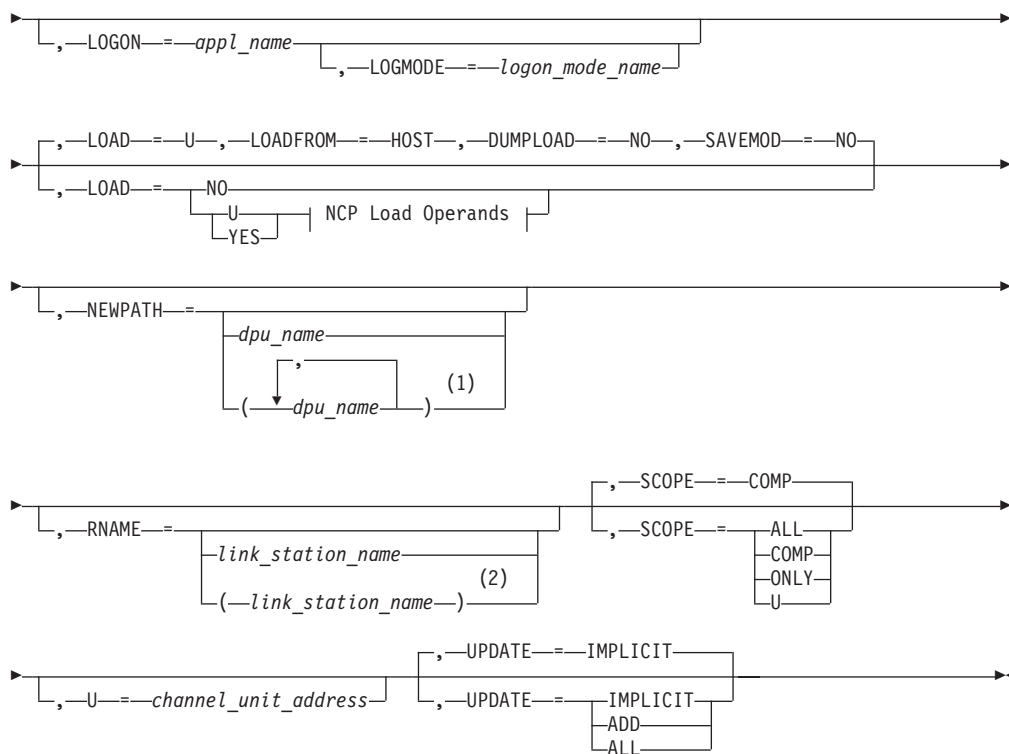
---

## VARY ACT command

**Activate an NCP major node:**



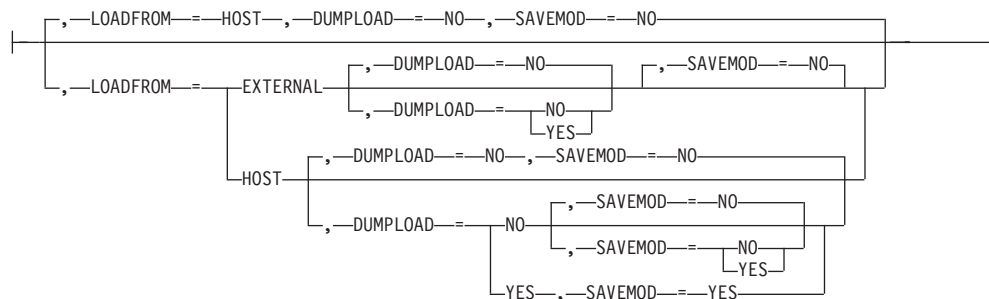
# VARY ACT



## Notes:

- 1 You can specify up to 3 dynamic path update member names on the NEWPATH operand.
- 2 You can specify up to 13 link station names on the RNAME operand.

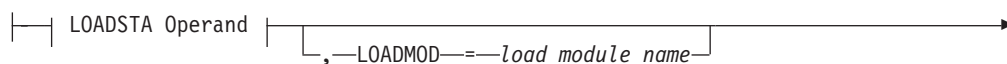
## LOADFROM Operand:



## LOADSTA Operand:



## NCP Load Operands:



▶ LOADFROM Operand

**Activate a switched major node:**

▶▶ VARY NET, ACT, ID=*major\_node\_name* [ , DWACT=*NO* ] [ , DWACT=*NO* ] [ YES ]

[ , LOGON=*appl\_name* ] [ , LOGMODE=*logon\_mode\_name* ]

[ , SCOPE=*COMP* ] [ , SCOPE=*ALL* ] [ , SCOPE=*COMP* ] [ , SCOPE=*ONLY* ] [ , SCOPE=*U* ] [ , UPDATE=*IMPLICIT* ] [ , UPDATE=*IMPLICIT* ] [ , UPDATE=*ADD* ] [ , UPDATE=*ALL* ]

=

**Activate the dynamic XCF local SNA major node:**

▶▶ VARY NET, ACT, ID=*ISTLSXCF*

**Activate a switched line:**

▶▶ VARY NET, ACT, ID=*line\_name* [ , ANS=*OFF* ] [ , ANS=*ON* ]

**Activate a type 2.1 PU (adjacent link station) or a nonswitched line under an NCP:**

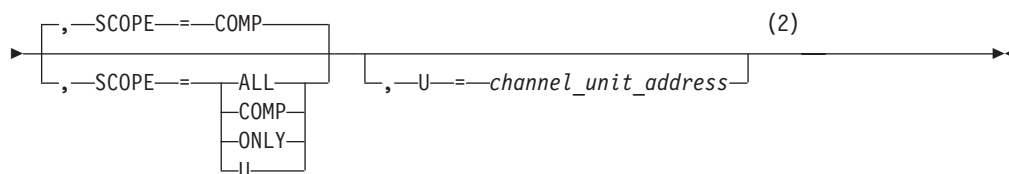
▶▶ VARY NET, ACT, ID=*pu\_name* [ *line\_name* ] [ , CPCP=*YES* ] [ , CPCP=*NO* ]

(1)

[ , HPR=*NO* ] [ , HPR=*YES* ]

[ , LOGON=*appl\_name* ] [ , LOGMODE=*logon\_mode\_name* ]

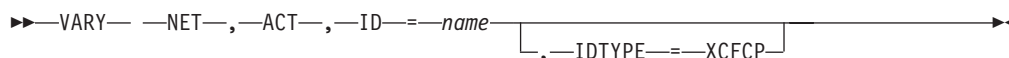
## VARY ACT



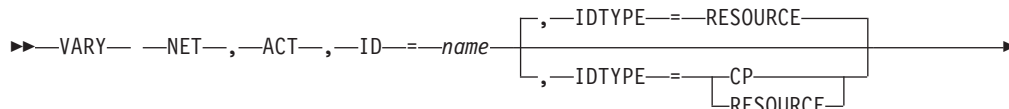
### Notes:

- 1 The HPR operand is valid for HPR-capable resources only.
- 2 The U operand is valid for a local SNA PU only.

### Activate a dynamic XCF local SNA PU:

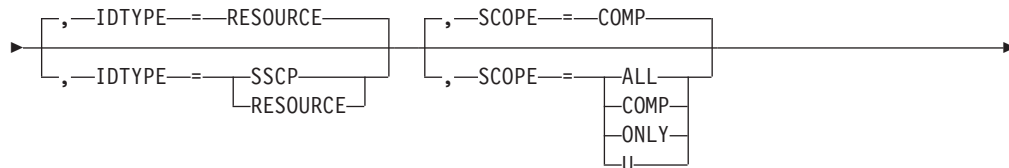
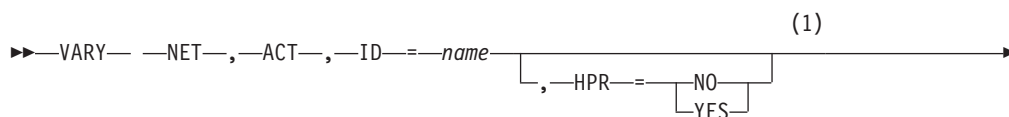


### Activate a control point (CDRSC minor node or application program minor node):



### Activate an SSCP (CDRM minor node)

### Activate an SSCP (CDRM minor node):



### Notes:

- 1 HPR and VRTGCPCP are valid only if VRTG=YES is coded for the CDRM, and the CDRM is in an inactive state.

- HPR and VRTGCPCP are valid only if VRTG=YES is coded for the CDRM, and the CDRM is in an inactive state.

**Warm start a major node:**

▶▶ VARY NET, ACT, ID=*major\_node\_name*, WARM

**Activate a definition file (a major node with no subordinate resources):**

▶▶ VARY NET, ACT, ID=*major\_node\_name*

**Check the syntax of a definition file (major node):**

▶▶ VARY NET, ACT, ID=*major\_node\_name*, SCOPE=SYNTAX

▶ [ , LOADMOD=*load\_module\_name* ]

**Note:** For an NCP major node, follow the syntax diagram for “Activate an NCP major node:” on page 531 and specify the UPDATE operand.

**Dynamically reconfigure resources in a major node:**

▶▶ VARY NET, ACT, ID=*major\_node\_name* [ , SCOPE=COMP ] [ , SCOPE=ALL ] [ , SCOPE=COMP ] [ , SCOPE=ONLY ] [ , SCOPE=U ]

▶ [ , UPDATE=IMPLICIT ] [ , UPDATE=IMPLICIT ] [ , UPDATE=ADD ] [ , UPDATE=ALL ]

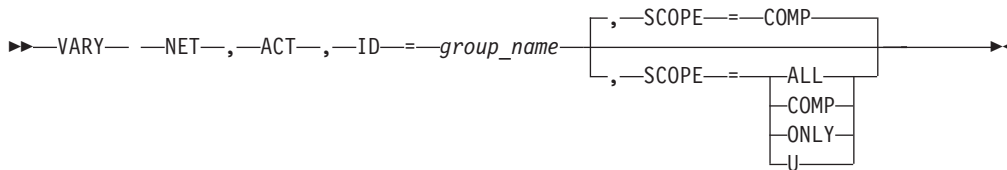
**Dynamically reconfigure TRLEs in a TRL major node:**

▶▶ VARY NET, ACT, ID=*trl\_major\_node\_name* [ , UPDATE=ADD ] [ (1) ] [ , UPDATE=IMPLICIT ] [ , UPDATE=ADD ] [ , UPDATE=ALL ]

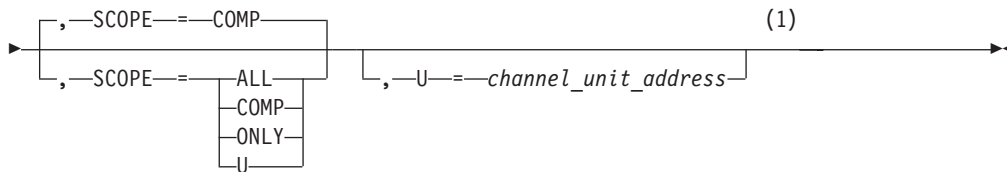
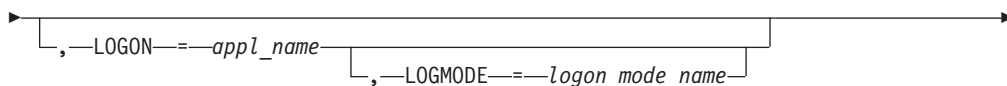
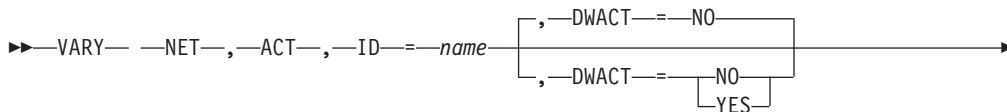
**Notes:**

- Specifying UPDATE=IMPLICIT is the same as UPDATE=ADD.

**Activate a group under an Enterprise Extender XCA major node:**



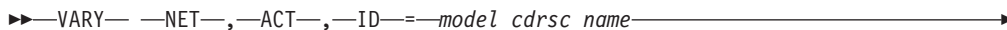
**Activate other resources:**



**Notes:**

- 1 The U operand is valid for a local SNA PU or a channel link.

**Activate a model CDRSC and, optionally, all the clone CDRSCs created from it:**



**Abbreviations**

Operand	Abbreviation
VARY	V
CPCP=NO	CPCP=N
CPCP=YES	CPCP=Y
DUMLOAD=NO	DL=NO or DL=N
DUMLOAD=YES	DL=YES or DL=Y
DUMPSTA	DST



Operand	Abbreviation
DWACT=NO	DWACT=N
DWACT=YES	DWACT=Y
EXTERNAL	EXT
LOADFROM	LF
LOADFROM=EXTERNAL	EXT
LOADFROM=HOST	HOST
LOADMOD	LM
LOADSTA	LST
LOGMODE	LOG
SAVEMOD=NO	SM=NO or SM=N
SAVEMOD=YES	SM=YES or SM=Y
SCOPE=ALL	ALL
SCOPE=COMP	COMP
SCOPE=ONLY	ONLY
SCOPE=SYNTAX	SYNTAX
VRTGCPCP=NO	VRTGCPPC=N
VRTGCPCP=YES	VRTGCPPC=Y

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for LOADFROM=EXTERNAL, code only EXT.

## Purpose

The VARY ACT (activate) command activates VTAM resources. Figure 6 on page 539 shows each resource type for which the command is valid, and which operands can be used for that resource type. A large dot means that the operand can be specified for the resource, and an S means that the operand can be specified to sift down to subordinate resources.

If any of the DUMpload, SAVEMOD, or LOADFROM operands are coded on a VARY ACT command, the target of the command is assumed to be an IBM 3720 or 3745 Communication Controller with the hard disk option, and the following default values apply:

- LOADFROM=HOST
- SAVEMOD=NO
- DUMpload=NO

If all three are omitted, the target of the command is assumed not to be an IBM 3720 or 3745 Communication Controller and these operands do not apply.

**Note:** The combination LOADFROM=HOST, DUMpload=YES, SAVEMOD=NO is not valid.

Figure 7 on page 540 shows operands that are mutually exclusive for this command. To read the table, you:

- Look at the operand name on the right of the table.

## VARY ACT

- Read across the table to the left to find an X (to see the operands that cannot be coded with the operand named in the right list). If the X appears in another operand's vertical column, the two operands are mutually exclusive.
- Match any number found at a row and column junction with the list of numbered notes that accompany the table to get information about unique restrictions or interactions.

The numbered fields in Figure 7 on page 540 identify unique requirements and restrictions as follows:

1. LOAD=YES or LOAD=U is required if DUMPLOAD=YES, SAVEMOD=YES, or LOADFROM is coded. The converse is not true.
2. This combination is not valid if SAVEMOD=NO is coded or assumed by default.
3. SAVEMOD=YES is required if DUMPLOAD=YES is coded, but only when LOADFROM=HOST is also specified. The converse is not true.
4. LOADMOD is required if it differs from the ID (that is, if NEWNAME on the BUILD statement differs from the PUNAME).
5. LOADFROM=HOST is required if SAVEMOD=YES is coded. The converse is not true.
6. This combination is not valid if LOADFROM=HOST is coded.

**Note:** Specification of WARM and SCOPE together causes the command to fail.

NO is the default for both SAVEMOD and DUMPLOAD (DUMPLD on the PCCU definition statement). If a value is specified on the PCCU definition statement, it overrides the default. If a value is specified on the VARY ACT command, it overrides both the PCCU definition statement value and the default value. This is shown in Table 7 on page 541.

ANS	CPCCP	DUMPLOAD	DUMPSTA	DWACT	HPR	IDTYPE=CP	IDTYPE=RESOURCE	IDTYPE=SSCP	LOAD	LOADFROM	LOADMOD	LOADSTA	LOGMODE	LOGON	NEWPATH	RNAME	SAVEMOD	SCOPE=ALLCOMP/ONLY/U	SCOPE=SYNTAX	U	UPDATE	VRTGCP/CP	WARM	ID=
						•											•	•						Adjacent CP major node
						•											•	•						Adjacent SSCP tables
						•											•	•		•				Application program major node
					•	•											•							Application program minor node
						•											•	•						APPN COS definition set
						•											•	•						• CDRM major node
					•	•	•										•				•			CDRM minor node
						•											•	•		•				• CDRSC major node
					•	•					•	•					•							CDRSC minor node
						•					S	S					•	•						• Channel-attachment major node
						•											•	•						Channel link
						•											•							Channel link station
						•					S	S					•	•						• Local non-SNA major node
						•					•	•					•							Local non-SNA logical unit
						•					S	S					•	•		•				• Local SNA major node
•					•	•					S	S					•	•						Local SNA physical unit
						•					•	•					•							Local SNA logical unit
						•											•	•						LUGROUP major node
						•											•	•						Model major node
	•	•				•		•	•	•	•	S	S	•	•	•	•	•	•	•	•	•	•	• NCP major node
S				S		•					S	S					•							Nonswitched line
•						•											•							Switched line
						•											•							Link station
•				•		•					S	S					•							Physical unit
						•					•	•					•							Logical unit
						•											•	•						Network node server list
						•											•	•						Path definition set
						•					S	S					•	•		•				• Switched major node
•				•	•	•					S	S					•							Switched physical unit
				•		•											•							Switched link station
						•					•	•					•							Switched logical unit
						•											•	•						TGP definition set
						•											•			•				TRL major node
						•											•	•						• XCA major node
						•																		Nonswitched line
						•																		Link station
•						•																		Switched line
						•											•	•		•				• Enterprise Extender XCA major node
						•																		XCA(EE) Group
•						•																		Switched line
																								XCF local SNA major node
																								XCF local SNA physical unit
							•																	CP name of XCF local SNA physical unit

Figure 6. Valid resource types for VARY ACT



Table 10 on page 543 shows how AUTODMP and AUTOIPL relate to the IBM 3720 or 3745 hard disk.

- **AUTODMP:** If the NCP abends, an attempt to put the NCP dump on the hard disk is made if the dump/load switch is set. If there is an NCP dump on the hard disk for this CCU, a request is made to dump the NCP to the host. The value of the AUTODMP operand on the PCCU definition statement determines whether this request is automatically implemented.
- **AUTOIPL:** If the NCP abends, and there is an NCP dump on the hard disk for this CCU, or if the automatic dump/load switch is set to NO, the value of the AUTOIPL operand on the PCCU definition statement determines how the NCP is reloaded.

If DUMPLOAD=YES (as determined in Table 7), the communication controller attempts to dump and load the NCP. If the dump and load are not successful, the action to be taken depends on the values of AUTODMP and AUTOIPL as shown in Table 10 on page 543.

**Note:** For the DUMPSTA and LOADSTA operands, the operator must determine from the person who defined the VTAM system, the system programmer, whether a name has been given in the system definition statements for the link station. If a name has been defined already, then that name should be used for the DUMPSTA and LOADSTA operands. Otherwise, the operator can use the name automatically defined by VTAM.

Table 7. Precedence of values when SAVEMOD and DUMPLOAD are specified. These rules of precedence apply in both the VARY ACT command and PCCU definition statement.

VARY ACT	PCCU		
	YES	NO	Not specified <sup>11</sup>
YES	YES	YES	Yes
NO	NO	NO	NO
Not Specified	YES	NO	NO

**Note:**

1. NO is the default for both SAVEMOD and DUMPLOAD (DUMPLD on PCCU).

## VARY ACT

Table 8. Results when LOADFROM=HOST or LOADFROM is not specified

DUMP- LOAD	SAVEMOD	
	YES	NO or not specified
YES	<p>The NCP is loaded from the host into the CCU and saved on the hard disk. If the NCP abends:</p> <ul style="list-style-type: none"> <li>• If there is no NCP dump on the hard disk for this CCU, the NCP dumps automatically to the hard disk and the CCU is reloaded automatically from the hard disk.</li> <li>• If there is an NCP dump on the hard disk for this CCU, a request is made to dump the NCP to the host. <ul style="list-style-type: none"> <li>– If AUTOIPL=YES is coded on the PCCU definition statement, VTAM automatically reloads the NCP into the CCU by transferring the load module from the host.</li> <li>– If AUTOIPL=NO is coded on the PCCU definition statement, the operator must request to reload the NCP into the CCU. This is done in one of the following ways: <ul style="list-style-type: none"> <li>- To transfer the load module from the host, enter the VARY ACT, LOADFROM=HOST command (see Table 10 on page 543).</li> <li>- To transfer the load module from the hard disk, enter the VARY ACT, LOADFROM=EXT command (see Table 10 on page 543).</li> </ul> </li> </ul> </li> </ul>	<p>This is an incorrect specification or ignored if on the PCCU definition statement. The dump/load switches cannot be manipulated without saving the load module onto the hard disk unless the load module exists on the hard disk and is being reloaded with LOADFROM=EXT.</p>
NO or Not Specified	<p>The NCP is loaded from the host into the CCU and saved on the hard disk. The dump and reload of NCP into the CCU must be transferred to or from the host.</p> <ul style="list-style-type: none"> <li>• If AUTOIPL=YES is coded on the PCCU definition statement, VTAM automatically reloads the NCP into the CCU by transferring the load module from the host.</li> <li>• If AUTOIPL=NO is coded on the PCCU definition statement, the operator must request to reload the NCP into the CCU. <ul style="list-style-type: none"> <li>– To transfer the load module from the host, enter the VARY ACT, LOADFROM=HOST command (see Table 10 on page 543).</li> <li>– To transfer the load module from the hard disk, enter the VARY ACT, LOADFROM=EXT command (see Table 10 on page 543).</li> </ul> </li> </ul>	<p>The NCP is loaded only from the host into the CCU. The dump and reload of NCP into the CCU must be transferred to or from the host.</p> <ul style="list-style-type: none"> <li>• If AUTOIPL=YES is coded on the PCCU definition statement, VTAM automatically reloads the NCP into the CCU by transferring the load module from the host.</li> <li>• If AUTOIPL=NO is coded on the PCCU definition statement, the operator must request to reload the NCP into the CCU. <ul style="list-style-type: none"> <li>– To transfer the load module from the host, enter the VARY ACT, LOADFROM=HOST command (see Table 10 on page 543).</li> </ul> </li> </ul>

Table 9. Results when LOADFROM=EXT is specified

DUMP- LOAD	SAVEMOD	
	YES	NO or not specified
YES	This is an incorrect specification or ignored if on the PCCU definition statement. It cannot be specified to load the CCU from the hard disk (LOADFROM=EXT) and to save the load module on the hard disk at the same time (SAVEMOD=YES).	<p>The NCP is loaded into the CCU from the hard disk. If the NCP abends:</p> <ul style="list-style-type: none"> <li>• If there is no NCP dump on the hard disk for this CCU, the NCP is automatically dumped to the hard disk and the CCU is automatically reloaded from the hard disk.</li> <li>• If there is an NCP dump on the hard disk for this CCU, a request is made to dump the NCP to the host. <ul style="list-style-type: none"> <li>- If AUTOIPL=YES is coded on the PCCU definition statement, VTAM automatically reloads the NCP into the CCU by transferring the load module from the host.</li> <li>- If AUTOIPL=NO is coded on the PCCU definition statement, the operator must request to reload the NCP into the CCU. This is done in one of the following ways: <ul style="list-style-type: none"> <li>- To transfer the load module from the host, enter the VARY ACT, LOADFROM=HOST command (see Table 10).</li> <li>- To transfer the load module from the hard disk, enter the VARY ACT, LOADFROM=EXT command (see Table 10).</li> </ul> </li> </ul> </li> </ul>
NO or Not Specified	This is an incorrect specification or ignored if on the PCCU definition statement. It cannot be specified to load the CCU from the hard disk (LOADFROM=EXT) and to save the load module on the hard disk at the same time (SAVEMOD=YES).	<p>The NCP is loaded into the CCU from the hard disk. The dump and reload of NCP into the CCU must be transferred to or from the host.</p> <ul style="list-style-type: none"> <li>• If AUTOIPL=YES is coded on the PCCU definition statement, VTAM automatically reloads the NCP into the CCU by transferring the load module from the host.</li> <li>• If AUTOIPL=NO is coded on the PCCU definition statement, the operator must request to reload the NCP into the CCU. <ul style="list-style-type: none"> <li>- To transfer the load module from the host, enter the VARY ACT, LOADFROM=HOST command (see Table 10).</li> </ul> </li> </ul>

Table 10. Actions to be taken for unsuccessful DUMP and LOAD

DUMP- LOAD	AUTODMP on PCCU		AUTOIPL on PCCU	
	YES	NO	YES	NO
YES	NCP dump is automatically transferred to the host.	The operator must decide whether to dump the NCP. The operator indicates whether to dump the NCP in response to the prompt shown.	The NCP is automatically loaded into the CCU from the host even though the NCP load module is on the hard disk.	The operator must reload the NCP by issuing either the VARY ACT, LOADFROM=EXT command to reload the NCP from the hard disk or the VARY ACT, LOADFROM=HOST command to reload the NCP from the host.
NO or Not Specified	NCP dump is automatically transferred to the host.	The operator must decide whether to dump the NCP. The operator indicates whether to dump the NCP in response to the prompt shown.	The NCP is automatically loaded into the CCU from the host.	The operator must reload the NCP by issuing the VARY ACT, LOADFROM=HOST command to reload the NCP from the host.

## Operands

### ANS

Specifies whether VTAM should put a switched SDLC line in answer mode. The VARY ACT command with the ANS operand has the same effect as the VARY ANS command with the ACT operand. See the “VARY ANS command” on page 561 for more information about the VARY ANS command.

### ANS=ON

Specifies that VTAM should put the switched SDLC line in answer mode. When the line is in answer mode (and active), the NCP answers incoming calls from dial-in devices and notifies VTAM of the calls so that sessions can be established.

### ANS=OFF

Specifies that VTAM should not put a switched SDLC line in answer mode. If there is an existing session for the line, ANS=OFF does not break the session, but no further calls are accepted after the session ends.

### CPCP

Applies for adjacent link stations and indicates whether the connection is to support CP-CP sessions. Using this operand, you can override the value of the CPCP operand on the PU definition statement. You can also specify CPCP for an NCP nonswitched line to indicate whether PUs under the line are to support CP-CP sessions. If CPCP is not specified on the VARY ACT command, CP-CP session capability on the connection is determined from the PU definition statement or from the CPCP start option. If CPCP is specified on the VARY ACT command, the value affects only a single activation instance. Subsequent activations use the predefined values for that PU.

The resource must be in an inactive or connectable state; otherwise the command fails and an error message is issued. CP-CP session capability is determined during XID exchange and cannot be changed after a connection is established.

### CPCP=YES

Indicates that the connection is to support CP-CP sessions.

### CPCP=NO

Indicates that the connection is not to support CP-CP sessions.

### DUMpload

Applies only if LOAD=YES is specified or if LOAD=U is specified or assumed by default. Specifies whether the automatic dump/load switch in the IBM 3720 or 3745 Communication Controller should be set to on or off. The switch controls automatic dumping and reloading of an NCP to or from the hard disk in the event of an NCP abend.

See Table 8 on page 542 and Table 9 on page 543 for additional information about DUMpload specifications.

Existing automatic IPL settings for a load module are retained by the IBM 3720 or 3745 Communication Controller (that is, DUMpload does not default) if the following situations are true:

- DUMPLD is not specified in the PCCU definition statement
- DUMpload, SAVEMOD, and LOADFROM are not specified in the VARY ACT command
- A copy of the load module is already stored on the IBM 3720 or 3745 Communication Controller hard disk



**DUMpload=YES**

Turns the automatic dump/load switch on. When the NCP abends, the switch is tested. If the switch is on, and if there is no NCP dump on the hard disk for this CCU, a dump of the NCP is stored on the IBM 3720 or 3745 Communication Controller hard disk. If the dump slot is full and AUTODMP=YES on the PCCU definition statement, the dump is transferred to the host. Otherwise, the network operator is prompted as specified in Table 10 on page 543.

After a dump has been stored, the controller is reloaded with the active NCP load module from the IBM 3720 or 3745 Communication Controller. The automatic load takes place only if the automatic dump has successfully occurred.

**DUMpload=NO**

Turns off the automatic dump/load switch in the communication controller. The controller is not automatically dumped and reloaded from the hard disk.

**DUMPSTA=link\_station\_name**

Applies only to the first activation of an NCP. (That is, DUMPSTA does not apply if the NCP is already active or is in the process of being activated.)

DUMPSTA specifies the name of a link station in an adjacent subarea node through which any later static dump operations for this NCP are to be carried out. The VTAM-generated link station name (a 3-digit or 4-digit hexadecimal device number followed by -S) can be specified. The link station can be either a channel link station or an SDLC link station in an NCP major node. The link station cannot be an SDLC link station in a channel-attachment major node. The link station identified for DUMPSTA should also be identified in the device number (U) or RNAME specifications for this NCP, either in the NCP definition or in this VARY ACT command.

**Note:** DUMPSTA does not support switched, X.25, or token-ring link stations.

The DUMPSTA operand, if specified, overrides any NCP definition value of DUMPSTA. If DUMPSTA is not specified in either the NCP definition or this command, VTAM selects (at the time of each dump operation) an available adjacent link station, giving preference to a channel link station. Similarly, if DUMPSTA is specified without a value (that is, if DUMPSTA= is specified), DUMPSTA assumes that a null value and VTAM selects an available adjacent link station as previously described.

**Note:** All references to NCP definition should be "NCP PCCU definition".

**DWACT**

Specifies whether to dial the PUs that are activated as a result of the activation of the switched major node or switched PU named on the ID operand.

Activation of PUs subordinate to the switched major node is determined by the ISTATUS value coded on the PU definition statement and the SCOPE value on the VARY ACT command. Specifying DWACT=YES on the major node activation prevents you from having to issue a VARY DIAL command for each PU individually after the PU is activated. For more information about the use of DWACT with a switched physical PU and associated logical hierarchy, see the z/OS Communications Server: SNA Network Implementation Guide.

**DWACT=YES**

Dials the PUs that are activated as a result of the switched major node or switched PU activation.

## VARY ACT

**Note:** For switched PU activation, the PU is dialed on initial activation only; DWACT=YES has no effect on VARY INACT,R command processing. This command causes the PU to be deactivated and then activated, but no dial operation is performed.

### DWACT=NO

Does not dial the PUs that are activated as a result of the switched major node or switched PU activation. Specifying DWACT=NO on the VARY ACT command does not override DWACT=YES specified on the PU definition statement.

### HPR

Specifies HPR capability at the link level. The use of the HPR operand on this command overrides what is coded for HPR on the CDRM, GROUP, LINE, or PU definition statements. HPR is valid on activation of a CDRM, GROUP, LINE, or PU in an HPR-capable node. For information about HPR capability for various node and connection types, see the z/OS Communications Server: SNA Network Implementation Guide.

**Note:** For a CDRM, this operand is valid only if VRTG=YES is specified for the CDRM, and the CDRM is in an inactive state; otherwise, the command fails and an error message is issued.

### HPR=YES

Specifies that the GROUP, LINE, PU, or VR-based TG to the CDRM being activated is HPR-capable.

### HPR=NO

Specifies that the GROUP, LINE, PU, or VR-based TG to the CDRM being activated is not HPR-capable.

### ID=name

Specifies the name of the resource to be activated. The name can be a network-qualified name. It cannot be a USERVAR or LUALIAS name. If the name specified on the ID operand is network-qualified, this name is considered to be the real name of the resource. The name can be an ACB name or an alias name, provided that it is not network-qualified.

The following example of an APPL major node definition shows how application names can be network-qualified:

```
x      APPL ACBNAME=y,...
```

In the above example, *x* (the application name) can always be network-qualified. *y* (the ACB name) can be network-qualified only if *y* is the same as *x*.

To activate the dynamic local SNA major node for XCF connections, specify ID=ISTLSXCF.

To reactivate a dynamic XCF local SNA PU representing the connection to another VTAM, you can specify one of the following names:

- The name of the PU
- The CP name of the other VTAM with IDTYPE=XCFCP

For a CDRM, you can specify a network-qualified name, but this does not remove the restriction that the non-network-qualified CDRM name must be unique across networks.

If the resource is a TRL major node, specify the VTAMLST member name as the ID value. The command builds the TRL major node using the set of TRLE definition statements that are defined in the TRL major node. ISTTRL is the

name of the VTAM internal table that is used for dynamic TRLEs, and should not be used as the VTAMLST member name of a predefined TRL major node. ISTTRL is not allowed as the resource name in a VARY ACT command. The issuance of the command VARY ACT,ID=ISTTRL always results in error message IST607I VARY ACT FOR ISTTRL FAILED -- INVALID NODE TYPE OR STATE.

If the resource is an NCP:

- If PUNAME is specified in the BUILD definition statement, the ID operand must specify that PUNAME value.
- If PUNAME is not specified in the BUILD definition statement, the ID operand can specify any name that you want (that is not already known to this VTAM), and use the LOADMOD operand to identify the actual NCP major node. After the NCP is active, the name specified on the ID operand is the name used to identify the NCP (not the load module name specified on LOADMOD).

If the resource is a switched major node containing PUs supported by a dependent LU requester (DLUR), the CPSVRMGR session is not activated until a VARY DIAL command is issued for the physical unit. See the “VARY DIAL command” on page 564 for more information.

If the resource is a model CDRSC, the state of the model CDRSC becomes active. This means that the model CDRSC is available to build clone CDRSCs.

If the resource is a model application program, the state of the model application program becomes connectable (CONCT). This means that the model application program definition is available to build dynamic application programs.

You cannot activate dynamic application programs with the VARY ACT command. Dynamic application programs are activated only by opening their ACBs. For a dynamic application program to successfully open its ACB, a model definition must exist to build the dynamic application program, and that model definition must be connectable.

The following restrictions apply to VARY ACT depending on whether VTAM has been defined to support APPN function:

- If VTAM has been defined as an APPN-only node, you cannot activate the following resources:
  - NCP
  - CDRM
  - Path definition set
  - Adjacent SSCP
- If VTAM has been defined as a subarea-only node, you cannot activate the following resources:
  - Adjacent CP
  - Transmission group profile
  - APPN Class of Service table
- If VTAM has been defined as a migration data host, you cannot activate an NCP.
- If VTAM has been defined as a network node, you cannot activate a network node server list. (The list can be activated only at an end node.)

## VARY ACT

If the named resource has subordinate resources (for example, logical units subordinate to a physical unit), those subordinate resources can also be activated using the SCOPE or WARM operands.

Independent LUs are not subordinate to any PU. Therefore, the sift-down to subordinate LUs does not affect independent LUs unless the ID value is a CDRSC major node.

You can individually activate multiple adjacent SSCP table definitions. Each new set of definitions is added to the internal table used by VTAM. New definitions for destinations already in the internal table replace the current adjacent SSCP list for those destinations, but you cannot deactivate existing adjacent SSCP lists. If a new table replaces an existing one, VTAM issues a message informing the operator.

To activate an APPN-to-subarea or subarea-to-APPN Class of Service mapping table, issue the VARY ACT command at the APPN-capable host that will use the table.

To activate a subarea mapping table, issue the VARY ACT command at the ICN host that will use the table.

To activate a network node server list, issue the VARY ACT command at the end node which will use the list. Note that this command activates the list, but the list is not used until the existing CP-CP session is terminated. If the end node has no CP-CP session when you issue this command, and an active link is available to one of the servers in the list, this command will activate a CP-CP session and activate the server list. If you choose not to activate your own network node server list at end node initialization, a network node server list consisting of a single nameless NETSRVR definition statement is automatically activated by default.

You can dynamically replace a network node server list by creating a new list, issuing VARY ACT to activate the new list, and issuing VARY TERM to terminate the existing CP-CP session. VTAM will automatically drive a new CP-CP session using the new list. A network node server list cannot be deactivated.

To activate a SAW sense filter, issue the VARY ACT command at the host node that will use the table.

To activate a generic resources preferences table, issue the VARY ACT command at the nodes that will perform generic resource resolution. Only one GRPREFS table can be active at a node at one time. The most recently activated GRPREFS table replaces any previously active GRPREFS table. If you do not activate your own generic resources preferences table, a generic resource preference table with a single default GRPREFS definition statement is automatically activated.

### IDTYPE

Specifies the type of resource that the ID operand names. If several types of resources share the same name, IDTYPE can be used to identify which resource the command should act on.

#### IDTYPE=CP

Specifies that the name on the ID operand is a CP. If an APPN connection exists, VTAM attempts to activate a CP-CP session between the host CP and the resource named on the ID operand.

**Note:** You cannot activate a CP-CP session to an adjacent CP running VTAM V4R1 if the link is already active.

**IDTYPE=RESOURCE**

Activates the resource specified on the ID operand.

If the resource VTAM finds is a CP and if an APPN connection exists, VTAM attempts to activate a CP-CP session between the host CP and the resource named on the ID operand.

If the resource VTAM finds is a host CP or an adjacent CP, VTAM searches for a CDRM with the name specified on the ID operand and activates the CDRM, as well.

If a CP and an SSCP are found with the specified name, VTAM activates both the CP and the SSCP simultaneously.

**IDTYPE=SSCP**

Specifies that the name on the ID operand is an SSCP. VTAM activates the CDRM by the name specified.

**IDTYPE=XCFCP**

Activates the dynamic XCF local SNA PU representing the connection to another VTAM, when the ID operand specifies the CP name of the other VTAM.

**LOAD**

Applies only to the first activation of an NCP. (That is, LOAD does not apply if the NCP is already active or is in the process of being activated.)

LOAD specifies whether the communication controller associated with the specified NCP is to be reloaded with the appropriate NCP load module.

A communication controller is associated with an NCP for the purposes of this command if any of the following conditions are met:

- It is already known to contain the named NCP.
- It is attached through one or more of the adjacent link stations identified by the NCP's device number (U) or RNAME specifications, or both.
- It is attached through the adjacent link station identified by the LOADSTA specification for the NCP.

**LOAD=YES**

Unconditionally loads the communication controller associated with the specified NCP, regardless of the current state or contents of the communication controller.

**Note:** If the NCP is being loaded by another host when this command is issued, the command fails.

**LOAD=NO**

Prevents the communication controller associated with the specified NCP from being loaded during the processing of this VARY ACT command, regardless of the current state or contents of the communication controller. (The communication controller is still subject to possible reload operations during error recovery procedures subsequent to the activation of the NCP.) If the communication controller does not contain the expected NCP load module, the VARY ACT command fails.

**LOAD=U**

Lets VTAM determine whether the communication controller associated with the specified NCP should be loaded during the processing of this VARY ACT command (based on the current contents of the communication controller and on the NCP definition statements), as it was before the availability of the LOAD operand.

## VARY ACT

For additional information about what VTAM does when LOAD=U is specified, see the z/OS Communications Server: SNA Network Implementation Guide.

**Note:** If this command is issued while another host is loading the NCP, you are notified, and VTAM waits until the load is complete from the other host. VTAM then loads the NCP as appropriate.

### LOADFROM

Applies only if LOAD=YES or LOAD=U. It specifies whether VTAM loads the NCP module from the host or from the communication controller hard disk. See the z/OS Communications Server: SNA Resource Definition Reference for a complete description of the LOADFROM operand on the PCCU definition statement.

LOADFROM=HOST is not supported for loading an NCP attached by a token-ring, X.25 PVC or SVC, or X.21 switched, or frame relay connection. Specify LOADFROM=EXTERNAL for those line types.

See Table 8 on page 542 and Table 9 on page 543 for additional information about LOADFROM specifications.

#### LOADFROM=HOST

Loads the NCP from the host, using the SSP as the interface to the NCP load library.

**Note:** The combination LOADFROM=HOST,DUMpload=YES,SAVEMOD=NO is not valid.

#### LOADFROM=EXTERNAL

Loads the NCP from the IBM 3720 or 3745 Communication Controller hard disk.

### LOADMOD=load\_module\_name

Specifies the name of the load module to load. The load module name is the member name specified in the NCP LOADLIB. This name must match the major node name (the member name in VTAMLST).

The LOADMOD operand must be specified if the name of the PU specified in the BUILD definition statement is not the same as the load module name. Failure to code LOADMOD when the PU name and load module name differ prevents VTAM from locating the specific definition program you now want to activate. If NEWNAME is specified, the LOADMOD value must match the NEWNAME value specified in the BUILD definition statement.

### LOADSTA=link\_station\_name

Applies only to the first activation of an NCP. (That is, LOADSTA does not apply if the NCP is already active or is in the process of being activated.)

LOADSTA specifies the name of a link station in an adjacent subarea node through which any load operations for this NCP are to be carried out. The VTAM-generated link station name (a 3-digit or 4-digit hexadecimal device number followed by -S) can be specified. The link station can be either a channel link station or an SDLC link station in an NCP major node. The link station identified for LOADSTA should also be identified in the device number (U) or RNAME specifications for this NCP, either in the NCP definition or in this VARY ACT command.

The link station cannot be an SDLC link station in a channel-attachment major node.



The LOADSTA operand, if specified, overrides any NCP definition value of LOADSTA. If LOADSTA is not specified in either the NCP definition or on this command, VTAM selects (at the time of each reload operation) an available adjacent link station, giving preference to a channel link station. Similarly, if LOADSTA is specified without a value (that is, if LOADSTA= is specified), LOADSTA assumes that a null value and VTAM selects an available adjacent link station from the NCP link station queue in the following order:

1. Channel
2. Active leased
3. Active dial-out switched
4. Active dial-in switched
5. Pending active leased
6. Pending active dial-out switched
7. Pending active dial-in switched
8. Dummy (undefined)

If the NCP is on a communication controller that is attached to VTAM by a serial optical channel (SOC), and you are reloading the NCP with a new load module, the LOADSTA operand is required and the link station name that you specify must be defined as an IPL port in the Telecommunication Service Processor (TSP). This is because ESCON support allows up to 16 SOC link stations to be defined as parallel TGs, and only one or two of these link stations are defined as IPL ports. The NCP load will fail if the link station is not defined as an IPL port in the TSP. (Because a maximum of eight VRs can be active at a time, only eight of the 16 parallel TGs can be attached between the host and the NCP at a time.)

#### **LOGMODE=logon\_mode\_name**

Specifies the logon mode name to be used for any logon initiated for a logical unit as a result of this command (see the description of the LOGON operand). This logon mode name also becomes the logon mode name for all future automatic logons performed by VTAM for logical units within the scope of this command and for their controlling primary LUs (if any).

LOGMODE is valid only if LOGON is specified. If LOGMODE is specified without LOGON, the command fails and an error message is issued.

If LOGMODE is not specified, the LOGMODE value specified in any previous command applicable to a logical unit also within the scope of this VARY ACT command is used. If no LOGMODE value was ever specified for a given logical unit within the scope of this command, the logical unit's default value is used.

#### **LOGON=appl\_name**

Specifies the name of an application program (primary LU) to which any secondary LUs within the scope of this command are to be logged on. The application name can be network-qualified. If it is, the network identifier is considered to be real, but the resource name is considered to be generic (that is, the resource name can be either the real application name or a USERVAR name).

If the application name is an ACB name, and the ACB name matches the name on the APPL definition statement, then you can use a network-qualified ACB name.

## VARY ACT

If a USERVAR is found, VTAM resolves its name to the name of the VTAM application with which it is currently associated. If a USERVAR with this name is not found, VTAM searches for an application program with this name.

If the primary LU is an application program in this domain, the name must be that of an application program minor node within an active application program major node.

If the primary LU is a predefined CDRSC, the CDRSC must be active.

If the primary LU is a device-type LU, it must be attached to the same NCP as the secondary LU.

See also the "VARY LOGON command" on page 582 for more information about the operator-initiated logon function.

### **NEWPATH=name**

Specifies the dynamic path update member names in the VTAM definition library. When the NCP is successfully activated, VTAM processes and sends path table update specifications to the NCP. The NEWPATH operand is valid only when an NCP major node is being activated.

Up to three member names can be specified; if more than three member names are specified, the VARY command is rejected, and you must issue a new path command to activate the NCP. If more than one member name is specified, the names must be enclosed in parentheses and separated by commas.

VTAM sends the path table update specifications with the SSCP-PU session before any links, other than the link for the SSCP-PU session, are activated. If you attempt to change or delete the explicit route being used for the SSCP-PU session, the NCP rejects the request (because the explicit route is currently operative), and VTAM displays a warning message.

This operand overrides NEWPATH specifications on the PCCU definition statement in the NCP's generation file (see the z/OS Communications Server: SNA Resource Definition Reference ). For example, if the PCCU NEWPATH operand specifies three member names and the VARY ACT NEWPATH operand specifies one member name, only the one member specified in the VARY ACT command is processed. If you specify "NEWPATH=," or "NEWPATH= " in the VARY ACT command, the NEWPATH operand coded in the PCCU definition statement is nullified.

NEWPATH processing does not affect NCP activation in any way. For example, if the member specified with the NEWPATH operand cannot be processed because of a shortage of VTAM storage, an appropriate message is displayed and no further recovery processing is attempted.

When a dynamic path update member is processed as a result of a NEWPATH operand, any path table update specifications for VTAM subareas and other NCP subareas are discarded. However, VTAM checks the validity of PATH statements and issues warning messages if errors are detected.

### **RNAME=name**

Applies to the activation of an NCP or, in certain migration cases, to the activation of a link station.

For an NCP, the RNAME operand is described in the following paragraphs and applies only to the first activation of the NCP. (That is, RNAME does not apply if the NCP is already active or is in the process of being activated.)



**Note:** When activating NCPs, if the RNAME is referring to a switched link station, activate the switched major node before issuing the VARY ACT command for the NCP. Otherwise, the NCP activation might fail.

RNAME specifies the names of up to 13 SDLC or channel link stations in adjacent subarea nodes through which the specified NCP is attached to the network. It also specifies which link stations (and associated links) in adjacent subarea nodes are to be automatically activated as part of the activation of the specified NCP. Therefore, these RNAME values identify the location of the communication controller in the network and enable VTAM to establish the necessary connectivity to the specified NCP (if such connectivity does not exist).

If more than one link station name is specified, the names must be enclosed in parentheses and separated by commas.

The RNAME operand, if specified, overrides any NCP definition RNAME values or the checkpointed RNAME values for the specified NCP. For a list of the checkpointed parameters for each major node and for a general description of the configuration restart facility, see the z/OS Communications Server: SNA Network Implementation Guide.

If RNAME values are specified on this command, VTAM uses those values to determine the link stations to be used. If the RNAME operand is not specified on this command, VTAM uses the checkpointed RNAME values for the specified NCP (if the WARM operand is specified). If neither the RNAME nor the WARM operand is specified, VTAM uses the NCP definition values for RNAME, if any. If RNAME is not specified in the NCP definition, RNAME assumes a null value, and no SDLC link stations are automatically activated. If the RNAME operand is specified without a value (that is, RNAME= is specified), RNAME assumes a null value.

If both the RNAME and the device number specifications have null values, no automatic link station activations are performed, and there must be link stations already active in adjacent subarea nodes to provide the required connectivity. If this is not so, the VARY ACT command fails.

#### **SAVEMOD**

Applies only if LOAD=YES or LOAD=U. It specifies whether the NCP load module is saved on the communication controller hard disk after the NCP is loaded from the host.

See Table 8 on page 542 and Table 9 on page 543 for additional information about SAVEMOD specifications.

#### **SAVEMOD=YES**

Saves the NCP on the communication controller hard disk after the NCP is loaded from the host.

If both load module data sets are full for this CCU, and:

- The name specified matches the name of a load module already stored, the load module with that name is replaced.
- The name specified does not match the name of a load module already stored, the oldest load module is replaced.

#### **SAVEMOD=NO**

Does not save the NCP load module on the IBM 3720 or 3745 Communication Controller hard disk after the NCP is loaded from the host.

**SCOPE**

Specifies the scope of the command.

WARM and SCOPE cannot be specified on the same command. If both are specified, the command fails.

The only SCOPE value applicable to model major node, LUGROUP major node, path definition set, or adjacent SSCP tables is SCOPE=SYNTAX.

SCOPE has no effect for a TRL major node. If the SCOPE value is specified for this resource, VTAM issues message IST1275I to indicate that the operand was ignored and continues processing.

For configuration restart, the checkpoint data set is updated with information about these resources, unless SCOPE=SYNTAX is specified. No information is stored in the checkpoint data set if the SYNTAX option is used.

**SCOPE=ALL**

Specifies that the resource named in the ID operand and all of the appropriate subordinate resources are to be activated (regardless of their defined ISTATUS values). When the ID operand specifies a model CDRSC for the VARY ACT command, any existing inactive clone CDRSCs created from the model CDRSC are activated again.

**SCOPE=COMP**

Specifies one of the following actions:

- For the initial activation of a major node, activates all subordinate minor nodes according to the ISTATUS specification. (This is the same as SCOPE=U.)
- For a major node that is already active:
  - If UPDATE=ADD|ALL is specified on the same command, VTAM updates the current configuration to match the VTAMLST definition and activates minor nodes based on the ISTATUS value.
  - If UPDATE=IMPLICIT is specified or assumed by default, VTAM activates all subordinate minor nodes that were not previously active. (Logical units are activated according to their ISTATUS specification if the PU was not previously active. Otherwise, they are not activated.)
- For a minor node, the action depends on the node type, as follows:

Node	Action
Group, PU	Same as SCOPE=U
Line, LU, APPL, CDRSC, link station	Same as SCOPE=ONLY

LU activation varies according to the owning PU status when processing a SCOPE=COMP on an active major node. A previously inactive PU is activated and its subordinate LUs are activated according to their ISTATUS specification. The LUs of a previously active PU are ignored.

**SCOPE=ONLY**

Specifies that only the resource named in the ID operand is to be activated; none of its subordinate resources are to be activated (regardless of their defined ISTATUS values).

**SCOPE=SYNTAX**

Specifies that the major node named on the ID operand is to have its VTAMLST definition file checked for syntax errors. This validation does not include user-replaceable tables, such as USS tables and ALS tables. The error checking consists of validation of syntax, definition statements,

operands, and the type of the operands. This checking is the same as is done when the VARY ACT command is used to activate a resource. When SCOPE=SYNTAX is specified, no resource activation takes place.

The ID operand is required. The LOADMOD operand must be used if the name specified on the PUNAME operand in the NCP BUILD definition statement is not the same as the load module name. See the description of the ID operand for more information. All other operands are ignored if SCOPE=SYNTAX is specified.

All major node types (including path definition set and adjacent SSCP tables) shown in Figure 6 on page 539 can be specified using SCOPE=SYNTAX.

**Note:** SCOPE=SYNTAX builds an internal representation of the resources in the file being checked, and might have an impact on storage until the command completes. VTAM uses approximately 600 bytes of storage for each definition statement included in the definition file. See the z/OS Communications Server: SNA Resource Definition Reference for more information about definition statements.

#### SCOPE=U

Specifies that the resource named in the ID operand, and all the appropriate subordinate resources defined with ISTATUS=ACTIVE, are to be activated.

#### U=channel\_unit\_address

Specifies the hexadecimal device number by which a channel attachment to a communication controller, to an adjacent host, or to an SNA physical unit is known to the operating system and through which VTAM is to establish connectivity to the specified NCP, VTAM, or physical unit. A device number must be supplied for a channel-attached physical unit because the physical unit can communicate only through the channel. Likewise, a device number must be supplied for a channel-attached host because the adjacent host can communicate directly only through the channel attachment. A device number is optional for an NCP because an NCP can also communicate across SDLC links. This operand has no effect if the node is being activated or is currently active.

- For a **channel-attachment major node**, the U operand overrides any previous device number specifications, including the ADDRESS operand on the LINE definition statement of the channel-attachment major node definition.

Omit the U operand if you are activating a channel-attachment major node that has LNCTL=MPC in its definition. Otherwise, the activation of resources in the multipath channel (MPC) group will fail.

If the U operand is omitted and there is no current device number specification for VTAM, the VARY ACT command fails. The VARY ACT command also fails if the U operand is specified without a value (that is, if U= is specified).

- For an **SNA physical unit**, the U operand, if specified, overrides any previous device number specifications for the physical unit, including the CUADDR operand on the PU definition statement.

The U operand, if specified, overrides any specification maintained by configuration restart.

## VARY ACT

If the U operand is omitted and there is no current device number specification for the physical unit, the VARY ACT command fails. The VARY ACT command also fails if the U operand is specified without a value (that is, if U= is specified).

- For an NCP, the U operand, if specified, overrides any NCP definition CUADDR values or the checkpointed device number values for the specified NCP. If a U value is specified on this command, VTAM uses the value to determine the link station to be used. If the U operand is not specified on this command, VTAM uses the checkpointed device number values for the specified NCP (if the WARM operand is specified). If neither the U nor the WARM operand is specified, VTAM uses the NCP definition value for CUADDR, if any. If CUADDR is not specified in the NCP definition, the device number specification assumes a null value, and no channel link station is automatically activated. If the U operand is specified without a value (that is, if U= is specified), the device number specification assumes a null value.

If both the RNAME and the device number specifications have null values, no automatic link station activations are performed, and there must be link stations already active in adjacent subarea nodes to provide the required connectivity. If this is not so, the VARY ACT command fails.

### UPDATE

Using this operand, you can dynamically implement changes that you have made in a VTAMLST definition file. You can use the UPDATE operand to make the following kinds of dynamic reconfiguration changes:

- Cross Domain Resource (CDRSC) major node: add and delete CDRSCs; dynamically change certain operand values on CDRSC definition statements.
- Local SNA major node: add and delete LUs; dynamically change certain operand values on LU definition statements.
- NCP major node: add, delete, and move PUs and LUs; dynamically change certain VTAM-only operand values on PU and LU definition statements.
- Switched major node: add and delete PUs and LUs; dynamically change certain operand values on PU, LU, and PATH definition statements.
- Transport resource list (TRL) major node: add, delete, or replace TRLEs; dynamically change operand values on TRLE definition statements.
- Enterprise Extender (EE) XCA major node: add, delete, or dynamically change GROUP, LINE, and connection network definitions on the PORT definition statements.
- Application program (APPL) major node: add, delete, or dynamically change GROUP and APPL definition statements.

VTAM reads the VTAMLST definition file for the major node and updates the current configuration to match the definition. The affected minor nodes must be inactive (except for PATH definition statements in the switched major node), but the major node can remain active. For more information about dynamic reconfiguration, see the z/OS Communications Server: SNA Network Implementation Guide. For information about which operands in PU and LU definition statements can be dynamically changed, see the z/OS Communications Server: SNA Resource Definition Reference.

**Requirement:** For an active QDIO TRLE, the TCPIP devices using this TRLE must be stopped and 2 minutes must pass before the TRLE can be updated.

If you have used the VARY LOGON command to establish an automatic logon relationship that was not coded on the LOGAPPL operand of a definition

statement, or if you have used the VARY NOLOGON command to terminate an automatic logon relationship that was coded on the LOGAPPL operand of a definition statement, the VARY ACT,UPDATE=ALL command might undo the effects of these commands. This is because the LOGAPPL operand in the definition file overrides these commands. Even if no LOGAPPL is coded in the definition file, VTAM assumes a null value for LOGAPPL and the null value overrides the VARY LOGON value. To avoid undoing the effects of the VARY LOGON command, code the LOGAPPL definition statement with the required value. To avoid undoing the effects of the VARY NOLOGON command, delete the LOGAPPL operand from the definition statement. VARY ACT,UPDATE=ALL can undo the effects of the MODIFY DEFAULTS command in the same way.

VTAM issues an error message if a VARY ACT,UPDATE=ALL command is attempted for an active resource. For example, you might have activated an NCP, then issued a VARY LOGON command for some of the LUs under the NCP. (The VARY LOGON command overrides the LOGAPPL value that was used during NCP activation.) If you later issue a VARY ACT,UPDATE=ALL command to make some other kind of change, such as moving a PU from one line to another, and meanwhile the LUs are active that have the new LOGAPPL value, VTAM will issue an error message. This is because the VARY ACT,UPDATE=ALL command overrides the VARY LOGON command; that is, VTAM encounters a defined LOGAPPL value that is different from the current value, so it attempts an operand change, but the operand change fails because the LUs are active.

**Dynamic reconfiguration for an NCP:**

For an NCP, this command performs the following functions without regenerating the NCP:

- Adds a nonswitched physical unit and its subordinate LUs to a line
- Adds a logical unit to a nonswitched physical unit
- Passes the GP3174 and RETRIES operands to NCP when dynamically adding a PU
- Moves a nonswitched physical unit and its subordinate LUs from one line to another
- Moves a logical unit to another physical unit
- Changes a nonswitched physical unit link station address (except on the initial activation of the NCP)
- Changes the LOCADDR for an LU (except on the initial activation of the NCP)
- Deletes a nonswitched physical unit and its subordinate LUs from a line
- Deletes a dependent logical unit from a nonswitched physical unit
- Changes certain operand values in PU and LU definition statements
- Adds or deletes frame relay PUs and their associated FRSESET definition statements

The active and inactive requirements for the reconfiguration operations are shown in Table 11.

*Table 11. Active and inactive status requirements for dynamic reconfiguration of an NCP*

Operation	Major node	LINE	PU	LU
Add LU	Active	Either	Either	N/A
Add PU	Active	Either	N/A	N/A

Table 11. Active and inactive status requirements for dynamic reconfiguration of an NCP (continued)

Operation	Major node	LINE	PU	LU
Delete PU <sup>1</sup>	Active	Either	Inactive	Inactive
Delete LU <sup>1</sup>	Active	Either	Either	Inactive
Move PU	Active	Either	Inactive	Inactive
Move LU	Active	Either	Either	Inactive

**Note:**

1. The current state and desired state of the resource must be inactive.

To prepare another host for backup and takeover, you can issue a VARY ACT command with the UPDATE operand at a VTAM that does not own selected NCP resources to prepare that VTAM for a future takeover of those resources. The command fails if UPDATE is specified on the same command with the LOGON, LOGMODE, WARM, or ACQ (as in VARY ACQ) operands. UPDATE has no meaning on the initial activation of major nodes other than an NCP major node.

Conflicts can arise between the NCP source file and the generated NCP load module. If you modify the NCP source, moving PUs and LUs, use UPDATE=ALL when activating an inactive NCP. Otherwise VTAM and NCP will not agree on the location of the PUs and LUs. It is recommended that you always use UPDATE=ALL for the initial activation of an NCP if you are using (or plan to use) dynamic reconfiguration with that NCP. If the source file has changed, VTAM will change and start the NCP correctly. If the source file has not changed, VTAM will start the NCP as usual.

You can use VARY ACT with the UPDATE operand to dynamically reconfigure a frame relay switching equipment set (FRSESET). In order to modify an FRSESET, you need to know whether the FRSESET was statically or dynamically defined. If you are not sure, you can issue a DISPLAY NET,ID=*frseset\_name* command to find out. Statically means that the FRSESET was included in the NCP generation. Dynamically means that the FRSESET was not included in the NCP generation. Statically and dynamically defined PUs cannot be specified in the same FRSESET; the PUs must be all static or all dynamic.

If the FRSESET was dynamically defined, you can dynamically add and delete PUs from the set. You can delete PUs with the MODIFY DR, VARY DRDS, or VARY ACT,UPDATE=ALL commands. You can add PUs only with the VARY ACT,UPDATE=ADD or VARY ACT,UPDATE=ALL command.

If the FRSESET was statically defined, you can delete PUs from the set, but you cannot add PUs. In practical terms, this means you need to delete the entire FRSESET and then add it back dynamically in order to make changes. For example, if you have a statically defined FRSESET containing two primary PUs and you want to add two backup PUs, follow these steps:

1. Delete the two primary PUs, deleting the FRSESET itself (because it is empty).
2. Edit the VTAMLST source file to add the PU definitions for the backup PUs and add the backup PUs to the FRSESET.
3. Use the VARY ACT command with UPDATE=ADD or UPDATE=ALL. The VARY ACT command causes the FRSESET to be dynamically defined.



If you delete one or more PUs (using MODIFY DR or VARY DRDS) from a statically defined FRSESET without deleting the whole FRSESET, VARY ACT will cause the deleted PUs to be added back, but they will not be part of the FRSESET.

The first PU under a frame relay line (the LMI) cannot be deleted and it cannot be part of an FRSESET.

For more information about how to define frame relay lines, frame relay PUs, and FRSESETs, see the z/OS Communications Server: SNA Resource Definition Reference.

**Dynamic reconfiguration for local SNA major nodes:**

This command adds and deletes LUs for local SNA major nodes.

The active and inactive requirements for the reconfiguration operations are shown in Table 12.

*Table 12. Active and inactive status requirements for dynamic reconfiguration for a local SNA major node*

Operation/ resource	Major node	LINE	PU	LU
Add LU	Active	Either	Either	N/A
Delete LU	Active	Either	Either	Inactive

**UPDATE=IMPLICIT**

Has meaning only on the initial activation of an NCP. Otherwise UPDATE=IMPLICIT has no effect. For the initial activation of an NCP, UPDATE=IMPLICIT dynamically adds resources. If you specify UPDATE=IMPLICIT for a TRL major node, it is changed to UPDATE=ADD.

**UPDATE=ADD**

You can add resources. The major node must be active, unless it is an NCP major node, which can be either active or inactive. VTAM reads the VTAMLST definition file for the major node and adds any new resources to the current configuration. For a TRL major node, this is the default.

**UPDATE=ALL**

You can add, move, and delete resources in certain major nodes, and to add, delete, and replace existing TRLEs in an active TRL major node. TRLEs that are in use, however, are not deleted and remain in the TRL major node along with the new TRLEs.

**Note:** Moving resources requires that you issue the VARY ACT,UPDATE command twice. Resource deletions occur during the first processing of the command, and resource additions occur during the second processing of the command. See the z/OS Communications Server: SNA Network Implementation Guide for more information about dynamic reconfiguration changes.

The UPDATE=ALL operand also enables you to change certain operands in PU, LU, GROUP, LINE, PORT, APPL, and CDRSC definition statements in the following active nodes:

- Cross-domain resource major node
- Local SNA major node
- NCP major node (VTAM-only operands)
- Switched major node

## VARY ACT

- TRLE major node
- Enterprise Extender XCA major node
- Application program major node

See the major node descriptions in the z/OS Communications Server: SNA Resource Definition Reference for more information about the operands that you can change for each major node.

### **VRTGCPCP**

Applies for cross-domain resource managers (CDRM) and indicates whether the virtual-route-based transmission group is to support CP-CP sessions. Using this operand, you can override the value of the VRTGCPCP operand on the CDRM definition statement. If VRTGCPCP is not specified on the VARY ACT command, CP-CP session capability over the virtual-route-based transmission group connection is determined from the CDRM definition statement or from the VRTGCPCP start option. If VRTGCPCP is specified on the VARY ACT command, the value affects only a single activation instance. Subsequent activations use the predefined values for that CDRM.

This operand is valid only if VRTG=YES is specified for the CDRM, and the CDRM is in an inactive or connectable state; otherwise the command fails and an error message is issued.

#### **VRTGCPCP=YES**

Specifies that the virtual-route-based transmission group is to support CP-CP sessions.

#### **VRTGCPCP=NO**

Specifies that the virtual-route-based transmission group is not to support CP-CP sessions.

### **WARM**

Applies only to certain major nodes (as shown in Figure 6 on page 539) and specifies that the major node named in the ID operand is to be activated to the status it had when it was last active. That is, those minor nodes that were active the last time the major node was active are reactivated, and other operator-modified values applicable to the major node or its minor nodes (such as controller application name and logmode name for a logical unit) are restored. By recording changes in a configuration restart file, VTAM tracks the status of the minor nodes and also operator changes to other checkpointed parameters. For a list of the checkpointed parameters for each major node and for a general description of the configuration restart facility, see the z/OS Communications Server: SNA Network Implementation Guide.

The WARM operand is not allowed and the VARY ACT command fails in the following circumstances:

- WARM and SCOPE are specified on the same command.
- WARM is specified for a major node that is already active.
- WARM is specified when activating a major node that has no associated VSAM configuration restart file or whose configuration restart file has not been used (that is, contains no checkpointed information).

If you used a VARY ACT,UPDATE=ALL command for dynamic reconfiguration of the major node at some time before the warm start, the dynamic reconfiguration changes stay in effect after the warm start. This is because VTAM takes a checkpoint during the VARY ACT,UPDATE=ALL processing.



## VARY ANS command

```

▶▶ VARY NET, ANS= [OFF | ON], ID= line_name [, ACT]

```

### Abbreviations

Operand	Abbreviation
VARY	V

### Purpose

The VARY ANS (answer mode) command enables active switched SDLC lines with dial-in capability to allow or disallow an incoming call from a physical unit defined in a switched major node. For an incoming call to be allowed, an active line must be in answer mode.

The mode setting can be specified in the definition statement for the line and can be changed whenever the line is active by using this command. The mode setting of a line can also be specified when the line is activated (see the description of the **ANS** operand on the “VARY ACT command” on page 531).

The VARY ANS command is most often used for lines with both dial-in and dial-out capability. To ensure that a line is available for dial-out requests, it can be taken out of answer mode while it is still active. Incoming calls are blocked, but outgoing calls proceed normally.

### Operands

#### ACT

Activates the line, if it is not active already.

#### ANS

Specifies whether the line is to be put in answer mode.

##### ANS=ON

Specifies that the line is to be put in answer mode. When a line is in answer mode (and active), the answering subarea node accepts an incoming call from a dial-in device and notifies VTAM of the call so that sessions can be established.

##### ANS=OFF

Specifies that the line is to be taken out of answer mode. If there is an existing session using the line, ANS=OFF does not break the session, but no further incoming calls are accepted after the session ends.

#### ID=line\_name

Specifies the name of an SDLC line. The line must be a switched line with dial-in capability. The line must be active, unless the ACT operand is also specified on this command.

## VARY AUTOLOG command

►► VARY — NET —, — AUTOLOG —, — ID = \* —  
 —, — ID = — *controlling\_appl* —

### Abbreviations

Operand	Abbreviation
VARY	V

### Purpose

The VARY AUTOLOG command can be used to initiate sessions for one specific controlling application or for all controlling applications that have pending autologon requests. If the specified controlling application or applications are found and are available for sessions, a session initiation request is generated for each SLU that has an automatic logon relationship to that application (if the SLU is available for sessions and does not already have an active session to the controlling application). If a controlling application is not found or is not available for sessions, no attempt is made to initiate automatic logon sessions at this time.

The VARY AUTOLOG command displays the number of searches that were sent to locate the controlling applications. When each search for a controlling application completes, a message is displayed that shows the number of sessions that were initiated to that application (if it was found and available for sessions) or the status of that application (if it was not found or was not available for sessions).

The VARY AUTOLOG, ID=\* command affects every controlling application for which there are one or more resources with pending autologon requests. Optionally, the VARY AUTOLOG command can be used to initiate automatic logon processing for a single controlling application by specifying the controlling application name on the ID parameter.

If the controlling application is not session capable at the time the command is issued, all SLUs that are session capable, not in session, and have pending autologon requests with that controlling application are subject to future automatic logon events (AUTOTI, AUTORTRY, or PLU notification) for that controlling application.

See *z/OS Communications Server: SNA Network Implementation Guide* for more information about AUTOLOGON.

### Operands

**ID** Specifies the name of the controlling application to be acted upon.

The ID operand is required for this command. Wildcard values cannot be used for this operand.

**ID=*controlling\_appl***

Specifies the real or alias name of a controlling application for which there are one or more resources with pending autologon requests. The *controlling\_appl* value can be network qualified. If the *controlling\_appl* value is not network qualified, then the network ID of the host from which the command was issued is used.

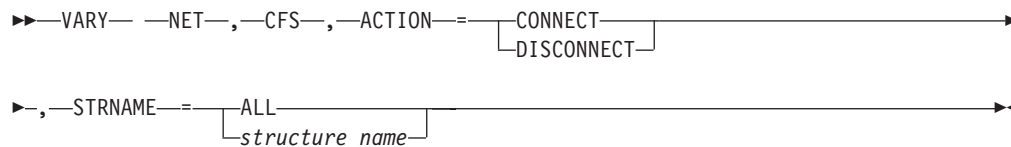
**ID=\***

Specifies that all controlling applications for which there are one or more resources with pending autologon requests are acted upon.

**Tip:** You can use the DISPLAY AUTOLOG command to determine which controlling applications have resources with pending autologon requests.

---

## VARY CFS command



### Abbreviations

Operand	Abbreviation
VARY	V
ACTION=CONNECT	CONNECT
ACTION=CONNECT	CONN
ACTION=DISCONNECT	DISCONN
ACTION=DISCONNECT	DISC

### Purpose

The VARY CFS command is used to connect to a VTAM coupling facility structure or disconnect from a VTAM coupling facility structure. Normally, connecting or disconnecting to a coupling facility structure is handled automatically by VTAM. Using the VARY CFS command, an operator can perform these functions outside normal VTAM processing.

If VTAM is unable to connect to a coupling facility structure or loses its connection to a coupling facility structure, it will use the event notification facility to know when to attempt a reconnection to the coupling structure. The event notification facility will notify VTAM when changes occur in coupling facility resources. This reconnection process is automatic and requires no operator intervention. However, if VTAM disconnects because of the VARY CFS, ACTION=DISCONNECT command, VTAM will ignore event notifications for the particular structure. The VARY CFS, ACTION=CONNECT command must be issued to cause VTAM to reconnect to the structure and also enable event notification for the structure.

To determine if VTAM is using the event notification for a disconnected structure, issue the D NET, STATS, TYPE=CFS command. Message IST1368I will be issued if VTAM is receiving event notifications for the structure.

### Operands

**ACTION**

Specifies that VTAM is to attempt to connect to or disconnect from the coupling facility structure specified by the STRNAME parameter.

## VARY CFS

### **ACTION=CONNECT**

Specifies that VTAM is to attempt to connect to the coupling facility structure specified by the STRNAME parameter.

### **ACTION=DISCONNECT**

Specifies that VTAM is to disconnect from the coupling facility structure specified by the STRNAME parameter.

### **STRNAME**

Specifies the name of the structure to connect to or disconnect from.

### **STRNAME=ALL**

Specifies that VTAM will disconnect from all coupling facility structures. STRNAME=ALL can be specified for ACTION=DISCONNECT only.

### **STRNAME=structure\_name**

Specifies the name of the structure to connect to or disconnect from.

---

## VARY DIAL command

►► VARY — NET — , — DIAL — , — ID — = — resource\_name —   
 — , — CPCP — = — YES   
 — NO ◄◄

### Abbreviations

Operand	Abbreviation
VARY	V

### Purpose

The VARY DIAL command can be used to establish the following connections:

- A switched subarea connection so that LU-LU sessions can be started
- A switched connection to a type 1,2, or 2.1 device (adjacent link station)
- A CPSVRMGR session between a dependent LU requester (DLUR) and a dependent LU server (DLUS)

### Operands

#### **CPCP**

Applies for adjacent link stations and allows the value of the CPCP operand on the PU definition statement to be overridden. If CPCP is not specified on the VARY DIAL command, the value for CP-CP session support on the connection is determined from the PU definition statement or from the CPCP start option. If CPCP is specified on the VARY DIAL command, the CP-CP session support on the connection is taken from the command value for a single activation instance. Subsequent activations use the predefined values for that PU.

If the resource does not support APPN, then an error message is issued and the command fails.

The resource must be in a connectable state; otherwise the command fails and an error message is issued. CP-CP session capability is determined during XID exchange and cannot be changed after a session is established.

#### **CPCP=YES**

Indicates that the connection is to support CP-CP sessions.

**CPCP=NO**

Indicates that the connection is not to support CP-CP sessions.

**ID=resource\_name**

Specifies the name of a resource. This resource name can be one of the following values:

- The name of the link station specified in the switched major node that specifies the NCP or VTAM to be connected.
- A PU name that specifies a link station with a PUTYPE of 1,2, 2.1, 4, or 5
- The name of a PU supported by a DLUR

---

## VARY DRDS command

►►—VARY— —NET—,—DRDS—,—ID—=—*dr\_file\_name*—►►

### Abbreviations

Operand	Abbreviation
VARY	V

### Purpose

The VARY DRDS command dynamically reconfigures an NCP or a nonswitched peripheral node. If the physical configuration of a communication controller is changed (for example, a physical unit is moved from one line to another), the NCP that is on the communication controller can be reconfigured without having to generate a new NCP. To use this command, a previously filed set of statements called a *dynamic reconfiguration* (DR) file must be available before the major node can be reconfigured. For information about dynamic reconfiguration, see the z/OS Communications Server: SNA Network Implementation Guide. For information about creating a DR file, see the z/OS Communications Server: SNA Resource Definition Reference.

Minor nodes that are dynamically added as a result of this command are automatically activated if the DR definition file defines their initial status as active.

#### Dynamic reconfiguration for an NCP:

For an NCP, this command performs the following functions without regenerating the NCP:

- Adds a nonswitched physical unit and its subordinate LUs to a line.
- Adds a logical unit to a nonswitched physical unit.
- Adds a type 2.1 PU to an NCP ESCON channel.
- Adds an independent LU to an NCP ESCON channel.
- Passes the GP3174 and RETRIES operands to NCP when dynamically adding a PU.
- Moves a nonswitched physical unit and its subordinate LUs from one line to another.
- Changes a nonswitched physical unit link station address.
- Deletes a nonswitched physical unit and its subordinate LUs from a line.
- Deletes a logical unit from a nonswitched physical unit.

## VARY DRDS

- Deletes a type 2.1 PU from an NCP ESCON channel.
- Deletes an independent LU from an NCP ESCON channel.
- Deletes frame relay type 1 PUs. The first PU (the LMI) under a frame relay line cannot be deleted.

The active and inactive requirements for VARY DRDS for an NCP are shown in Table 13.

Table 13. Active and inactive status requirements for VARY DRDS for an NCP

Operation/ resource	Major node	LINE	PU	LU
Add LU	Active	Either	Either	N/A
Add PU	Active	Either	N/A	N/A
Delete PU <sup>1</sup>	Active	Either	Inactive	Inactive
Delete LU <sup>1</sup>	Active	Either	Either	Inactive
Move PU	Active	Either	Inactive	Inactive

**Note:**

1. The current state and desired state of the resource must be inactive.

In order to modify a frame relay switching equipment set (FRSESET), you need to know whether the FRSESET was statically or dynamically defined. If you are not sure, you can issue a `DISPLAY NET,ID=frseset_name` command to find out. Statically means that the FRSESET was included in the NCP generation. Dynamically means that the FRSESET was not included in the NCP generation. Statically and dynamically defined PUs cannot be specified in the same FRSESET; the PUs must be all static or all dynamic.

If the FRSESET was dynamically defined, you can dynamically add and delete PUs from the set. You can delete PUs with the `MODIFY DR`, `VARY DRDS`, or `VARY ACT,UPDATE=ALL` commands. You can add PUs only with the `VARY ACT,UPDATE=ADD` or `VARY ACT,UPDATE=ALL` command.

If the FRSESET was statically defined, you can delete PUs from the set, but you cannot add PUs. In practical terms, this means you need to delete the entire FRSESET and then add it back dynamically in order to change. For example, if you have a statically defined FRSESET containing two primary PUs and you want to add two backup PUs, first delete the two primary PUs, deleting the FRSESET itself (because it is empty). Then edit the VTAMLST source file to add the PU definitions for the backup PUs (if necessary) and add the backup PUs to the FRSESET. Then use the `VARY ACT` command with `UPDATE=ADD` or `UPDATE=ALL`. The `VARY ACT` command causes the FRSESET to be dynamically defined.

If you delete one or more PUs (using `MODIFY DR` or `VARY DRDS`) from a statically defined FRSESET without deleting the whole FRSESET, `VARY ACT` will cause the deleted PUs to be added back, but they will not be part of the FRSESET.

The first PU under a frame relay line (the LMI) cannot be deleted and it cannot be part of an FRSESET.

For more information about how to define frame relay lines, frame relay PUs, and FRSESETs, see the *z/OS Communications Server: SNA Resource Definition Reference*.

**Dynamic reconfiguration for local SNA major nodes:**

This command adds and deletes LUs for local SNA major nodes.

The active and inactive requirements for the reconfiguration operations are shown in Table 14.

*Table 14. Active and inactive status requirements for VARY DRDS for local SNA major nodes*

Operation/ resource	Major node	LINE	PU	LU
Add LU	Active	Either	Either	N/A
Delete LU	Active	Either	Either	Inactive

**Operands**

**ID=dr\_file\_name**

Specifies the name of a dynamic reconfiguration file.

---

**VARY HANGUP command**

▶▶—VARY— —NET—,—HANGUP—,—ID—=—link\_station\_name—▶▶

**Abbreviations**

Operand	Abbreviation
VARY	V

**Purpose**

VARY HANGUP is used to take down a switched subarea connection or a switched connection to a type 1,2, or 2.1 device. This allows the connection to be terminated when it is no longer necessary.

**Note:**

1. VARY HANGUP terminates only the switched connection; it does not deactivate the line or the physical unit.
2. If the existing connection is for Enterprise Extender and DWINOP=YES is specified on the switched PU definition on the remote host, the remote host will attempt to redial the partner on this host when the VARY HANGUP command is issued on this host. If the VARY HANGUP command successfully places the switched PU in connectable state, then the dial-in from the remote host will be accepted and the connection will be reestablished.

Issuing VARY INACT for the switched PU will prevent this from occurring unless VARY ACT is then issued for the switched PU before either all dial retries by the remote host have completed or VARY INACT is issued for the switched PU on the remote host to terminate the redial attempts. See the descriptions of the DWINOP, REDIAL, and REDDELAY operands in z/OS Communications Server: SNA Resource Definition Reference for details.

In addition, coding CALL=OUT on the Enterprise Extender PATH statement under the PU, or ANSWER=OFF on the GROUP statement in the XCA major node to which the PATH statement applies, will prevent inbound dial attempts from being successfully directed to this PU.

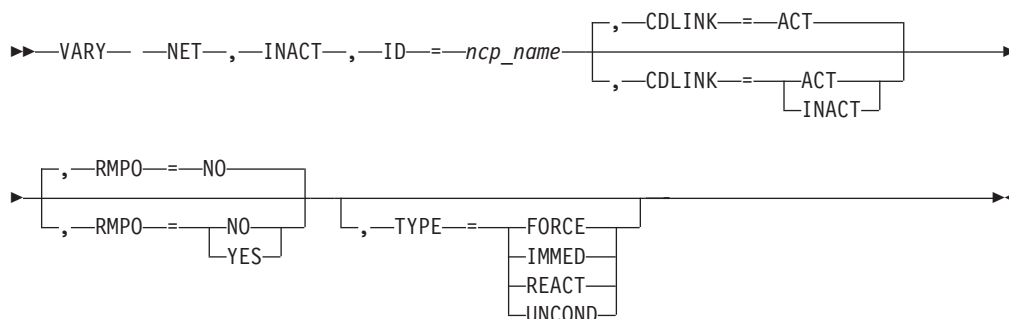
## Operands

### ID=*link\_station\_name*

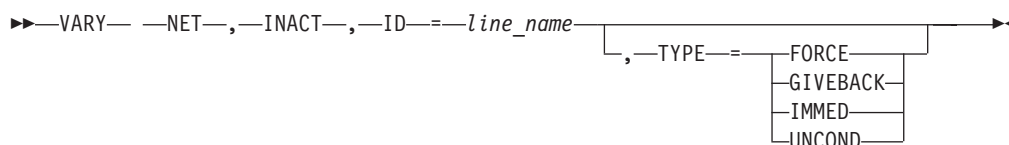
Specifies the name of the link station. *link\_station\_name* can be the link station in the switched major node that specifies the NCP or VTAM to be disconnected, or *link\_station\_name* can be a link station (PU) with a PU type of 1, 2, 2.1, 4 or 5.

## VARY INACT command

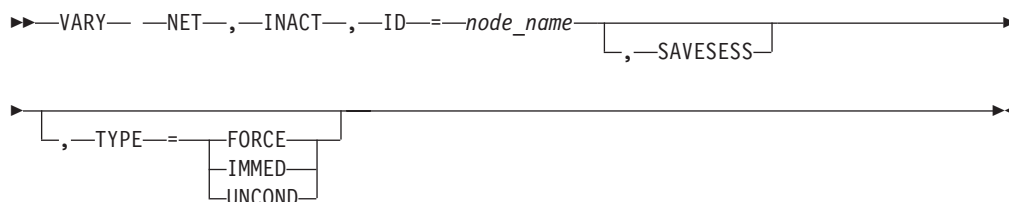
### Deactivate an NCP major node:



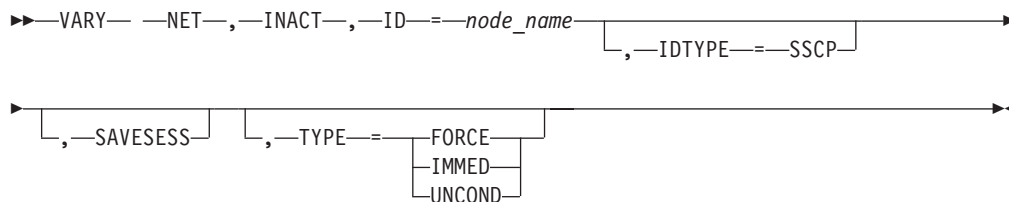
### Deactivate an NCP line:



### Deactivate a CDRM major node:

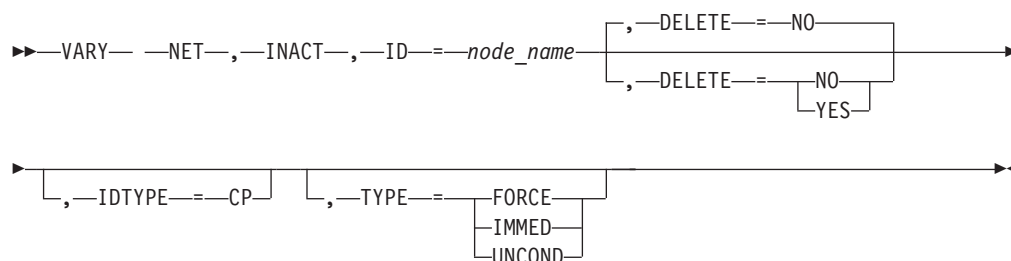


### Deactivate a CDRM minor node:

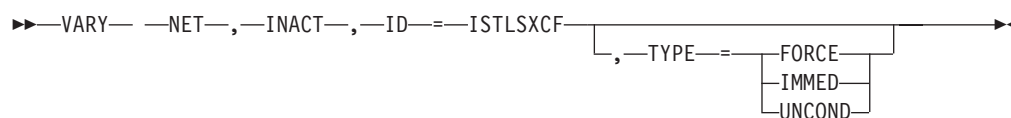




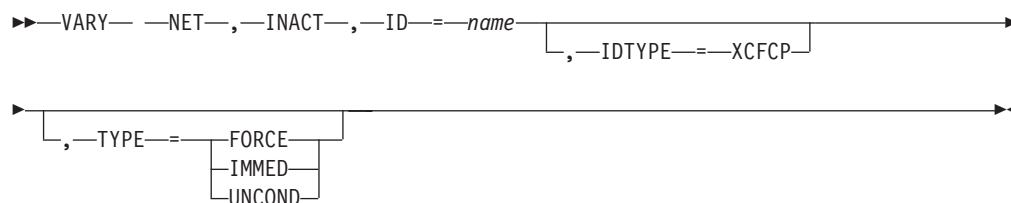
**Deactivate a CDRSC minor node:**



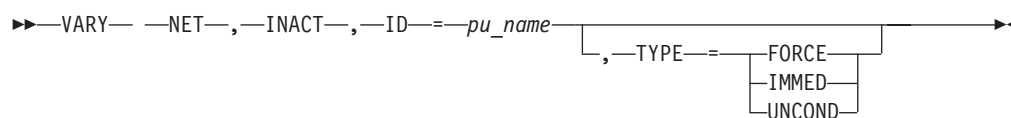
**Deactivate the dynamic XCF local SNA major node:**



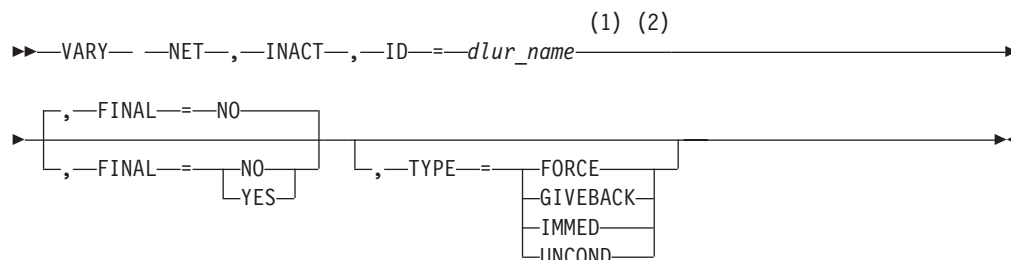
**Deactivate a dynamic XCF local SNA PU:**



**Deactivate a dynamic switched PU:**



**Deactivate a dependent LU requester (DLUR):**



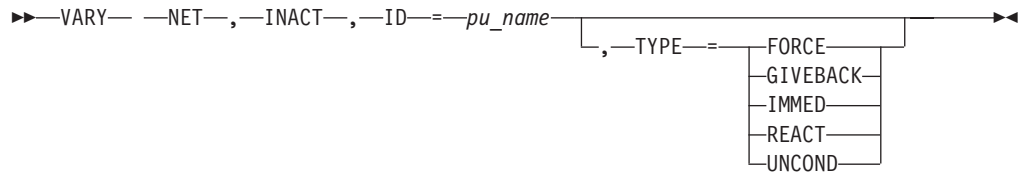
**Notes:**

- 1 Depending on the value of the VARYWLD start option, wildcard values can be used for this operand.

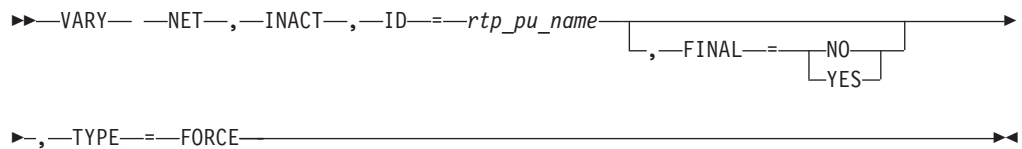
## VARY INACT

- |  
| 2 Depending on the value of the GVBKDLY start option, GIVEBACK  
| commands generated for DLURs using wildcard values might be paced by  
| VTAM.

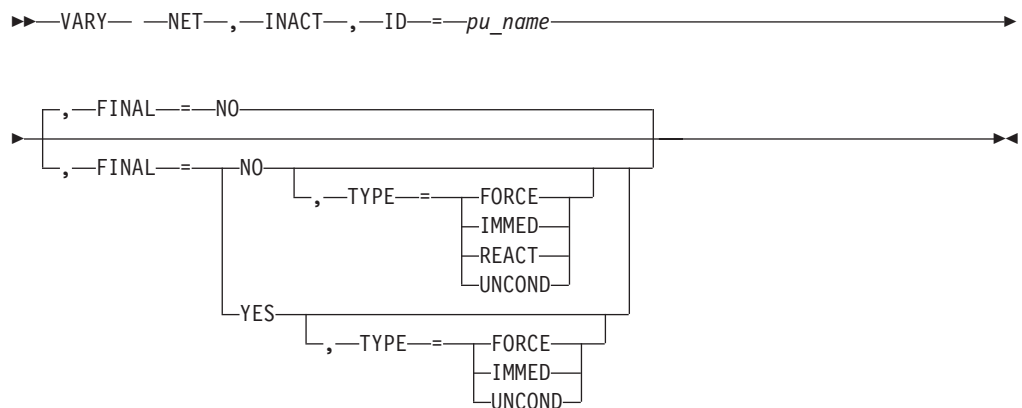
### Deactivate a PU supported by a DLUR:



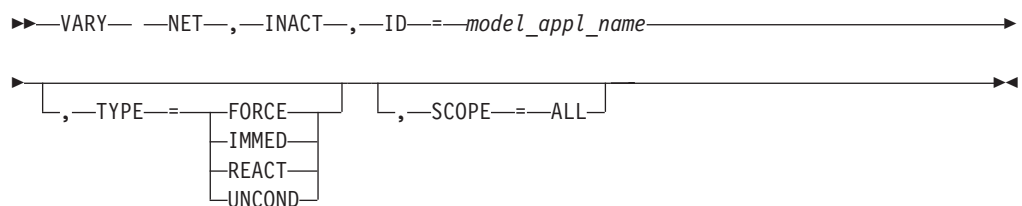
### Deactivate RTP PUs:



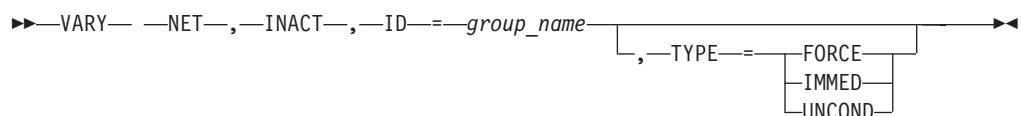
### Deactivate other PUs:



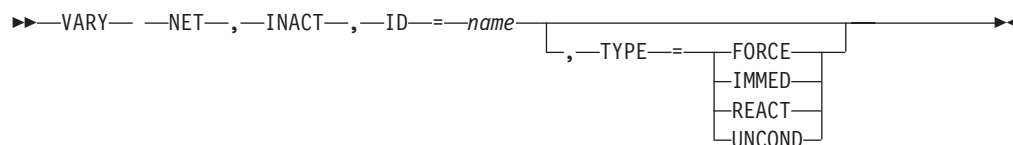
### Deactivate a model application and all the APPLs created from it:



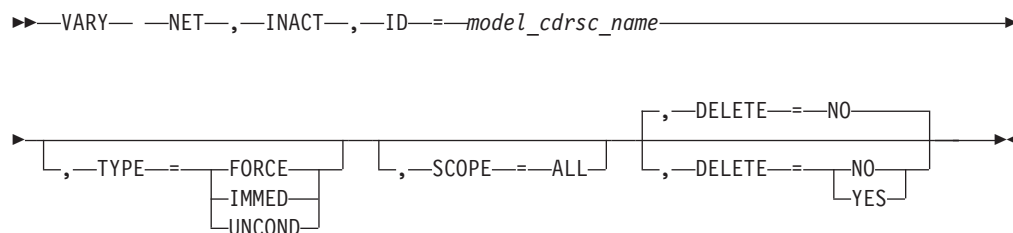
### Deactivate a group under an Enterprise Extender XCA major node:



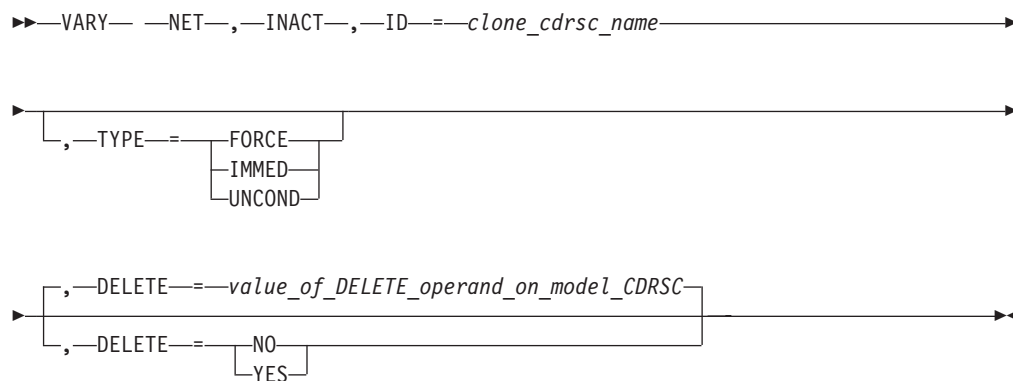
**Deactivate other resources:**



**Deactivate a model CDRSC and, optionally, all the clone CDRSCs created from it:**



**Deactivate a clone CDRSC:**



**Abbreviations**

Operand	Abbreviation
VARY	V
DELETE=YES	DELETE or DELETE=Y
FINAL=YES	FINAL or FINAL=Y
NO	N
RMPO=YES	RMPO or RMPO=Y
SAVESESS	S
TYPE=FORCE	F or FORCE
TYPE=GIVEBACK	G or GIVEBACK
TYPE=IMMED	I or IMMED
TYPE=REACT	R or REACT
TYPE=UNCOND	U or UNCOND
YES	Y

## VARY INACT

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for TYPE=IMMED, code only I or IMMED. Do not code TYPE=I.

### Purpose

The VARY INACT command deactivates VTAM resources. For SDLC switched and nonswitched links in a multiple-domain network, it can also return ownership of the line and its associated resources to the original SSCP without disrupting LU-LU sessions. This is done as part of error recovery procedures after one SSCP has taken over a failed SSCP's resources. For information about the deactivation of links and link stations, see the z/OS Communications Server: SNA Network Implementation Guide.

Figure 8 on page 573 shows each resource type for which the command is valid and which operands can be used on the command. A large dot means that the operand applies to that resource. An I or F in the table shows what value is substituted if an IMMED, UNCOND, FORCE, or REACT operand is specified for a resource to which it does not apply.

VARY INACT											
CDLINK=ACT/INACT	DELETE=YES/NO	FINAL=YES/NO	IDTYPE = CP	IDTYPE = SSCP	RMPO=YES/NO	SAVESESS	TYPE=FORCE	TYPE=GIVEBACK	TYPE=IMMED/UNCOND	TYPE=REACT	ID=
											<b>Adjacent CP major node</b>
						●	●			F	<b>Application program major node</b>
						●	●			F	Application program minor node
						●	●			F	Model Application
						●	●			I	<b>Channel-attachment major node</b>
						●	●			F	Channel link
						●	●	●			Channel link station
						●	●			F	<b>CDRSC major node</b>
●		●				●	●			F	CDRSC minor node
		●				●				F	CDRSC minor node - adjacent CP
					●	●	●			F	<b>CDRM major node</b>
			●		●	●	●			F	CDRM minor node
						●	●			I	<b>XCA major node</b>
						●	●			F	Nonswitched line
						●	●			●	Link station
						●	●			F	Switched line
							I	●		I	<b>Local non-SNA major node</b>
						●	●			F	Local non-SNA logical unit
						●	●			I	<b>Local SNA major node</b>
	●					●	●	●		●	Local SNA physical unit
						●	●			F	Local SNA logical unit
						●	●			F	<b>LUGROUP major node</b>
						●	●			F	<b>Model major node</b>
●				●		●	●	●		●	<b>NCP major node</b>
						●	●	●		F	Nonswitched line
						●	●	●		F	Switched line
						●	●	●		●	Link station
	●					●	●	●		●	Physical unit
						●	●			F	Logical unit
											<b>RTP major node</b>
	●					●					RTP physical unit
						●	●			I	<b>Switched major node</b>
	●					●	●	●		●	Switched physical unit
						●	●	●		●	Switched link station
						●	●			F	Switched logical unit
						●	●			I	<b>Dynamic switched major node</b>
						●	●			I	Dynamic switched physical unit
						●	●			F	Dynamic switched logical unit
						●	●			F	XCA (EE) Group
											<b>XCF local SNA major node</b>
											XCF local SNA physical unit
			●								CP name of XCF local SNA physical unit

Figure 8. Valid resource types for VARY INACT

## Operands

### CDLINK

Applies only to the deactivation of an NCP. It specifies whether active, leased, cross-domain links and link stations are to remain active after the NCP major node is deactivated.

This option is effective only on the VARY INACT or VARY REL command that begins the deactivation of an NCP. For example, if a second VARY INACT (perhaps with the IMMED operand specified) is entered before the first VARY INACT command completes, CDLINK does not apply to the second command and is ignored if specified.

For information about the deactivation of links and link stations, see the z/OS Communications Server: SNA Network Implementation Guide.

### CDLINK=ACT

Specifies that active cross-domain links and link stations are to remain active after the NCP major node is deactivated, so that sessions routing information through the NCP over such links can continue without disruption.

### CDLINK=INACT

Specifies that cross-domain links and link stations are to be deactivated as part of the NCP deactivation. Any session traffic over such links might be disrupted, depending on whether such links and link stations are also owned by some other host. See the z/OS Communications Server: SNA Network Implementation Guide for information about how shared ownership affects the results of deactivating a link or link station.

### DELETE

Applies only to deactivation of cross-domain resources (CDRSCs). It specifies whether they can be deactivated and, at the same time, the RDTE storage associated with the resource released.

If you specify DELETE without including a qualifier (YES or NO), the RDTE storage associated with the resource is released when the CDRSC is deactivated. This is the same result as if you specified DELETE=YES.

### DELETE=YES

Specifies that the RDTE storage associated with the resource is released when the CDRSC is deactivated. If the CDRSC exists in ISTCDRDY, DELETE=YES is not necessary.

### DELETE=NO

Specifies that the RDTE storage associated with the resource is not released when the CDRSC is deactivated.

If the CDRSC exists in ISTCDRDY, DELETE=NO is not applicable. If DELETE=NO is specified, it is ignored.

### FINAL

Specifies whether the physical unit specified in the ID operand will be reactivated.

### FINAL=YES

Specifies that there are no immediate plans to reactivate the physical unit. The actual effects of this operand are device-dependent, and could include such functions as automatic power-off. See the appropriate component's document for the specific effects of a DACTPU type hex 01 command on a

particular device. For physical units in a local SNA or switched major node, FINAL is meaningful only if the physical unit is fully active before deactivation begins.

FINAL=YES is ignored for type 2.1 physical units if ACTPU is not sent.

If you enter FINAL=YES, you cannot enter TYPE=REACT.

The FINAL= YES operand can be issued for a DLUR CDRSC. See the description of TYPE=GIVEBACK for more information.

**Note:** VTAM will save an internal indicator that will prevent the DLUR from opening a CPSVMGR session with VTAM. Any attempt to establish a DLUS/DLUR CPSVRMGR session will be rejected with sense code 080A000D. The operator can enable the DLUR again by issuing a VARY ACT on the DLUR CDRSC.

#### FINAL=NO

Specifies that there are plans to reactivate the physical unit.

#### ID=name

Specifies the name of any active major or minor node that is to be deactivated. The name can be a network-qualified name. It cannot be a USERVAR or LUALIAS name. If the name specified on the ID operand is network-qualified, this name is considered to be the real name of the resource. The name can be an ACB name or an alias name, provided that it is not network-qualified. (See the description of the ID operand on the VARY ACT command for an example of how you can specify a network-qualified application name.)

To deactivate the dynamic local SNA major node for XCF connections, specify ID=ISTLSXCF.

**Attention:** Deactivating ISTLSXCF removes all dynamic PUs and TRLEs and causes VTAM to leave the XCF group. If TCP/IP is using XCF connections, those connections are also terminated.

To deactivate a dynamic XCF local SNA PU representing the connection to another VTAM, you can specify one of the following names:

- The name of the PU
- The CP name of the other VTAM with IDTYPE=XCFCP

#### Note:

1. For a gateway NCP, resources in the nonnative network are not affected by the VARY INACT command.
2. The PUs and LUs within a model major node cannot be individually deactivated with the VARY INACT command. After either a dynamic switched major node or a dynamic switched PU has been deactivated, it cannot be reactivated without being redefined to VTAM. The major difference between dynamically defined devices and statically defined devices is that after a dynamically defined PU is deactivated, its elements will be deleted from VTAM.
3. For ID=*pu\_name*, there is no relationship between the PU and the independent LU. Deactivation of the PU ends any LU-LU sessions that are using the connection. However, the actual independent LU resource remains active because it might be in session over another adjacent link station connection.

## VARY INACT

Network addresses for the boundary function CDRSC are reclaimed from the terminated sessions if appropriate (for example, if the cross-domain resource is a switched LU), but the RDTE remains intact.

4. For ID=*rtp\_pu\_name*, TYPE=FORCE is required. If you specify ID=*rtp\_pu\_name* and the RTP is a route setup RTP (the COS name is RSETUP in the DISPLAY RTPS display), VARY INACT fails as a result of an invalid node type. You cannot deactivate a route setup RTP PU using the VARY INACT command.
5. For ID=*appl\_name*, TYPE=FORCE is required to override persistence and terminate the application and sessions.
6. For a model application program, the state of the model is changed from connectable (CONCT) to inactive (INACT). This means that it can no longer be used to build dynamic application programs. Active dynamic application programs built from the model are not affected by the deactivation of the model.

For any dynamic application program built from the model, when CLOSE macro processing for the dynamic application program is complete, the definition of the dynamic application program is deleted. The dynamic application program will no longer be known to VTAM and will not appear in the output of any DISPLAY commands.

7. For ID=ISTCDRDY, VTAM deletes all **dynamically** created CDRSC RDTEs and terminates their associated sessions. CP-CP and CPSVRMGR sessions involving this host are terminated if the partner's CDRSC RDTE was dynamically defined. To avoid losing the CP-CP and CPSVRMGR sessions, you can predefine a CDRSC for the partner LU. The name on the CDRSC statement or the LU statement should be the CPNAME of the session partner. Predefining the CDRSC is suggested only if you expect to deactivate ISTCDRDY while CP-CP sessions are active. (This should be rare.) See the z/OS Communications Server: SNA Resource Definition Reference for more information about defining cross-domain resources and independent LUs.
8. For a CDRM, you can specify a network-qualified name, but this does not remove the restriction that the non-network-qualified CDRM name must be unique across networks.
9. Issuing a VARY INACT command to terminate the CP-CP session with an adjacent node might cause later session establishment requests to fail. To resolve the problem, reactivate the CP-CP session or else reactivate the link with CPCP=NO so that it will no longer be used in directed search routing.
10. For a dependent LU requester, VTAM deactivates the CDRSC node that represents the CPSVRMGR session between the DLUR and the DLUS. If a dependent LU requester is adjacent to a dependent LU server, the CDRSC also represents the CP-CP session. For a normal deactivation, all pending and queued sessions for supported PUs and LUs fail, but deactivation does not complete until all active LU-LU sessions are terminated. A forced deactivation ends all current sessions for LUs and PUs supported by this DLUR. For a TYPE=GIVEBACK deactivation, wildcard values can be used for *dlur\_name*. See the z/OS Communications Server: SNA Network Implementation Guide for further information about the CPSVRMGR session.
11. For a PU supported by a DLUR, VTAM deactivates the PU. If there are no active or pending SSCP-PU sessions using the CPSVRMGR session, the CPSVRMGR session is deactivated.



**IDTYPE**

Specifies the type of resource that the ID operand names. If several types of resources share the same name, IDTYPE identifies which resource the command should act on.

IDTYPE is required and has no default if the resource named on the ID operand is the host CDRM. IDTYPE is optional if the resource is an adjacent CP or an external CDRM; if both an adjacent CP and an external CDRM are found, the default is IDTYPE=SSCP. If you attempt to deactivate the host CP, the command will fail.

**IDTYPE=CP**

Deactivates the CP with the name specified on the ID operand.

**IDTYPE=SSCP**

Deactivates the SSCP with the name specified on the ID operand.

**IDTYPE=XCFCP**

Deactivates the dynamic XCF local SNA PU representing the connection to another VTAM, when the ID operand specifies the CP name of the other VTAM.

**RMPO**

Applies only to NCP major nodes. RMPO specifies whether the communication controller in which the NCP is running is to be powered off automatically at the completion of the deactivation.

RMPO can be done only by an implicitly activated link station.

**RMPO=YES**

Powers off the communication controller automatically. The communication controller must be link-attached, and must support the remote power-off facility for this operand to be effective. Use the same link for the RMPO operation as you used earlier to load and activate the remote NCP.

**RMPO=NO**

Does not power off the communication controller automatically.

**SAVESESS**

Applies to CDRM major and minor nodes. SAVESESS specifies that active LU-LU sessions set up using the SSCP-SSCP session, which is being terminated by the VARY INACT command, remain active. Queued or pending sessions using the specified CDRM are terminated.

After you deactivate a CDRM with SAVESESS, the active sessions that remain are no longer associated with the CDRM. Therefore, subsequent activations and deactivations of the CDRM have no effect on these sessions.

The SAVESESS operand is not required during normal deactivation, and if specified, does not change the normal deactivation.

**SCOPE**

Specifies the scope of the deactivation.

SCOPE applies only to model applications and model CDRSCs. For other resources, this operand is ignored.

**SCOPE=ALL**

Specifies that all of the clone applications or clone CDRSCs created using the specified model are deactivated.

**Rule:** This is not a wildcard command and is not governed by the VARYWLD start option.

## VARY INACT

### TYPE

Specifies the type of deactivation (other than normal deactivation). Unless IMMED, UNCOND, FORCE, REACT, or GIVEBACK is specified, normal deactivation occurs. The TYPE operand is not valid for an ADJCP major node.

During normal deactivation, queued and pending sessions fail; the VARY INACT command is queued until all active sessions are terminated.

**Note:** During normal deactivation of an NCP, some active sessions might be disrupted. For more information about the effects of deactivating an NCP, see the z/OS Communications Server: SNA Network Implementation Guide.

### TYPE=FORCE

Means that the specified resource and applicable subordinate resources are to undergo forced deactivation. This type of deactivation might be advisable for resources that do not respond to normal or immediate (I) deactivation requests, or that are preventing completion of a VTAM HALT command. A forced deactivation instructs VTAM to deactivate its internal representations of the applicable resources and to send appropriate deactivation requests to the resources or their superior nodes, without waiting for responses to these requests. Therefore, a forced deactivation of a resource could result in a mismatch between VTAM's record of the status of a resource and the actual status of the resource in the network.

If TYPE=FORCE, sessions involving the resources are disrupted, and VTAM might have to wait (depending on how a given application program is coded) for application programs being deactivated, or for application programs in session with resources being deactivated, to formally end their sessions (that is, issue CLSDST) before completing the deactivation. A forced deactivation might cause VTAM to enter the wait state. It could then be necessary to deactivate an associated resource in order to free the system.

Forced deactivation of a local device might result in a slight wait because VTAM might have I/O outstanding for the device. VTAM cannot complete deactivation until the outstanding I/O is completed.

### Note:

1. Normally, all sessions involving a resource that undergoes forced deactivation terminate as a result of this command, but there are exceptions. For example, if there is no CDRM-CDRM session with the owning SSCP of the session partner, or if the CDRM of a session partner is unknown because of takeover, those sessions are not terminated.
2. Forced deactivation of an NCP link unconditionally takes down the link, regardless of the shared ownership of the link. However, any lines under the NCP that would remain active during an automatic network shutdown (ANS) remain active after a forced deactivation of an NCP link or link station.
3. V INACT FORCE deletes a dynamic CDRSC independent of the CDRSCTI start option. This will cause a buffer trace to be turned off.
4. For ID=*rtp\_pu\_name*, TYPE=FORCE is required. If ID=*rtp\_pu\_name* and the RTP is a route setup RTP (the COS name is RSETUP in the DISPLAY RTPS display), VARY INACT will fail because of invalid node type. A route setup RTP PU cannot be deactivated using VARY INACT.
5. For ID=*appl\_name*, TYPE=FORCE is required to override persistence and terminate the application and sessions.

The TYPE=FORCE operand can be specified on a VARY INACT command entered while a normal or immediate deactivation or a VTAM HALT is in progress.

#### TYPE=GIVEBACK

Applies to SDLC switched and nonswitched links, leased lines, switched PUs that are supported by dependent LU requesters (DLURs) that allow ANS=CONTINUE, and CDRSCs that represent DLURs. (Token ring is considered to be a switched connection.) The specified resource and applicable subordinate resources are released from this SSCP. VTAM terminates queued and pending sessions before deactivating the resource. If the specified resource was defined with ANS=CONTINUE, active LU-LU sessions remain active.

If the link does not support giveback, VTAM waits for the session to terminate before giveback is completed.

Under certain conditions, sessions returned with giveback remain displayable in the SSCP that issued the giveback. Either of the following conditions produces such results:

- If the session partner is in the domain of the SSCP owning the resource before giveback
- If the session is cross-network and the old owner of the resource was a gateway SSCP and was in session with the gateway NCP

#### Note:

1. Issuing this command overrides any outstanding command for the node.
2. If you specify GIVEBACK on this command for a switched PU that is supported by a dependent LU requester that does not support ANS=CONTINUE, the value is automatically promoted to FORCE.
3. VARY INACT, TYPE=GIVEBACK will be allowed when issued against a CDRSC representing a DLUR. GIVEBACK on a CDRSC will be treated similar to a REACT on other node types. You will get the following results if you issue GIVEBACK on a CDRSC:
  - If the CDRSC is not a DLUR, the command will be rejected.
  - If the PU supports ANS=CONTINUE, subordinate PUs and LUs will be deactivated with the GIVEBACK variation. Existing LU-LU sessions will remain active.
  - When the subordinate PUs have been deactivated the sessions supporting the DLUS-DLUR pipe will be broken.
  - Sessions with the DLUR which are not CPSVRMGR sessions will be left active. Examples include CP-CP, SNASVCMG, or user sessions.
  - When the command completes, the DLUR CDRSC will be in an ACTIVE state.

Preventing the DLUR from coming back to this DLUS:

In some cases, the DLUR may immediately try to reconnect to the DLUS which just performed the GIVEBACK. If this is not the required result the DLUS can prevent the DLUR from opening the pipe again. This is handled by way of an additional switch on the VARY INACT. If FINAL=YES is added to the command VTAM will save an internal indicator that will prevent the DLUR from opening a CPSVMGR session with VTAM. Any attempt to establish a DLUS/DLUR

## VARY INACT

CPSVRMGR session will be rejected with sense code 080A000D. The operator can enable the DLUR again by issuing a VARY ACT for the DLUR CDRSC.

### TYPE=IMMED or TYPE=UNCOND

Means that the specified resource and applicable subordinate resources are to be deactivated **immediately**.

If TYPE=IMMED or TYPE=UNCOND, sessions involving the affected resources are disrupted. However, before completing the deactivation, VTAM waits for application programs being deactivated, or for application programs in session with resources being deactivated, to formally end their sessions (that is, issue CLSDST).

A TYPE=IMMED or TYPE=UNCOND operand can be specified on a VARY INACT command entered while a normal deactivation is in progress.

#### Note:

1. TYPE=IMMED and TYPE=UNCOND have the same function. TYPE=UNCOND is consistent with the "VARY TERM command" on page 591.

### TYPE=REACT

Means that the specified resource and applicable subordinate resources are to undergo deactivation and subsequent reactivation. This type of deactivation and reactivation might be advisable for resources that are not responding to VTAM commands, but that the operator wants to remain active. A forced reactivation instructs VTAM to deactivate its internal representations of the applicable resources and to send appropriate deactivation requests to the resources or their superior nodes, waiting for responses before beginning reactivation. If any of the resources still do not respond, a VARY INACT command with the TYPE=FORCE operand should be entered to force deactivation of those resources.

A device contained in a dynamic switched major node cannot be deactivated with TYPE=REACT. After such a PU is deactivated, it is no longer known to VTAM and cannot be reactivated with an operator command. Dynamic LUs under a dynamic PU can be deactivated and subsequently reactivated provided that their PU is not deactivated.

#### Note:

1. Normally, sessions involving a REACT deactivated resource terminate as a result of this command, but there are exceptions. For example, if there is no CDRM-CDRM session with the owning SSCP of the session partner, or if the CDRM of a session partner is unknown because of takeover, those sessions are not terminated. These sessions also do not respond to reactivation, and are not displayed as activated in response to this command.

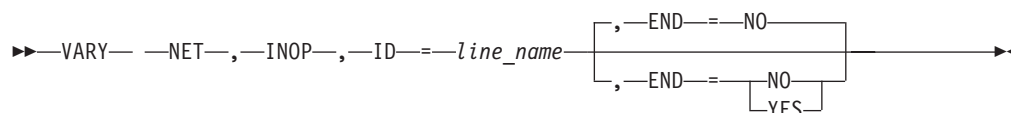
If this command is issued for an NCP, the SSCP-PU session between VTAM and the NCP is disrupted. VTAM does not terminate any LU-LU sessions; they might or might not be disrupted, depending on what the NCP does for automatic network shutdown (ANS). LU-LU sessions involving type 2.1 PUs generally stay up.

A second VARY INACT command with TYPE=REACT issued before the first one has time to complete has the same effect as specifying the TYPE=FORCE option.

Any type of deactivation request (normal, immediate, or forced) can be entered while a forced reactivation is in progress if you want termination of the reactivation. As previously stated, forced deactivation might be the only effective deactivation method if a resource fails to respond to the forced reactivation.

2. If you specify REACT on this command for a dependent LU requester, the value is automatically promoted to FORCE.

## VARY INOP command



### Abbreviations

Operand	Abbreviation
VARY	V
END=YES	END

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for END=YES, code only END.

### Purpose

You can use the VARY INOP command to terminate a manual dial operation if the VTAM operator is unable to complete the call.

A physical unit in a switched major node can be dialed either automatically or manually to establish a session with a logical unit. For manual dialing, VTAM issues a message containing the following information:

- The name of the line that VTAM will try to use to make the connection. The line must be a switched line with dial-out capability.
- The telephone number that the VTAM operator is to dial. This number is the number specified in the DIALNO operand of the appropriate PATH statement associated with the physical unit that the operator is dialing.

After receiving this information, the VTAM operator must try to make the connection by dialing the specified telephone number. If the operator is unable to complete the connection, the operator should enter the VARY INOP command either to ask VTAM to search for an alternate path or to ask VTAM to terminate the session request without a search for an alternate path.

### Operands

#### END

Specifies whether VTAM is to search for an alternate line on which to send the session request.

#### END=NO

Searches for another appropriate line to the physical unit.

## VARY INOP

### END=YES

Does not search for another appropriate line to the physical unit.

### ID=line\_name

Specifies the name of the line used to attempt the manual dial connection. This name is included in the VTAM message requesting manual dialing.

---

## VARY LOGON command

```
▶▶ VARY — NET —, LOGON —= appl_name —, ID —= sl_u_name —▶▶
  [ , LOGMODE —= logon_mode_name ] [ , ACT ]
```

### Abbreviations

Operand	Abbreviation
VARY	V

### Purpose

You can use the VARY LOGON command to change an existing automatic logon specification or to create an automatic logon specification. This command applies to any device-type logical unit, whether channel-attached or link-attached. Neither the device-type logical unit, which is the secondary LU, nor the primary LU receiving the automatic logon has to be active when the VARY LOGON command is issued.

**Note:** This command is restricted to the VTAM owning the SLU specified in the ID operand.

An automatic logon specification remains in effect until one of the following situations occurs:

- The primary logical unit controlling the secondary logical unit is changed with VARY LOGON or VARY ACT,LOGON command.
- A VARY NOLOGON command is entered for the secondary logical unit.

**Note:** If you use the VARY LOGON command to create or change an automatic logon specification, be aware that later use of a VARY ACT,UPDATE=ALL command for dynamic reconfiguration can undo the effects of the VARY LOGON command. This is because the LOGAPPL value in the definition file overrides the value that was established with the VARY LOGON command. Even if no LOGAPPL is coded in the definition file, VTAM assumes a null value for LOGAPPL and the null value overrides the VARY LOGON value. To prevent the automatic logon specification from being deleted unintentionally, code the LOGAPPL definition statement with the required value.

Any automatic logon request made as a result of this specification might be accepted or rejected by the primary LU.

The VARY LOGON command specifies only a primary LU session partner for automatic logon (when the specified secondary LU becomes available for a session); it does not activate the secondary LU. To activate the secondary LU (or a

resource to which the secondary LU is subordinate) and change the automatic logon specification at the same time, use the VARY ACT command with the LOGON operand (see the LOGON operand on the “VARY ACT command” on page 531 for more information).

For independent SLUs, the VARY LOGON command initiates a session with the controlling PLU only if there are no sessions already established with the specified PLU. Repeated use of the VARY LOGON command for the same LU and controlling PLU establishes only a single session. A series of VARY LOGON commands for the same LU specifying different controlling PLUs establishes sessions between the LU and each of the controlling PLUs specified. The controlling PLU is the one specified in the last command. The other sessions are not automatically re-established after they terminate.

**Note:** When you enable automatic logons to TSO (either by using the VARY LOGON command or by specifying LOGAPPL=TSO in a definition statement), a new logon attempt is made when the user session ends, even if it ends in error. This is because it is not the session with TSO that is failing. If a loop occurs, for example message IKT029I being issued repeatedly, you can break the automatic logon relationship by issuing a VARY NOLOGON command. If you have a user-written application in your network called TSO, then enabling automatic logons to TSO could have unpredictable results.

## Operands

### ACT

Activates any subordinate resources within the scope of this command. If ACT is specified on the VARY LOGON command, other operands of the VARY ACT command are available. See Figure 6 on page 539 for the operands you can use. Use the LOGON column of that table to identify which resources are applicable.

### ID=slu\_name

Specifies the name of the secondary LU. This name can be one of the following values:

- A device-type logical unit
- A resource with subordinate device-type logical units
- A boundary function CDRSC

If the value is a boundary function CDRSC, the boundary function CDRSC named must be known to VTAM at the time the command is issued. That is, it must have been predefined, cloned from a model CDRSC, or dynamically defined because of another session. In addition, it must have a default ALS list.

Boundary function CDRSCs are subordinate only to the CDRSC major node where they were defined (ISTPDILU or ISTCDRDY). Boundary function CDRSCS are not subordinate to any device type major node (NCP, local SNA, and so), nor to a line or PU, even if the independent LU was defined within or under these resources.

Because of this, independent LUs are not subordinate to any PU. Therefore, the sift-down to subordinate LUs does not affect independent LUs unless the ID value is a CDRSC major node.

The VARY LOGON command affects only LUs. If another resource type is specified, the logical units affected are those subordinate to the resource that is specified on this command.



## VARY LOGON

The name can be a network-qualified name. If the name specified on the ID operand is network-qualified, this name is considered to be the real name of the resource.

If the ID operand specifies a model CDRSC, then future clone CDRSCs built using the model are affected by this operation. To affect an existing clone CDRSC, issue the VARY LOGON command against that clone CDRSC.

If the ID operand specifies a CDRSC major node, then all the CDRSCs in that major node are affected. That includes conventionally defined CDRSCs, model CDRSCs, and clone CDRSCs.

### LOGMODE=logon\_mode\_name

Specifies the name of the logon mode entry to be used for any logon initiated for a logical unit as a result of this command. This logon mode name also becomes the logon mode name for all future automatic logons performed by VTAM for logical units within the scope of this command, and for their controlling primary LUs (if any).

LOGON can be specified without LOGMODE, but LOGMODE cannot be specified without LOGON. If LOGMODE is specified without the LOGON operand, LOGMODE is ignored and no error message is sent.

If LOGMODE is not specified, the LOGMODE value specified in any previous command applicable to a logical unit within the scope of this current VARY LOGON command is used. If no LOGMODE value was ever specified for a given logical unit within the scope of this command, the logical unit's default value is used.

### LOGON=app1\_name

Specifies the name of an application program (primary LU) to which any secondary LUs within the scope of this command are to be logged on. The application name can be network-qualified. If it is, the network identifier is considered to be real, but the resource name is considered to be generic (that is, the resource name can be either the real application name or a USERVAR name).

If the application name is an ACB name, and the ACB name matches the name on the APPL definition statement, then you can use a network-qualified ACB name.

If a USERVAR is found, VTAM resolves its name to the name of the VTAM application with which it is currently associated. If a USERVAR with this name is not found, VTAM searches for an application program with this name.

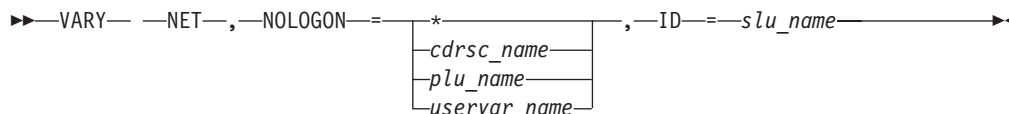
If the primary LU is an application program in this domain, the name must be that of an application program minor node within an active application program major node.

If the primary LU is a predefined CDRSC, the CDRSC must be active.

If the primary LU is a device-type LU, it must be attached to the same NCP as the secondary LU.

---

## VARY NOLOGON command





## Abbreviations

Operand	Abbreviation
VARY	V

## Purpose

Use the VARY NOLOGON command to delete an existing automatic logon specification that was established by the VARY LOGON command or the LOGAPPL operand on a definition statement. This command applies to any device-type logical unit, whether channel-attached or link-attached. The device-type logical unit does not have to be active when the VARY NOLOGON command is issued; however, the major node must be active.

The VARY NOLOGON command deletes any existing automatic logon specification for the named logical unit. When the command is issued, any active or pending sessions that resulted from an automatic logon specification will continue. When these sessions end, however, the logical unit will no longer have an automatic logon specification until a VARY LOGON is entered for it.

**Note:** If you use the VARY NOLOGON command to delete an automatic logon specification that was coded on the LOGAPPL operand of a definition statement, be aware that later use of a VARY ACT,UPDATE=ALL command for dynamic reconfiguration can undo the effects of the VARY NOLOGON command. This is because the LOGAPPL value in the definition file overrides the operator command. To prevent the automatic logon specification from being added back unintentionally, delete the LOGAPPL operand from the definition statement.

## Operands

### ID=*s*lu\_name

Specifies the name of the secondary LU. This name can be one of the following values:

- A device-type logical unit
- A resource with subordinate device-type logical units
- A boundary function CDRSC

Boundary function CDRSCs are subordinate only to the CDRSC major node where they were defined (ISTPDILU or ISTDY). Boundary function CDRSCS are not subordinate to any device type major node (NCP, local SNA, etc.), nor to a line or PU, even if the independent LU was defined within or under these resources.

Because of this, independent LUs are not subordinate to any PU. Therefore, the sift-down to subordinate LUs does not affect independent LUs unless the ID value is a CDRSC major node.

The VARY NOLOGON command affects only LUs. If another resource type is specified, the logical units affected are those subordinate to the resource specified on the command.

The name can be a network-qualified name. If *name* is an ACB name, and the ACB name matches the name on the APPL definition statement, then you can use a network-qualified ACB name. (See the description of the ID operand on the VARY ACT command for an example of how you can specify a network-qualified application name.)

## VARY NOLOGON

If the ID operand specifies a model CDRSC, then future clone CDRSCs built using the model are affected by this operation. To affect an existing clone CDRSC, issue the VARY NOLOGON command against that clone CDRSC.

If the ID operand specifies a CDRSC major node, then all the CDRSCs in that major node are affected. That includes conventionally defined CDRSCs, model CDRSCs, and clone CDRSCs.

### NOLOGON

Specifies the scope of the VARY NOLOGON command. It can be a network-qualified name. The NOLOGON operand must specify the same name that was used on the LOGON operand or the LOGAPPL definition, with the following exception (because the host's network ID is assumed):

- In NETA, LOGON=NETA.CICS can be canceled by NOLOGON=NETA.CICS or NOLOGON=CICS
- In NETA, LOGON=CICS can be canceled by NOLOGON=NETA.CICS or NOLOGON=CICS

If the application name is an ACB name, and the ACB name matches the name on the APPL definition statement, then you can use a network-qualified ACB name. (See the description of the ID operand on the VARY ACT command for an example of how you can specify a network-qualified application name.)

### NOLOGON=plu\_name

Specifies that only logical units that are either:

- Identified by *slu\_name* or
- Subordinate to *slu\_name*

and have *plu\_name* as their controlling PLU are to have their automatic logon specification deleted.

### NOLOGON=cdrsc\_name

Specifies the name of a CDRSC minor node within an active CDRSC major node. NOLOGON=*cdrsc\_name* must be specified when the primary LU is an application program in another domain or another network.

### NOLOGON=uservar\_name

Specifies the name of a USERVAR that VTAM resolves to be the application with which it is currently associated. If a USERVAR with the specified name is not found, VTAM searches for an application program with that name.

### NOLOGON=\*

Specifies that all secondary logical units that are either:

- Identified by *slu\_name* or
- Subordinate to *slu\_name*

are to have their automatic logon specification deleted, regardless of which PLU is currently in control.

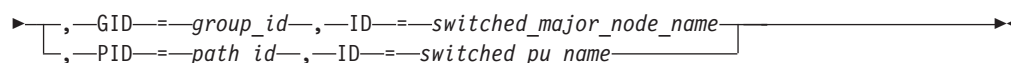
---

## VARY PATH command

►►—VARY— —NET—,—PATH—== 

NOUSE
USE

—————►



## Abbreviations

Operand	Abbreviation
VARY	V

## Purpose

Use this command to modify the availability of a dial-out path to a specific switched physical unit or a group of dial-out paths within a switched major node.

A physical unit in a switched major node can be dialed through one or more dial-out paths associated with the physical unit. Switched path control is initially established in a switched major node definition by the USE operand of the PATH statement associated with a physical unit. Unless USE=NO has been specified, the path is automatically enabled for use by VTAM when the physical unit is activated.

**Note:** The PATH statement referred to on this command description is in the switched major node definition; do not confuse it with the PATH statements used to define a path definition set.

Dial-out path usage can be altered by enabling or disabling:

- A single dial-out path to the physical unit (represented by a PID)
- A logical group of dial-out paths in the same switched major node (represented by a GID)

## Operands

### GID=group\_id

Specifies the group identifier of the dial-out paths to be made usable or unusable. The group identifier is defined by the GID operand of the PATH statements in a switched major node definition. This value must be a decimal integer 1–255.

### ID=name

Specifies the name of the switched major node (if the GID operand is specified) or the name of the physical unit in a switched major node (if the PID operand is specified) for which dial-out path status is to be changed.

### PATH

Specifies the paths identified by the PID or GID operand to enable or disable.

#### PATH=USE

Specifies that one or more paths identified by the PID or GID operand are to be enabled (changed from unusable to usable), if they are not already enabled.

#### PATH=NOUSE

Specifies that one or more paths identified by the PID or GID operand are to be disabled (changed from usable to unusable), if they are not already disabled. If the path is currently in use, PATH=NOUSE does not take effect until after the existing dial connection is broken.

## VARY PATH

### PID=path\_id

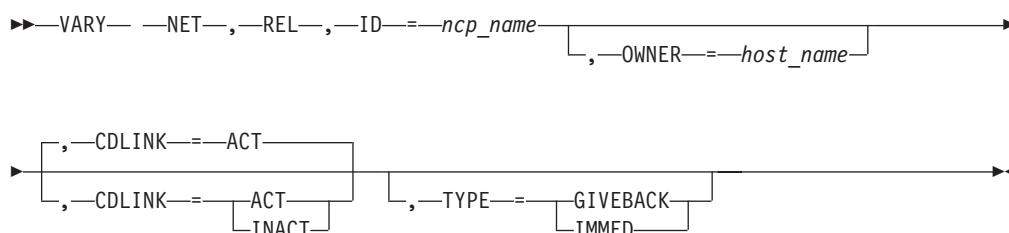
Specifies the path identifier of the dial-out path to be made usable or unusable. This value must be a decimal integer 1–255.

The path identifier is defined by the PID operand of a PATH statement. This PATH statement must be associated with the physical unit specified in the ID operand of this command. (This PATH statement is in the switched major node definition; do not confuse it with the PATH statements used to define a path definition set.)

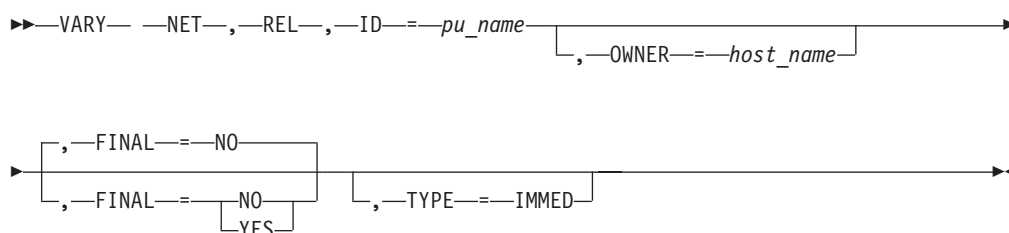
---

## VARY REL command

### Release a previously acquired NCP:



### Release a PU:



## Abbreviations

Operand	Abbreviation
VARY	V
FINAL=YES	FINAL
TYPE=GIVEBACK	G or GIVEBACK
TYPE=IMMED	I or IMMED

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for `TYPE=IMMED`, code only I or IMMED. Do not code `TYPE=I`.

## Purpose

Use the VARY REL (release) command to release a previously acquired NCP or to release a physical unit attached by a nonswitched line to an NCP (regardless of whether the physical unit was previously acquired).

The VARY REL command is applied to a previously acquired NCP or physical unit attached to an NCP as part of a backup and recovery procedure in a multiple-domain network. A physical unit attached to an NCP can also be released as part of a switched network backup procedure in either a single- or multiple-domain network. The purpose of the VARY REL command is to relinquish ownership of the following resources:

- NCP resources that are normally owned by another host (if the NCP was activated before being acquired)
- All resources within an NCP, including the NCP itself (if the NCP was acquired without having been previously activated)
- An individual physical unit and its logical units

Releasing resources within an NCP makes them unknown to VTAM until the NCP is reacquired, and any active traces for subordinate lines are deactivated; releasing a physical unit makes it unusable by the releasing host and makes its logical units unknown until the physical unit is reacquired. Releasing an NCP that had not been previously active also results in deactivation of the NCP. (Here there is no functional difference between the VARY REL and VARY INACT commands.)

As part of a switched network backup procedure for NCP resources, the VARY REL command can be entered for a physical unit that was not previously acquired. The purpose of the VARY REL command is to make the physical unit's logical units unknown to VTAM so that a corresponding switched physical unit definition (representing the same physical device with a different physical unit name but with the same logical unit names) can be activated.

## Operands

### CDLINK

Applies only to an NCP being released. It specifies whether any active cross-domain links and link stations are to remain active (in the NCP, not with respect to VTAM) after they are released. That is, the CDLINK operand specifies whether VTAM is to send deactivation requests to cross-domain links and link stations when the internal representations of these resources are deactivated as part of the VARY REL command processing.

For an NCP that was activated before being acquired, the CDLINK operand is ignored. The NCP remains active after the VARY REL command completes. Even though VTAM considers such links and link stations to be inactive, the NCP still considers them to be owned by VTAM. Therefore, specifying CDLINK=ACT in an environment of shared link and link station ownership might provide no benefits (because the shared ownership prevents traffic disruption on the link), but could cost the ability of another host to become a shared owner (because the share count is one closer to its limit than it needs to be). It could also prevent the original host from acquiring and activating the link. See the *z/OS Communications Server: SNA Network Implementation Guide* for details of special considerations and cautions that might be applicable to deactivation of cross-domain links and link stations.

For an NCP acquired without having been previously activated, this option is effective only on the first command (whether VARY INACT or VARY REL) applied to the NCP. Any subsequent CDLINK specifications are ignored.

### CDLINK=ACT

Specifies that active cross-domain links and link stations are to remain active after they are released, so that sessions routing information through the NCP over such links can continue without disruption.

**CDLINK=INACT**

Specifies that cross-domain links and link stations within the scope of the release are to be deactivated as part of the NCP release processing. Any session traffic over such links might be disrupted (depending on whether such links and link stations are also owned by some other host). See the *z/OS Communications Server: SNA Network Implementation Guide* for information about how shared ownership affects the results of deactivating a link or link station.

**FINAL**

Specifies whether the physical unit specified on the ID operand will be reactivated.

**FINAL=YES**

Specifies that there are no immediate plans to reactivate the physical unit. The actual effects of this operand are device-dependent, and could include such functions as automatic power-off. See the appropriate component's document for the specific effects of a DACTPU type hex 01 command on a particular device. For physical units in a local SNA or switched major node, FINAL is meaningful only if the physical unit is fully active before deactivation begins.

FINAL=YES is ignored for type 2.1 physical units if ACTPU is not sent.

**FINAL=NO**

Specifies that there are plans to reactivate the physical unit.

**ID=name**

Specifies the name of the NCP or physical unit to be released.

**OWNER=host\_name**

Specifies that the command is to apply only to resources defined with the OWNER operand, and whose owning SSCP matches the *host\_name* specified in the command. *host\_name* cannot be the name of the VTAM host from which you are issuing this command.

**TYPE**

Specifies the type of release. If neither GIVEBACK nor IMMED is specified, normal release occurs. Normal release does not break existing sessions, but does prevent the establishment of new sessions with nodes within the scope of this command.

**TYPE=GIVEBACK**

Applies only to an NCP and specifies that all subordinate resources that are capable of nondisruptive deactivation are to be released without disruption to existing LU-LU sessions.

**Note:** Because GIVEBACK is supported only at the line level, a normal release is performed for the following resources:

- Lines attached to this NCP that are not capable of nondisruptive deactivation
- PUs that are attached to a line that is not being released

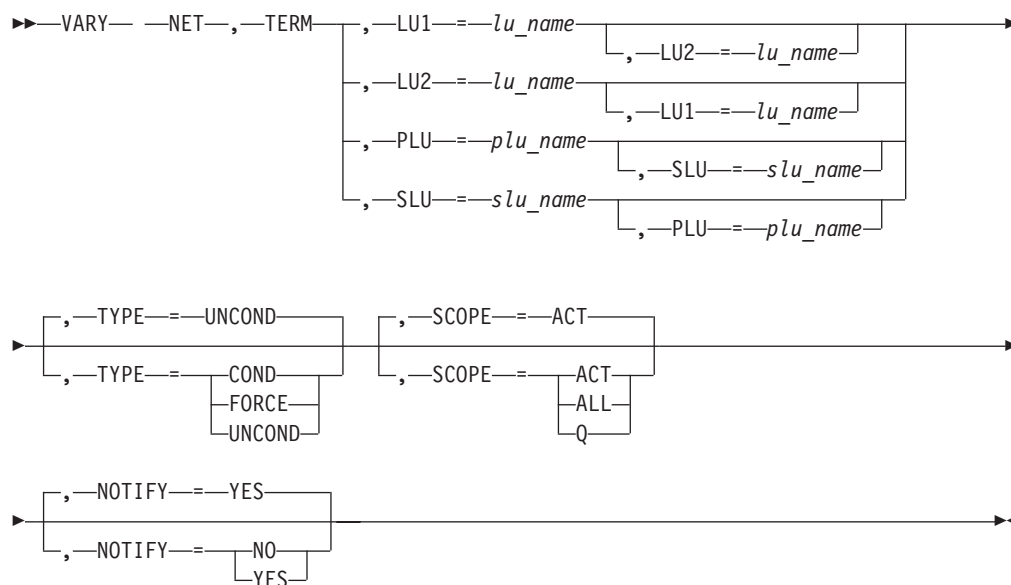
**TYPE=IMMED**

Specifies immediate release. If you specify TYPE=IMMED, sessions involving the resources being released are disrupted.

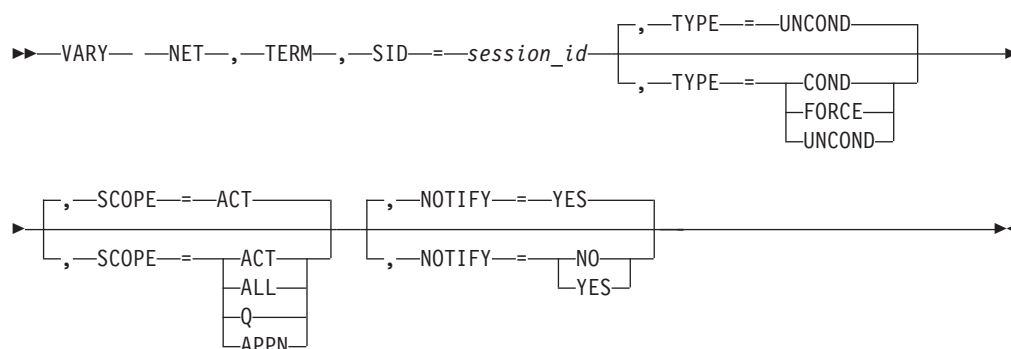
You can specify TYPE=IMMED on a VARY REL command entered while a normal or giveback release is in progress.

## VARY TERM command

### VARY TERM command using name or name pair:



### VARY TERM command using session ID:



### Abbreviations

Operand	Abbreviation
VARY	V

### Purpose

The VARY TERM command may be used to terminate a session or group of sessions. The command can identify one or several of the following sessions for termination:

- A single session by its session identifier (SID)
- All of the sessions for which a specified logical unit is the primary session partner (PLU)

## VARY TERM

- All of the sessions for which a specified logical unit is the secondary session partner (SLU)
- All of the sessions between a specified pair of logical units having a specified primary/secondary relationship as session partners (PLU and SLU)
- All of the sessions for which a specified logical unit is a session partner, without regard to its primary or secondary status (LU1)
- All of the sessions between a specified pair of logical units, without regard to their primary/secondary relationship as session partners (LU1 and LU2)

The VARY TERM command may be used to terminate an APPN search. The command can identify one search for termination:

- A single search by its session identifier (SID)

You can use the “DISPLAY SESSIONS command” on page 240 to display the sessions that are to be terminated with this command. If a session is displayed with an A- session state, you may be able to terminate the session at this host by issuing the VARY TERM command with the SCOPE=APPN operand coded. If this is unsuccessful, issue VARY TERM from one of the session endpoints.

VTAM overrides persistence and terminates the application and sessions normally.

Issuing a VARY TERM command to terminate the CP-CP session with an adjacent node might cause later session establishment requests to fail. To resolve the problem, reactivate the CP-CP session or else reactivate the link with CPCP=NO so that it will no longer be used in directed search routing.

### Operands

#### LU1=*lu\_name*

Identifies the logical unit whose sessions are to be terminated. If you also specify the LU2 operand, only sessions involving both specified logical units are terminated. LU1 can be either the primary LU or the secondary LU.

*lu\_name* can be a network-qualified name. If the name is network-qualified, it is considered to be the real name of the resource. If a non-network-qualified name is specified, the name can be an ACB name, an alias name, or the real name of a local resource.

If a cross-network CDRSC is to be specified on the LU1 operand and the CDRSC is defined using NQNMODE=NQNAME (either by definition or start option), it must be specified as a network-qualified name.

#### LU2=*lu\_name*

Identifies the logical unit whose sessions are to be terminated. If you also specify the LU1 operand, only sessions involving both specified logical units are terminated. LU2 can be either the primary LU or the secondary LU.

*lu\_name* can be a network-qualified name. If the name is network-qualified, it is considered to be the real name of the resource.

If a cross-network CDRSC is to be specified on the LU2 operand and the CDRSC is defined using NQNMODE=NQNAME (either by definition or start option), it must be specified as a network-qualified name.

#### NOTIFY

Specifies whether VTAM is to send a notification message to the operator when all affected sessions have ended.



**NOTIFY=YES**

Sends a notification message to the operator when all affected sessions have ended.

**NOTIFY=NO**

Does not send a message when all affected sessions have ended.

**Note:** For SCOPE=APPN search request termination, the NOTIFY operand is ignored.

**PLU=plu\_name**

Identifies a primary logical unit. All sessions in which this logical unit functions as the primary session partner are terminated. If you also specify the SLU operand, only sessions involving both specified logical units in the specified primary/secondary relationship are terminated.

The value for *plu\_name* can be a network-qualified name. If the name is network-qualified, it is considered to be the real name of the resource. If a network-qualified name is not specified, the default network identifier will be from the network where the command was issued.

If a cross-network CDRSC is to be specified on the PLU operand and the CDRSC is defined using NQNMODE=NQNAME (either by definition or start option), it must be specified as a network-qualified name.

**SCOPE**

Specifies the scope of the command.

**SCOPE=ACT**

Terminates only active sessions.

Note that the termination of an active session between a device-type logical unit and its controlling primary LU terminates the session (unless the session is terminated using TYPE=FORCE) but does not alter the basic controller relationship between them.

Deactivation and reactivation of the logical unit (including error recovery procedures), or use of the logical unit by another primary LU, results in the re-establishment of the logical unit's session with its controlling application program. If this is not the case, the controller session can be reestablished with a VARY LOGON command or by a specific session request from the primary LU.

**SCOPE=ALL**

Terminates all sessions, whether active or queued.

**SCOPE=APPN**

Terminates APPN searches. SCOPE=APPN can be used to terminate APPN search requests that otherwise could not be terminated using another variation of the VARY TERM command. The SID=operand is required when SCOPE=APPN is specified.

Use the DISPLAY SRCHINFO,LIST=ALL command to determine the session identifier of the search to be terminated.

**SCOPE=Q**

Terminates only queued sessions.

Note that the termination of a queued session between a device-type logical unit and its controlling primary LU does not alter the basic controller relationship between them.

## VARY TERM

### **SID=sessionid**

Identifies the VTAM session or search to terminate. You can display the session ID by issuing the DISPLAY ID=resource,SCOPE=ALL command. The application program can be in either this domain (application program minor node) or another domain (CDRSC minor node). For SCOPE=APPN search request termination, you can display the session ID by issuing the DISPLAY SRCHINFO,LIST=ALL command. The session ID must be a valid hex number.

### **SLU=slu\_name**

Identifies a secondary logical unit. All sessions in which this logical unit functions as the secondary session partner are terminated. If you specify the PLU operand, only sessions involving both specified logical units in the specified primary/secondary relationship are terminated.

*slu\_name* can be a network-qualified name. If the name is network-qualified, it is considered to be the real name of the resource.

If a cross-network CDRSC is to be specified on the SLU operand and the CDRSC is defined using NQNMODE=NQNAME (either by definition or start option), it must be specified as a network-qualified name.

### **TYPE**

Specifies the type of session termination to be performed. If this command applies to queued sessions, they are terminated. This command will terminate only the primary session between the PLU and SLU; the backup session will not terminate.

#### **Note:**

1. To avoid redriving the session for an automatic logon relationship, issue VARY TERM,TYPE=COND, or VARY TERM,TYPE=UNCOND.
2. For a phantom session (an active session for which no SIB exists in this host), issue V NET,TERM,TYPE=UNCOND or V NET,TERM,TYPE=FORCE to terminate the session.
3. If the VARY TERM command is issued in the SLU's host after takeover has occurred and the PLU for the session is in another host, the session might terminate properly. In that case, the VARY TERM command should be issued from the host where the PLU is.
4. For a CP-CP session, TYPE=COND or UNCOND is converted by VTAM to TYPE=FORCE. The session will **not** be automatically re-established even if other CP-CP session-capable connections are subsequently activated. If you want to reactivate the session, issue a VARY ACT,ID=*adjacent\_cp*,IDTYPE=CP command.
5. For a CPSVRMGR session between a DLUR and a DLUS, TYPE=COND or UNCOND is converted to FORCE. If the DLUR allows ANS=CONTINUE, VTAM performs GIVEBACK for PUs supported by the DLUR, and current LU-LU sessions are not disrupted because the LUs become shadow resources.
6. For SCOPE=APPN search request termination, the TYPE operand is ignored.

#### **TYPE=COND**

Specifies conditional termination.

**Note:** This command is rejected if the termination request is for a session with an unknown partner.

If this command applies to active sessions, they might be disrupted. PLUs involved in such sessions are notified of the operator's request for termination and can terminate the session.

If the PLU is an independent LU, the session remains active because independent LUs cannot perform orderly termination. If the session remains active, it is marked "session end pending" in each SSCP that knows of the termination request.

**TYPE=FORCE**

Specifies forced termination. If this command applies to active sessions, they are disrupted, and application programs involved in such sessions are notified of the disruption.

If a controlling relationship is set up for the logical unit, the session redrives because the termination was of an abnormal type.

**TYPE=UNCOND**

Specifies unconditional termination.

If this command applies to active sessions, they are disrupted. PLUs involved in such sessions are notified of the disruption.

**VARY TERM**

---

## Chapter 3. Logon manager operator commands

Using the logon manager, a terminal user can pass through VTAM and log on to an independent application running on a transaction processing facility (TPF). More specifically, it allows a dependent secondary logical unit (SLU) to initiate a session with an independent primary logical unit (PLU).

**Note:** The logon manager is a VTAM application. Any similarity between VTAM commands and logon manager commands is coincidental.

This topic is a reference to the logon manager operator commands. It includes a description of each command's format and applicable operands. The descriptions are arranged alphabetically by command name.

---

### Command fundamentals

A logon manager operator command consists of:

- The command name or its abbreviation
- A procedure name, referred to as a *procname* in the command syntax, that tells the operating system to send the command to the logon manager for processing. The *procname* must be the same as the *procname* specified in the logon manager START command.

**Note:** The logon manager procedure name is not VTAM.

- Operands that describe the operation to be performed.

### Syntax notation

See “How to read a syntax diagram” for details about the operator command syntax notation.

### Entering operator commands

Logon manager operator commands are entered and logon manager messages are received at the system console or remote network console. Logon manager commands cannot exceed 80 characters and must be entered on a single input line from whatever input device is being used.

### Using MVS system symbols

You can use the following MVS system symbols in the values you specify on TPF logon manager operator commands:

**&SYSCClone**

Represents a 1–2-character shorthand notation for the name of the system

**&SYSNAME**

Represents a 1–8-character system name

**&SYSPLEX**

Represents a 1–8-character sysplex name

**&SYSR1**

Represents a 1–6-character sysres volume

### *&installation-defined system symbol*

Represents a 1–8-character identifier. You can define this symbol to be any identifier you want.

The substitution text for these system symbols is defined in MVS and is substituted by MVS in place of the symbols when commands are processed. See *z/OS MVS Initialization and Tuning Reference* for information about how to define the symbols in MVS.

MVS system symbols can be used to eliminate the need to know the exact name of a resource on the system from which a command is issued.

## Correct and incorrect commands

The logon manager issues messages indicating whether commands are accepted or rejected.

When a command is entered with correct syntax and valid operands, the logon manager issues a message of acknowledgment. Note, however, that the acknowledgment of a command does not imply that the command will complete.

If the command contains a syntax error or incorrect operands, the logon manager issues one or more error messages and rejects the command.

---

## MODIFY HELP command

►►—MODIFY— —*procname*—, —HELP—◄◄

### Abbreviations

Operand	Abbreviation
MODIFY	F

### Purpose

The MODIFY HELP command displays the syntax and a brief description of each logon manager command.

### Operands

#### **procname**

Must be the same as the *procname* specified in the logon manager START command.

#### **HELP**

Displays logon manager help information.

### Examples

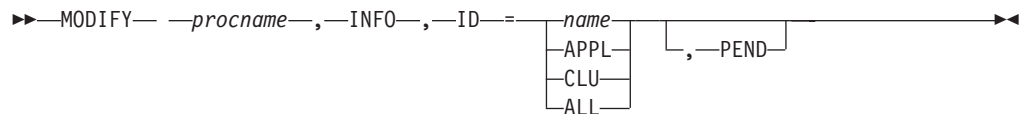
Displaying logon manager help:

```
modify elmngr,help
ELM022I HELP REQUEST ACCEPTED
ELM023I VALID COMMAND PARAMETERS ARE:
ELM024I HELP                ...GET VALID COMMAND FORMATS
ELM025I INFO,ID=NNNNNNNN    ...GET STATUS FOR RESOURCE NAMED NNNNNNNN
```

```

ELM026I INFO,ID=CLU      ...GET STATUS FOR EACH CONTROL LOGICAL UNIT
ELM027I INFO,ID=CLU,PEND ...GET STATUS FOR EACH PENDING CLU
ELM028I INFO,ID=APPL    ...GET STATUS FOR EACH SUPPORTED APPLICATION
ELM029I INFO,ID=APPL,PEND ...GET STATUS FOR EACH PENDING APPL
ELM030I INFO,ID=ALL     ...GET STATUS FOR EACH CLU AND APPL
ELM031I INFO,ID=ALL,PEND ...GET STATUS FOR EACH PENDING CLU AND APPL
ELM032I MEMBER=MMMMMM  ...PROCESS DEFINITION MEMBER MMMMMMMM
ELM033I MINLINK=VVV,ID=ALL...SET MINLINK VALUE TO VVV (1 - 255)
ELM034I                      FOR EACH SUPPORTED APPLICATION
ELM035I MINLINK=VVV,ID=NNNNNNN... SET MINLINK VALUE FOR APPL NNNNNNNN
ELM036I STOP            ...REQUESTS CLOSEDOWN
    
```

## MODIFY INFO command



### Abbreviations

Operand	Abbreviation
MODIFY	F

### Purpose

The MODIFY INFO command displays information about logon manager resources.

### Operands

#### procname

Must be the same as the *procname* specified in the logon manager START command.

**ID** Identifies the resource or resources to include in the display.

#### ID=name

Displays only the named resource.

#### ID=APPL

Displays only logon manager TPF applications.

#### ID=CLU

Displays only channel-attached control point LUs.

#### ID=ALL

Displays both logon manager TPF applications and channel-attached control point LUs.

#### PENDING

Displays only resources with a status of pending (that is, resources in the process of being activated or deactivated).

If ID=*name*, displays the named resource only if the resource is in a pending state.

If ID=APPL, displays each logon manager application in a pending state.

If ID=CLU, displays each channel-attached control point LU in a pending state.

## MODIFY INFO

If ID=ALL, displays each logon manager application and each channel-attached control point LU in a pending state.

### Resulting display

The resulting display shows:

- The resource name
- The resource session status (active, inactive, or pending)
- The reason code for the resource, if appropriate
- The number of session initiation requests sent to the resource

### Examples

Displaying a specific logon manager resource:

```
modify elmngr,info,id=trapl
ELM014I NAME: TYP: STATUS: CURRENT: CONTROL: REASON: INITS:
ELM040I TRAPL CLU ACTIVE SESCNT=19 SESLMT=32 0
```

Displaying pending logon manager TPF applications:

```
modify elmngr,info,id=appl,pend
ELM014I NAME: TYP: STATUS: CURRENT: CONTROL: REASON: INITS:
ELM040I RES APPL PENDACTV LNKCNT=5 MINLINK=1 OPNOST 0
ELM040I FIN APPL PENDINAC LNKCNT=4 MINLINK=2 LOSTERM 22
```

Displaying logon manager channel-attached control point LUs:

```
modify elmngr,info,id=clu
ELM014I NAME: TYP: STATUS: CURRENT: CONTROL: REASON: INITS:
ELM040I TRAPL CLU ACTIVE SESCNT=0 SESLMT=0 0
```

Displaying all logon manager resources:

```
modify elmngr,info,id=all
ELM014I NAME: TYP: STATUS: CURRENT: CONTROL: REASON: INITS:
ELM040I RES APPL INACTIVE LNKCNT=0 MINLINK=1 0
ELM040I FIN APPL INACTIVE LNKCNT=0 MINLINK=2 0
ELM040I TEST1 APPL INACTIVE LNKCNT=0 MINLINK=1 0
ELM040I TEST2 APPL INACTIVE LNKCNT=0 MINLINK=1 0
```

---

## MODIFY MEMBER command

►►—MODIFY— —*procname*—,—MEMBER—=*member\_name*—►►

### Abbreviations

Operand	Abbreviation
MODIFY	F

### Purpose

The MODIFY MEMBER command redefines the network configuration known to the logon manager. If the system programmer has modified the specified member, this command implements the changes by rebuilding the logon manager control blocks using the new definitions.



### Operands

**procname**

Must be the same as the *procname* specified in the logon manager START command.

**MEMBER=member\_name**

Identifies the member of the ELMDEFDS file to read.

## MODIFY MINLINK command

►►—MODIFY— —*procname*—,—MINLINK—=—*number\_of\_lus*—,—ID—=—appl\_name—►◄  
ALL

### Abbreviations

Operand	Abbreviation
MODIFY	F

### Purpose

The MODIFY MINLINK command changes the minimum number of supporting channel-attached, control logical units that the logon manager requires before allowing the TPF application to enter into a session.

### Operands

**procname**

Must be the same as the *procname* specified in the logon manager START command.

**ID** Specifies whether to change the number of required links for one TPF application or for all applications.

**ID=appl\_name**

Identifies the application for which the number of required links is to change.

**ID=ALL**

Specifies that the minimum number of required links should change for all applications.

**MINLINK=number\_of\_lus**

Specifies the minimum number of supporting channel-attached, control logical units that the logon manager requires before allowing the TPF application to enter into a session. Specify a decimal integer 1–255.

## MODIFY STOP command

►►—MODIFY— —*procname*—,—STOP—►◄

### Abbreviations

Operand	Abbreviation
MODIFY	F

## MODIFY STOP

### Purpose

The MODIFY STOP command terminates a logon manager session. When this command is issued, the logon manager shuts down its ACBs, and returns control to MVS.

### Operands

#### **procname**

Must be the same as the *procname* specified in the logon manager START command.

#### **STOP**

Terminates the logon manager. Although all active sessions continue until completion, the logon manager denies any requests to initiate new sessions. When all active sessions end, the logon manager terminates.

The VTAM operator commands HALT, HALT QUICK, and HALT CANCEL also can be used to terminate a logon manager session. The effect of these commands on the logon manager is the same as their effect on any VTAM application.

---

## START command

▶▶—START— —*procname*—————▶▶

### Abbreviations

Operand	Abbreviation
START	S

### Purpose

The START command starts the logon manager. Enter this command from either the master console or a secondary system console.

The system programmer supplies logon manager start options in the JCL used to start the logon manager. If the options are not supplied, VTAM prompts the operator for the required options.

### Operands

#### **procname**

The name of the MVS procedure containing the JCL necessary to start the logon manager.

This *procname* must be used for all logon manager commands.

---

## Appendix A. Cross-reference for VTAM DISPLAY commands

This appendix is supplied to help you determine which DISPLAY command to use to locate a specific piece of information. The list of DISPLAY command output is not exhaustive, but it does contain the most widely used output.

The DISPLAY commands are listed across the top of the table with the information in the output examples located down the left side of the table. To determine which DISPLAY command displays a given piece of information, locate the information about the left side and read across to find a large dot. A dot indicates that the command provides the requested piece of information. More than one dot indicates that more than one DISPLAY command displays the requested piece of information.

An example of the usage for this table would be if you want to display an access method control block name (ACB name). First you would locate "ACB name" on the left side of the table. Next, read across the table and identify the columns where there are dots. In this case, this information can be displayed by three different DISPLAY commands: APPLS, ID, and PENDING. See the specific DISPLAY command in Chapter 2, "VTAM operator commands," on page 9, for details on how to display a particular piece of information using a command.

DISPLAY Command Output	ADJCLUST	ADJCP	ADJSSCPS	APING	APINGDTP	APINGTP	APPLS	APPNTOSA	AUTOLOG	BFRUSE	BNCOSMAP	CDRMS	CDRSCS	CLSTRS	CNOS	CONVID	COS	CPCP	CSDUMP	CSM	CSMUSE	DIRECTRY	DISK	DLURS	EE	EEDIAG	EXIT	GRAFFIN	GROUPS	GRPREFS	ID	INOPCODE	INOPDUMP	LINES	LMTBL	LUGROUPS			
Access method control block (ACB name)							•																															•	
Active CSDUMP triggers																			•																				
Active sessions																																						•	
Adjacent cluster table definitions	•																										•											•	
Adjacent CP		•																																				•	
Adjacent SSCP tables			•																																			•	
Adjacent subarea address																																						•	
Adjacent subarea node				•																																		•	
APING session limit					•																																		
APINGD instance limit						•																																	
Application program							•						•																										
Application program name																																						•	
APPN class-of-service																																							
APPN class-of-service table																																							
APPN directory database																																							
APPN route information				•																																			•
Authorized target netid list		•																																				•	
Buffer pool data																																						•	
Buffer trace																																						•	
Buffer usage																																							
CDRM																																							
CDRM for a CDRSC																																							
Channel-attached links																																						•	
Channel unit address (CUA)																																						•	
Checkpoint date and time																																						•	
Class-of-service mapping								•			•																												
Class-of-service name				•																																			
Class-of-service (COS) table																																							
Clusters																																							
Common service area (CSA) buffers																																							
Communication scanner processor (CSP)																																							
Conversation ID (CONVID)																																							
CP - CP session information	•																																					•	
Cross-domain resource (CDRSCS)																																						•	
Current transmission group (CTG)																																						•	
Data compression																																							
Data space usage																																							
Dependent LU requester																																							
Destination node				•																																			
Destination subarea address																																							
Dump name																																							
Dump procedure address																																						•	
Dynamic CDRSC support																																						•	
EIapse time (ETIME)																																						•	
Element address																																						•	
Enterprise Extender (Aggregate Information)																																						•	
Enterprise Extender (Connection Information)																																						•	
Enterprise Extender (General Information)																																						•	
Exit routines																																						•	
Expansion limit																																							
Explicit route length				•																																			
Explicit route (ER) number																																							

Figure 9. DISPLAY output cross reference (A-E) (part 1 of 2)

DISPLAY Command

DISPLAY Command Output

Access method control block (ACB name)  
 Active CSDUMP triggers  
 Active sessions  
 Adjacent cluster table of definitions  
 Adjacent CP  
 Adjacent SSCP tables  
 Adjacent subarea address  
 Adjacent subarea node  
 APING session limit  
 APINGD instance limit  
 Application program  
 Application program name  
 APPN class-of-service  
 APPN class-of-service table  
 APPN directory database  
 APPN route information  
 Authorized target netid list  
 Buffer pool data  
 Buffer trace  
 Buffer usage  
 CDRM  
 CDRM for a CDRSC  
 Channel-attached links  
 Channel unit address (CUA)  
 Checkpoint date and time  
 Class-of-service mapping  
 Class-of-service name  
 Class-of-service (COS) table  
 Clusters  
 Common service area (CSA) buffers  
 Communication scanner processor (CSP)  
 Conversation ID (CONVID)  
 CP-CP session information  
 Cross-domain resource (CDRSCS)  
 Current transmission group (CTG)  
 Data compression  
 Data space usage  
 Dependent LU requester  
 Destination node  
 Destination subarea address  
 Dump name  
 Dump procedure address  
 Dynamic CDRSC support  
 Elapse time (ETIME)  
 Element address  
 Enterprise Extender (Aggregate Information)  
 Enterprise Extender (Connection Information)  
 Enterprise Extender (General Information)  
 Exit routines  
 Expansion limit  
 Explicit route length)  
 Explicit route (ER) number

	MAJNODES	MODELS	NCPSTOR	NETSRVR	PATHS	PATHTAB	PENDING	ROUTE	RSCLIST	RTPS	SAMAP	SATOAPPN	SESSIONS	SNSFILTR	SRCHINFO	STATIONS	STATS	STORUSE	TABLE	TERMS	TGPS	TNSTAT	TOPO	TRACES	TRL	TSOUSER	USERVAR	VTAMOPTS	VTAMSTOR
Access method control block (ACB name)							•																						
Active CSDUMP triggers																													
Active sessions													•																
Adjacent cluster table of definitions																													
Adjacent CP																													
Adjacent SSCP tables																													
Adjacent subarea address						•		•																					
Adjacent subarea node																													
APING session limit																													
APINGD instance limit																													
Application program							•		•																				
Application program name																											•	•	
APPN class-of-service																													
APPN class-of-service table																													
APPN directory database																													
APPN route information										•																			
Authorized target netid list																													
Buffer pool data																													
Buffer trace																									•				
Buffer usage																													
CDRM									•																				
CDRM for a CDRSC																													
Channel-attached links																													
Channel unit address (CUA)																									•				
Checkpoint date and time												•																	
Class-of-service mapping																													
Class-of-service name								•																					
Class-of-service (COS) table													•																
Clusters						•		•																					
Common service area (CSA) buffers																													
Communication scanner processor (CSP)																													
Conversation ID (CONVID)																													
CP-CP session information													•											•					
Cross-domain resource (CDRSCS)									•																				
Current transmission group (CTG)																													
Data compression																			•										
Data space usage																													
Dependent LU requester													•																
Destination node																									•				
Destination subarea address						•		•																					
Dump name																													
Dump procedure address																													
Dynamic CDRSC support																													
Elapse time (ETIME)																													
Element address																													
Enterprise Extender (Aggregate Information)																													
Enterprise Extender (Connection Information)																													
Enterprise Extender (General Information)																													
Exit routines																													
Expansion limit																													
Explicit route length)						•																							
Explicit route (ER) number							•	•																					

Figure 10. DISPLAY output cross reference (A-E) (part 2 of 2)

DISPLAY Command

DISPLAY Command Output

Generalized PIU trace (GPT)  
 Generalized TG (GTG)  
 Generic Resource information  
 Group identifier (GID)  
 Hostname  
 HPR Route Test  
 I/O traces  
 IP address  
 Independent LUs  
 Intermediate routing node buffers  
 Intermediate routing node trace  
 Job name  
 Line Group  
 Line name  
 Line trace  
 Line type  
 Lines/links  
 Link station  
 Load module name  
 Load procedure status  
 Logical unit (LU)  
 Logical unit name (LUNAME)  
 Logon mode name  
 Major node name  
 Major node data  
 Major node subordinate resources  
 Minor node data  
 Minor node subordinate resources  
 Model LUs  
 Model PUs  
 Negpoll (negative response polling)  
 Network control program (NCP)  
 Network ID  
 Network node servers  
 Node characteristics  
 Node type  
 Origin node  
 Owned TGs  
 Paths, switched

	ADJCLUST	ADJCP	ADJSSCPS	APING	APINGDTP	APINGTP	APPLS	APPNTOSA	AUTOLOG	BFRUSE	BNCOSMAP	CDRMS	CDRSCS	CLSTRS	CNOS	CONVID	COS	CPCP	CSDUMP	CSM	CSMUSE	DIRECTRY	DISK	DLURS	EE	EEDIAG	EXIT	GRAFFIN	GROUPS	GRPREFS	ID	INOPCODE	INOPDUMP	LINES	LMTBL	LUGROUPS			
Generalized PIU trace (GPT)																																							
Generalized TG (GTG)																																							
Generic Resource information																																							
Group identifier (GID)																																							
Hostname																																							
HPR Route Test																																							
I/O traces																																							
IP address																																							
Independent LUs																																							
Intermediate routing node buffers																																							
Intermediate routing node trace																																							
Job name																																							
Line Group																																							
Line name																																							
Line trace																																							
Line type																																							
Lines/links																																							
Link station																																							
Load module name																																							
Load procedure status																																							
Logical unit (LU)																																							
Logical unit name (LUNAME)																																							
Logon mode name																																							
Major node name																																							
Major node data																																							
Major node subordinate resources																																							
Minor node data																																							
Minor node subordinate resources																																							
Model LUs																																							
Model PUs																																							
Negpoll (negative response polling)																																							
Network control program (NCP)																																							
Network ID																																							
Network node servers																																							
Node characteristics																																							
Node type																																							
Origin node																																							
Owned TGs																																							
Paths, switched																																							

Figure 11. DISPLAY output cross reference (G-P) (part 1 of 2)

DISPLAY Command

DISPLAY Command Output	MAJNODES	MODELS	NCPSTOR	NETSRVR	PATHS	PATHTAB	PENDING	ROUTE	RSCLIST	RTPS	SAMAP	SATOAPPN	SESSIONS	SNSFILTR	SRCHINFO	STATIONS	STATS	STORUSE	TABLE	TERMS	TGPS	TNSTAT	TOPO	TRACES	TRL	TSOUSER	USERVAR	VTAMOPTS	VTAMSTOR	
Generalized PIU trace (GPT)																														
Generated TG (GTG)																								●						
Generic Resource information								●	●																					
Group identifier (GID)					●																									
Hostname																														
HPR route test										●														●						
I/O traces																											●			
IP address					●																									
Independent LUs																														
Intermediate routing node buffers																														
Intermediate routing node trace																														
Job name									●																					
Line group									●											●										
Line name									●																					
Line trace																								●						
Line type																														
Lines/links					●	●																								
Link station															●															
Load module name																														
Load procedure status																														
Logical unit (LU)							●	●												●										
Logical unit name (LUNAME)																														
Logon mode name																														
Major node name	●	●							●						●					●										
Major node data																														
Major node subordinate resources		●																												
Minor node data																														
Minor node subordinate resources																														
Model LUs		●																												
Model PUs		●																												
Negpoll (negative response polling)																														
Network control program (NCP)			●				●																							
Network ID								●	●						●															
Network node servers				●																										
Node characteristics																							●							
Node type																							●							
Origin node								●															●							
Owned TGs																							●							
Paths, switched					●																									

Figure 12. DISPLAY output cross reference (G-P) (part 2 of 2)

DISPLAY Command

DISPLAY Command Output

	ADJCLUST	ADJCP	ADJSSCPS	APING	APINGDTP	APINGTP	APPLS	APPNTOSA	AUTOLOG	BFRUSE	BNCOSMAP	CDRMS	CDRSCS	CLSTRS	CNOS	CONVID	COS	CPCP	CSDUMP	CSM	CSMUSE	DIRECTRY	DISK	DLURS	EE	EEDIAG	EXIT	GRAFFIN	GROUPS	GRPREFS	ID	INOPCODE	INOPDUMP	LINES	LMTBL	LUGROUPS	
Path identifier (PID)																																					
Pending autolog requests									•																												
Physical unit (PU)																																					
Physical unit name																																					
Primary LU																																					
Resource use count																																					
Retransmission rate																																					
Retransmission statistics																																					
RTP information																																					
SAW sense filter																																					
Scanner interface trace (SIT)																																					
Search requests																																					
Secondary LU																																					
Session ID																																					
Session limit																																					
Sessions																																					
SIO count																																					
Start options																																					
Stepname																																					
Storage																																					
Subarea address																																					
Subarea mapping table																																					
Table name																																					
Table type																																					
TCP job name																																					
Telephone number																																					
Transmission data rate																																					
Transmission group data																																					
Transmission priority (TP)																																					
Transmission statistics																																					
Transport resource list entry																																					
TSO trace																																					
TSO user ID																																					
Tuning statistics information																																					
USERVAR class																																					
USERVAR name																																					
USERVAR type																																					
VCNS user																																					
Virtual route number																																					
VTAM internal trace																																					
VTAM segment type																																					
Weight of node or TG																																					

Figure 13. DISPLAY output cross reference (P-W) (part 1 of 2)



DISPLAY Command Output	MAJNODES	MODELS	NCPSTOR	NETSRVR	PATHS	PATHTAB	PENDING	ROUTE	RSCLIST	RTPS	SAMAP	SATOAPPN	SESSIONS	SNSFILTR	SRCHINFO	STATIONS	STATS	STORUSE	TABLE	TERMS	TGPS	TNSTAT	TOPO	TRACES	TRL	TSOUSER	USERVAR	VTAMOPTS	VTAMSTOR
Path identifier (PID)					●																								
Pending autolog requests																													
Physical unit (PU)							●	●												●									
Physical unit name																									●				
Primary LU													●																
Resource use count																				●									
Retransmission rate																													
Retransmission statistics																													
RTP information										●				●															
SAW sense filter																													
Scanner interface trace (SIT)																									●				
Search requests															●														
Secondary LU													●																
Session ID													●																
Session limit																													
Sessions													●																
SIO count																													
Start options																												●	
Stepname																													
Storage		●																●	●										●
Subarea address																●													
Subarea mapping table										●																			
Table name																				●									
Table type																				●									
TCP job name																												●	
Telephone number					●																								
Transmission data rate																													
Transmission group data						●		●														●							
Transmission priority (TP)								●																					
Transmission statistics																													
Transport resource list entry																										●			
TSO trace																									●		●		
TSO user ID																											●		
Tuning statistics information																						●							
USERVAR class																											●		
USERVAR name																											●		
USERVAR type																											●		
VCNS user	●																												
Virtual route number						●		●																					
VTAM internal trace																									●				
VTAM segment type					●																								
Weight of node or TG																								●					

Figure 14. DISPLAY output cross reference (P-W) (part 2 of 2)



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## Appendix B. 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

Many RFCs are available online. Hardcopies of all RFCs are available from the NIC, either individually or by subscription. Online copies are available using FTP from the NIC at <http://www.rfc-editor.org/rfc.html>.

Use FTP to download the files, using the following format:

```
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](mailto: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](mailto:nic@nic.ddn.mil).

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## Appendix C. 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](mailto:mhvrcfs@us.ibm.com) or write to:

IBM Corporation  
Attention: MHVRCFS Reader Comments  
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/](http://www.ibm.com/systems/z/os/zos/bkserv/).

One exception is command syntax that is published in railroad track format, which is accessible using screen readers with IBM Knowledge Center, as described in "Dotted decimal syntax diagrams."

### Dotted decimal syntax diagrams

Syntax diagrams are provided in dotted decimal format for users accessing IBM Knowledge Center using a screen reader. In dotted decimal format, each syntax element is written on a separate line. If two or more syntax elements are always

present together (or always absent together), they can appear on the same line, because they can be considered as a single compound syntax element.

Each line starts with a dotted decimal number; for example, 3 or 3.1 or 3.1.1. To hear these numbers correctly, make sure that your screen reader is set to read out punctuation. All the syntax elements that have the same dotted decimal number (for example, all the syntax elements that have the number 3.1) are mutually exclusive alternatives. If you hear the lines 3.1 USERID and 3.1 SYSTEMID, you know that your syntax can include either USERID or SYSTEMID, but not both.

The dotted decimal numbering level denotes the level of nesting. For example, if a syntax element with dotted decimal number 3 is followed by a series of syntax elements with dotted decimal number 3.1, all the syntax elements numbered 3.1 are subordinate to the syntax element numbered 3.

Certain words and symbols are used next to the dotted decimal numbers to add information about the syntax elements. Occasionally, these words and symbols might occur at the beginning of the element itself. For ease of identification, if the word or symbol is a part of the syntax element, it is preceded by the backslash (\) character. The \* symbol can be used next to a dotted decimal number to indicate that the syntax element repeats. For example, syntax element \*FILE with dotted decimal number 3 is given the format 3 \\* FILE. Format 3\* FILE indicates that syntax element FILE repeats. Format 3\* \\* FILE indicates that syntax element \* FILE repeats.

Characters such as commas, which are used to separate a string of syntax elements, are shown in the syntax just before the items they separate. These characters can appear on the same line as each item, or on a separate line with the same dotted decimal number as the relevant items. The line can also show another symbol giving information about the syntax elements. For example, the lines 5.1\*, 5.1 LASTRUN, and 5.1 DELETE mean that if you use more than one of the LASTRUN and DELETE syntax elements, the elements must be separated by a comma. If no separator is given, assume that you use a blank to separate each syntax element.

If a syntax element is preceded by the % symbol, this indicates a reference that is defined elsewhere. The string following the % symbol is the name of a syntax fragment rather than a literal. For example, the line 2.1 %OP1 means that you should see separate syntax fragment OP1.

The following words and symbols are used next to the dotted decimal numbers:

- A question mark (?) means an optional syntax element. A dotted decimal number followed by the ? symbol indicates that all the syntax elements with a corresponding dotted decimal number, and any subordinate syntax elements, are optional. If there is only one syntax element with a dotted decimal number, the ? symbol is displayed on the same line as the syntax element, (for example 5? NOTIFY). If there is more than one syntax element with a dotted decimal number, the ? symbol is displayed on a line by itself, followed by the syntax elements that are optional. For example, if you hear the lines 5 ?, 5 NOTIFY, and 5 UPDATE, you know that syntax elements NOTIFY and UPDATE are optional; that is, you can choose one or none of them. The ? symbol is equivalent to a bypass line in a railroad diagram.
- An exclamation mark (!) means a default syntax element. A dotted decimal number followed by the ! symbol and a syntax element indicate that the syntax element is the default option for all syntax elements that share the same dotted

decimal number. Only one of the syntax elements that share the same dotted decimal number can specify a ! symbol. For example, if you hear the lines 2? FILE, 2.1! (KEEP), and 2.1 (DELETE), you know that (KEEP) is the default option for the FILE keyword. In this example, if you include the FILE keyword but do not specify an option, default option KEEP will be applied. A default option also applies to the next higher dotted decimal number. In this example, if the FILE keyword is omitted, default FILE(KEEP) is used. However, if you hear the lines 2? FILE, 2.1, 2.1.1! (KEEP), and 2.1.1 (DELETE), the default option KEEP applies only to the next higher dotted decimal number, 2.1 (which does not have an associated keyword), and does not apply to 2? FILE. Nothing is used if the keyword FILE is omitted.

- An asterisk (\*) means a syntax element that can be repeated 0 or more times. A dotted decimal number followed by the \* symbol indicates that this syntax element can be used zero or more times; that is, it is optional and can be repeated. For example, if you hear the line 5.1\* data area, you know that you can include one data area, more than one data area, or no data area. If you hear the lines 3\*, 3 HOST, and 3 STATE, you know that you can include HOST, STATE, both together, or nothing.

**Notes:**

1. If a dotted decimal number has an asterisk (\*) next to it and there is only one item with that dotted decimal number, you can repeat that same item more than once.
  2. If a dotted decimal number has an asterisk next to it and several items have that dotted decimal number, you can use more than one item from the list, but you cannot use the items more than once each. In the previous example, you could write HOST STATE, but you could not write HOST HOST.
  3. The \* symbol is equivalent to a loop-back line in a railroad syntax diagram.
- + means a syntax element that must be included one or more times. A dotted decimal number followed by the + symbol indicates that this syntax element must be included one or more times; that is, it must be included at least once and can be repeated. For example, if you hear the line 6.1+ data area, you must include at least one data area. If you hear the lines 2+, 2 HOST, and 2 STATE, you know that you must include HOST, STATE, or both. Similar to the \* symbol, the + symbol can only repeat a particular item if it is the only item with that dotted decimal number. The + symbol, like the \* symbol, is equivalent to a loop-back line in a railroad syntax diagram.





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The IBM implementation of the Resource Reservation Setup Protocol API (RAPI) described in this document is derived from the Resource Reservation Setup Protocol API (RAPI) specification, The Open Group Document Number C809, ISBN 185912264, published by The Open Group, December 1998.

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devices is withdrawn. Likewise, the levels of other software products supported on a particular release of z/OS are subject to the service support lifecycle of those products. Therefore, z/OS and its product publications (for example, panels, samples, messages, and product documentation) can include references to hardware and software that is no longer supported.

- For information about software support lifecycle, see: <http://www-01.ibm.com/software/support/systemsz/lifecycle/>
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## Policy for unsupported hardware

Various z/OS elements, such as DFSMS, HCD, JES2, JES3, and MVS, contain code that supports specific hardware servers or devices. In some cases, this device-related element support remains in the product even after the hardware devices pass their announced End of Service date. z/OS may continue to service element code; however, it will not provide service related to unsupported hardware devices. Software problems related to these devices will not be accepted for service, and current service activity will cease if a problem is determined to be associated with out-of-support devices. In such cases, fixes will not be issued.

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## Bibliography

This bibliography contains descriptions of the documents in the z/OS Communications Server library.

z/OS Communications Server documentation is available in the following forms:

- Online at the z/OS Internet Library web page at [www.ibm.com/systems/z/os/zos/bkserv/](http://www.ibm.com/systems/z/os/zos/bkserv/)
- In softcopy on CD-ROM collections. See “Softcopy information” on page xvii.

### **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<sup>®</sup> 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: <ul style="list-style-type: none"> <li>• TCP/IP configuration data sets</li> <li>• Configuration statements</li> <li>• Translation tables</li> <li>• Protocol number and port assignments</li> </ul>
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: <ul style="list-style-type: none"> <li>• Communication network management (CNM) routing table</li> <li>• Logon-interpret routine requirements</li> <li>• Logon manager installation-wide exit routine for the CLU search exit</li> <li>• TSO/SNA installation-wide exit routines</li> <li>• SNA installation-wide exit routines</li> </ul>

## 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: <ul style="list-style-type: none"> <li>• Command and RU types in SNA messages</li> <li>• Node and ID types in SNA messages</li> <li>• Supplemental message-related information</li> </ul>
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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# Index

## A

accessibility 613  
ACT operand  
    VARY ACQ command 529  
    VARY ANS command 561  
    VARY LOGON command 583  
ACTION operand  
    MODIFY ALSLIST command 348  
    MODIFY DUMP command 387  
    MODIFY LOAD command 410  
    MODIFY RESOURCE command 441  
ACTIVATE operand  
    MODIFY DR command 382  
activating resources 537  
adaptive data compression 361  
ADDR operand  
    DISPLAY NCPSTOR command 206  
    MODIFY DR command 383  
ADDRESS operand  
    DISPLAY VTAMSTOR command 339  
adjacent control point, displaying 17, 148  
adjacent link station list, modifying 347  
adjacent nodes, displaying 294  
adjacent SSCP tables, displaying 21  
ADJLIST operand  
    DISPLAY ADJSSCPS command 21  
    MODIFY RESOURCE command 442  
ADJSUB operand  
    DISPLAY PATHTAB command 214  
AFFDELAY start option 498  
ALSNAME operand  
    MODIFY NOTRACE command 425  
    MODIFY TRACE command 475  
ALSREQ start option  
    displaying 330  
    modifying 498  
    setting 507  
AMOUNT operand  
    MODIFY TRACE command 476  
ANS operand  
    VARY ACT command 544  
    VARY ANS command 561  
API64R start option  
    displaying 334  
    modifying 498  
    setting 507  
APPC operand  
    MODIFY USERVAR command 496  
APPL operand  
    DISPLAY STORUSE command 273  
application jobs  
    displaying storage usage for 272  
application programs  
    displaying 37  
    displaying APPL major node 149  
    displaying storage usage for 272  
APPNCOS operand  
    DISPLAY TOPO command 293  
APPNCOS start option  
    displaying 330  
    modifying 498

APPNCOS start option (*continued*)  
    setting 507  
ASIRFMSG start option  
    displaying 330  
    modifying 498  
    setting 507  
ASLTAB (associated LU table)  
    displaying 278  
    modifying resource associations 457  
ASRCVLM operand  
    MODIFY RESOURCE command 442  
associated LU table (ASLTAB)  
    displaying 278  
    modifying resource associations 457  
ASYDE start option  
    displaying 330  
    setting 507  
AUTHLEN start option  
    displaying 330  
    modifying 498  
    setting 507  
automatic activation of link stations 553, 556  
automatic logon relationship  
    deleting 585  
    effect on session termination 594  
    establishing or changing 582  
AUTORTRY start option  
    displaying 330  
    modifying 498  
    setting 507  
AUTOSES operand  
    MODIFY DEFINE command 375  
AUTOTI start option  
    displaying 330  
    modifying 498  
    setting 507

## B

BFRNUM operand  
    MODIFY TRACE command 476  
BLOCKED operand 218  
BN start option  
    displaying 330  
    modifying 498  
    setting 507  
BNDYN start option  
    displaying 330  
    modifying 498  
    setting 507  
BNORD start option  
    displaying 330  
    modifying 498  
    setting 507  
BSCMDRS start option  
    displaying 330  
    modifying 498  
    setting 507  
BSCTMOUT start option  
    displaying 330  
    setting 507

- buffer contents trace
  - displaying status of 315
  - starting 492
  - stopping 435
- BUFFER operand
  - DISPLAY BFRUSE command 45
- buffer pool start options
  - displaying 45
  - setting 507
- buffer pools, displaying 45
- buffer use (SMS) trace
  - displaying status of 315
  - starting 493
  - stopping 436

## C

- CACHETI start option
  - displaying 330
  - setting 507
- CDINIT requests, pending, recovery from 403
- CDLINK operand
  - HALT command 344
  - HALT QUICK command 346
  - VARY INACT command 574
  - VARY REL command 589
- CDRDYN start option
  - displaying 330
  - modifying 498
  - setting 507
- CDRM (cross-domain resource manager)
  - displaying 53, 149
  - modifying ownership of resources 353
- CDRM operand
  - DISPLAY ADJSSCPS command 21
  - DISPLAY CDRM command 353
- CDRSC (cross-domain resource)
  - displaying
    - DISPLAY CDRSCS command 57
    - DISPLAY ID command for CDRSC major node 149
    - DISPLAY ID command for individual CDRSCs 163
- CDRSC operand
  - DISPLAY ADJSSCPS command 21
- CDRSTI start option
  - displaying 330
  - setting 507
- CDSERVR start option
  - displaying 330
  - setting 507
- CDSREFER start option
  - displaying 330
  - modifying 498
  - setting 507
- CERTIFY operand
  - MODIFY SECURITY command 447
- channel link station, displaying 173
- channel link, displaying 173, 191
- channel-attachment major node, displaying 152
- checkpoint
  - date and time, displaying 299
  - taking 354
- CINDXSIZ start option
  - displaying 330
  - setting 507
- CKEY operand
  - MODIFY SECURITY command 447
- Class of Service (COS) table
  - displaying contents of 278
  - displaying name of 74
  - modifying resource associations 458
- CLEAR operand
  - DISPLAY ID command 139
  - DISPLAY RTPS command 234
- clusters, displaying 62
- CMIP services directory definition file
  - modifying 457
- CMIPDDF
  - modifying 457
- CMPAPPLI operand
  - MODIFY COMPRESS command 361
- CMPAPPLO operand
  - MODIFY COMPRESS command 362
- CMPMIPS start option
  - displaying 330
  - modifying 498
  - setting 507
- CMPVTAM operand
  - MODIFY COMPRESS command 362
- CMPVTAM start option
  - displaying 330
  - modifying 361, 498
  - setting 507
- CNM (communication network management) trace
  - displaying status of 314
  - starting 492
  - stopping 435
- CNMTAB start option
  - displaying 330
  - setting 507
- CNNRTMSG start option
  - displaying 330
  - modifying 498
  - setting 507
- CNOS (change number of sessions) information
  - displaying 67
  - modifying 357
- CNSL operand
  - MODIFY TNSTAT command 461
- COLD start option
  - displaying 330
  - setting 507
- commands
  - correct and incorrect
    - logon manager 598
    - VTAM 10
  - fundamentals
    - logon manager 597
    - VTAM 9
  - length limitation
    - logon manager 597
    - VTAM 10
  - procedure name
    - logon manager 597
    - VTAM 9
- common service area (CSA) limit
  - modifying 362
- communication controller disk contents, displaying 91
- communication network management (CNM) trace
  - displaying status of 314
  - starting 492
  - stopping 435
- communication scanner processor (CSP) dumps 386
- Communications Server for z/OS, online information xix



- component ID, VTAM, displaying 330
- compression level, data, modifying 361
- CONFIG start option
  - displaying 330
  - setting 507
- configuration lists 5
- congestion level of node, displaying 299
- CONNTYPE start option
  - displaying 330
  - modifying 498
  - setting 507
- CONSEC operand
  - DISPLAY APING command 29
- controlling a VTAM domain
  - commands involved in 5
- conversations, displaying 70
- CONVSECL operand
  - MODIFY CNOS command 358
- COS (Class of Service) table
  - displaying contents of 278
  - displaying name of 74
  - modifying resource associations 458
- COSNAME operand
  - DISPLAY ROUTE command 218
- COUNT operand
  - MODIFY TRACE command 477
- CPCDRSC start option
  - displaying 330
  - setting 507
- CPCP operand
  - VARY ACT command 544
  - VARY DIAL command 564
- CPCP start option
  - displaying 330
  - modifying 498
  - setting 507
- CPNAME operand
  - MODIFY DIRECTRY command 379
- cross-domain resource (CDRSC)
  - displaying
    - DISPLAY CDRSCS command 57
    - DISPLAY ID command for CDRSC major node 149
    - DISPLAY ID command for individual CDRSCs 163
- cross-domain resource manager (CDRM)
  - displaying 53, 149
  - modifying ownership of resources 353
- cross-reference for DISPLAY commands 603
- cryptography level, modifying 391
- CSA (common service area) limit
  - modifying 362
- CSA24 start option
  - displaying 330
  - modifying 362, 498
  - setting 507
- CSALIMIT operand
  - MODIFY CSALIMIT command 363
- CSALIMIT start option
  - displaying 330
  - modifying 362, 498
  - setting 507
- CSP (communication scanner processor) dumps 386

## D

- data compression level, modifying 361
- DATA operand
  - MODIFY LL2 command 406

- data spaces
  - displaying storage usage for 272
- DATEFORM start option
  - displaying 330
  - setting 507
- DDRAINL operand
  - MODIFY DEFINE command 376
- deactivating resources 572
- DELETE operand
  - MODIFY DEFINE command 376
  - VARY INACT command 574
- dependent LU requesters, displaying 92
- DEST operand
  - DISPLAY TOPO command 293
  - MODIFY TOPO command 464
- DESTSUB operand
  - DISPLAY PATHTAB command 214
  - DISPLAY ROUTE command 218
- dial connections
  - establishing 564
  - setting answer mode 561
  - terminating 567
  - terminating a manual operation 581
- dial-out paths
  - displaying 212
  - making available or unavailable 587
- directory information
  - displaying 88
  - modifying 378
  - saving 354
- DIRSIZE start option
  - displaying 330
  - modifying 498
  - setting 507
- DIRTIME start option
  - displaying 330
  - modifying 498
  - setting 507
- disability 613
- DISCNTIM operand
  - MODIFY DEFAULTS command 373
  - MODIFY RESOURCE command 442
- DISCNTIM start option
  - displaying 330
  - modifying 498
  - setting 507
- DISPLAY ADJCLUST command 15
- DISPLAY ADJCP command 16
- DISPLAY ADJSSCPS command 20
- DISPLAY APING command 28
- DISPLAY APINGDTP command 33
- DISPLAY APINGTP command 34
- DISPLAY APPLS command 36
- DISPLAY APPNTOSA command 41
- DISPLAY BFRUSE command 44
- DISPLAY BNCOSMAP command 51
- DISPLAY CDRMS command 52
- DISPLAY CDRSCS command 56
- DISPLAY CLSTRS command 61
- DISPLAY CNOS command 67
- DISPLAY command cross-reference 603
- DISPLAY CONVID command 69
- DISPLAY COS command 73
- DISPLAY CPCP command 75
- DISPLAY CSDUMP command 78
- DISPLAY CSM command 80
- DISPLAY DIRECTRY command 87

- DISPLAY DISK command 91
- DISPLAY DLURS command 92
- DISPLAY EE command 93
- DISPLAY EEDIAG command 106
- DISPLAY EXIT command 128
- DISPLAY GRAFFIN 130
- DISPLAY GROUPS command 131
- DISPLAY GRPREFS command 135
- DISPLAY ID command 136
- DISPLAY INOPCODE command 188
- DISPLAY INOPDUMP command 189
- DISPLAY LINES command 190
- DISPLAY LMTBL command 195
- DISPLAY LUGROUPS command 197
- DISPLAY MAJNODES command 201
- DISPLAY MODELS command 202
- DISPLAY NCPSTOR command 206
- DISPLAY NETSRVR command 208
- DISPLAY PATHS command 212
- DISPLAY PATHTAB command
  - description 213
  - versus DISPLAY ROUTE command 214
- DISPLAY PENDING command 215
- DISPLAY ROUTE command
  - description 217
  - versus DISPLAY PATHTAB command 214
- DISPLAY RSCLIST command 223
- DISPLAY RTPS 232
- DISPLAY SATOAPPN command 239
- DISPLAY SESSIONS command 240
- DISPLAY SNSFILTR command 249
- DISPLAY SRCHINFO command 249
- DISPLAY STATIONS command 256
- DISPLAY STATS command 261
- DISPLAY STORUSE command 271
- DISPLAY TABLE command 277
- DISPLAY TERMS command 280
- DISPLAY TGPS command 285
- DISPLAY TNSTAT command 288
- DISPLAY TOPO command 288
- DISPLAY TRACES command 311
- DISPLAY TRL command 319
- DISPLAY TSOUSER command 326
- DISPLAY USERVAR command 328
- DISPLAY VTAMOPTS command 329
- DISPLAY VTAMSTOR command 338
- DLIMITS operand
  - MODIFY DEFINE command 376
- DLOGMOD operand
  - MODIFY DEFAULTS command 373
  - MODIFY RESOURCE command 442
- DLOGMOD value, predefined, modifying 372, 441
- DLRTCB start option
  - displaying 330
  - setting 507
- DLU operand
  - DISPLAY SRCHINFO command 252
- DLURSAW operand
  - displaying 330
  - setting 507
- DNS, online information xx
- DR (dynamic reconfiguration)
  - MODIFY DR command 381
  - VARY ACT command 556
  - VARY DRDS command 565
- DRAINL operand
  - MODIFY CNOS command 359
- DRAINR operand
  - MODIFY CNOS command 359
- DRESPL operand
  - MODIFY DEFINE command 376
- DSPLYDEF start option
  - displaying 330
  - modifying 498
  - setting 507
- DSPLYMAX start option
  - displaying 330
  - setting 507
- DSPLYWLD start option
  - displaying 330
  - modifying 498
  - setting 507
- DSPNAME operand
  - DISPLAY STORUSE command 273
- DUMP operand
  - HALT CANCEL command 345
- DUMPDS operand
  - MODIFY DUMP command 388
- DUMLOAD operand
  - VARY ACT command 544
- dumps
  - displaying 91
  - taking
    - CSP 390
    - MOSS 390
    - NCP 390
- DUMPSTA operand
  - MODIFY DUMP command 388
  - VARY ACT command 545
- DWACT operand
  - VARY ACT command 545
- DYNADJCP start option
  - displaying 330
  - setting 507
- dynamic reconfiguration (DR)
  - MODIFY DR command 381
  - VARY ACT command 556
  - VARY DRDS command 565
- dynamic resources, warning about deactivating 576
- dynamic switched PUs and LUs, displaying model definitions for 203
- DYNASSCP start option
  - displaying 330
  - setting 507
- DYNDLGMD start option
  - displaying 330
  - modifying 498
  - setting 507
- DYNLU start option
  - displaying 330
  - setting 507
- DYNMODTB start option
  - displaying 330
  - modifying 498
  - setting 507
- DYNNVNPFX start option 507

## E

- ECHO operand
  - DISPLAY APING command 29
- ECSA operand
  - MODIFY CSM command 371
- EEVERIFY start option 507

- ENCR operand
  - MODIFY ENCR command 391
  - MODIFY SECURITY command 447
- ENCRPREF start option
  - displaying 330
  - modifying 498
  - setting 507
- ENCRTYPE 447
- encryption facility 391
- ENCRYPTN start option
  - displaying 330
  - modifying 498
  - setting 507
- end nodes, displaying 295
- END operand
  - VARY INOP command 581
- ENHADDR start option
  - displaying 330
  - setting 507
- ENHTG operand
  - displaying 330
  - setting 507
- ENSEMBLE start option 507
- ENTERPRISE EXTENDER
  - display id command 153, 183
- ER (explicit route)
  - displaying status of 214, 218
- ER operand
  - DISPLAY ROUTE command 218
- ESIRFMSG start option
  - displaying 330
  - modifying 498
  - setting 507
- ETIME operand
  - DISPLAY CONVID command 70
- EXCLUDE operand
  - DISPLAY RSCLIST command 225
- EXIT (SME buffer) trace
  - displaying status of 314
  - starting 492
  - stopping 435
- exit routine information, displaying 128
- exit routines
  - activating 394
  - deactivating 394
  - displaying 128
  - replacing 394
- explicit route (ER)
  - displaying status of 214, 218
- external CDRM, displaying 167
- external communication adapter (XCA) major node
  - displaying 152

## F

- FINAL operand
  - VARY INACT command 574
  - VARY REL command 590
- FIXED operand
  - MODIFY CSM command 371
- FLDTAB (message-flooding prevention table)
  - displaying 278
  - modifying resource associations 458
- FLDTAB start option
  - displaying 330
  - setting 507

- FORMAT operand
  - DISPLAY VTAMOPTS command 331
- frame relay switching equipment set (FRSESET)
  - adding PUs
    - VARY ACT command 559
  - deleting PUs
    - MODIFY DR command 381
    - VARY ACT command 559
    - VARY DRDS command 566
  - displaying 139
- FRAMES operand
  - MODIFY TRACE command 477
- FROM operand
  - MODIFY DR command 383
- FROMMCP operand
  - DISPLAY SRCHINFO command 252
- FROMSSCP operand
  - DISPLAY SRCHINFO command 253
- FRSESET (frame relay switching equipment set)
  - adding PUs
    - VARY ACT command 559
  - deleting PUs
    - MODIFY DR command 381
    - VARY ACT command 559
    - VARY DRDS command 566
  - displaying 139
- FSIRFMSG start option
  - displaying 330
  - modifying 498
  - setting 507
- FUNCTION operand
  - DISPLAY VTAMOPTS command 331
  - MODIFY DIRECTRY command 379
  - MODIFY TOPO command 464

## G

- generalized PIU trace (GPT)
  - displaying status of 315
  - starting 492
  - stopping 435
- GID operand
  - VARY PATH command 587
- GPT (generalized PIU trace)
  - displaying status of 315
  - starting 492
  - stopping 435
- GWSSCP start option
  - displaying 330
  - setting 507

## H

- HALT CANCEL command 344
- HALT command 343
- HALT QUICK command 345
- halting VTAM
  - HALT CANCEL command 345
  - HALT command 344
  - HALT QUICK command 346
- hardware errors, detecting
  - MODIFY IMR command 398
  - MODIFY LL2 command 406
- HNTSIZE start option
  - displaying 330
  - setting 507

- host CDRM, displaying 166
- host physical unit
  - displaying 151
  - tracing 480
- HOSTNAME start option 507
- HOSTPU start option
  - displaying 330
  - setting 507
- HOSTSA start option
  - displaying 330
  - setting 507
- HOTIOTRM start option
  - displaying 330
  - modifying 498
  - setting 507
- HPR operand
  - VARY ACT command 546
- HPR start option
  - displaying 330
  - setting 507
- HPRNCPBF start option
  - displaying 330
  - modifying 498
  - setting 507
- HPRPST start option
  - displaying 330
  - modifying 498
  - setting 507
- HPRSESLM start option
  - displaying 330
  - modifying 498
  - setting 507
- HPRSTALL start option
  - displaying 330
  - modifying 498
  - setting 507
- HSRTSIZE start option
  - displaying 330
  - setting 507

## I

IBM Software Support Center, contacting xiii

- ID operand
  - DISPLAY ADJCP command 17
  - DISPLAY APING command 29
  - DISPLAY APPLS command 37
  - DISPLAY CDRMS command 53
  - DISPLAY CDRSCS command 57
  - DISPLAY CLSTRS command 63
  - DISPLAY CNOS command 67
  - DISPLAY CONVID command 70
  - DISPLAY COS command 74
  - DISPLAY DIRECTRY command 88
  - DISPLAY DISK command 91
  - DISPLAY EXIT command 128
  - DISPLAY GROUPS command 133
  - DISPLAY ID command 139
  - DISPLAY LINES command 191
  - DISPLAY LMTBL command 196
  - DISPLAY LUGROUPS command 199
  - DISPLAY MODELS command 203
  - DISPLAY NCPSTOR command 206
  - DISPLAY PATHS command 212
  - DISPLAY PENDING command 216
  - DISPLAY RSCLIST command 225
  - DISPLAY STATIONS command 257

- ID operand (*continued*)
  - DISPLAY TABLE command 278
  - DISPLAY TERMS command 282
  - DISPLAY TGPS command 285
  - DISPLAY TOPO command 294
  - DISPLAY TRACES command 312
  - DISPLAY TSOUSER command 327
  - DISPLAY USERVAR command 328
  - MODIFY ALSLIST command 349
  - MODIFY CDRM command 353
  - MODIFY CNOS command 359
  - MODIFY COMPRESS command 362
  - MODIFY DEFAULTS command 373
  - MODIFY DEFINE command 377
  - MODIFY DIRECTRY command 379
  - MODIFY DR command 383
  - MODIFY DUMP command 388
  - MODIFY ENCR command 391
  - MODIFY EXIT command 394
  - MODIFY IMR command 398
  - MODIFY INFO command 599
  - MODIFY LINEDEF command 405
  - MODIFY LL2 command 406
  - MODIFY LOAD command 412
  - MODIFY MINLINK command 601
  - MODIFY NEG POLL command 416
  - MODIFY NOTRACE command 426
  - MODIFY POLL command 437
  - MODIFY PROFILES command 439
  - MODIFY RESOURCE command 442
  - MODIFY RTP command 445
  - MODIFY SECURITY command 448
  - MODIFY SESSION command 450
  - MODIFY TABLE command 455
  - MODIFY TGP command 459
  - MODIFY TOPO command 465
  - MODIFY TRACE command 477
  - MODIFY USERVAR command 496
  - VARY ACQ command 530
  - VARY ACT command 546
  - VARY ANS command 561
  - VARY DIAL command 565
  - VARY DRDS command 567
  - VARY HANGUP command 568
  - VARY INACT command 575
  - VARY INOP command 582
  - VARY LOGON command 583
  - VARY NOLOGON command 585
  - VARY PATH command 587
  - VARY REL command 590
- IDTYPE operand
  - DISPLAY CLSTRS command 63
  - DISPLAY ID command 141
  - DISPLAY RSCLIST command 227
  - DISPLAY TRACES command 314
  - MODIFY NOTRACE command 427
  - MODIFY TRACE command 482
  - VARY ACT command 548
  - VARY INACT command 577
- IMR (intensive mode recording) 398
- independent logical unit
  - deactivating 574
  - displaying
    - as CDRSC 57, 166
    - under PU that provides boundary function 145
  - dynamic reconfiguration 384

- independent logical unit (*continued*)
  - modifying
    - entry in adjacent link station list 347
    - tracing 481
- Information APARs xvii
- INITDB start option
  - displaying 330
  - setting 507
- initial program load (IPL)
  - scheduling for communication controller 409
- INOPCODE start options 507
- INOPDUMP start option
  - displaying 330
  - modifying 498
  - setting 507
- input/output problem determination (IOPD) facility
  - time-out interval, changing 402
- input/output trace
  - displaying status of 315
  - starting 492
  - stopping 435
- INSTANCE operand
  - MODIFY APINGDTP command 350
- intensive mode recording (IMR) 398
- interchange nodes, displaying 295
- Internet, finding z/OS information online xix
- IOINT operand
  - MODIFY IOPD command 403
- IOINT start option
  - displaying 330
  - modifying 402, 498
  - setting 507
- IOMSGLIM start option
  - displaying 330
  - modifying 498
  - setting 507
- IOPD (input/output problem determination) facility
  - time-out interval, changing 402
- IOPURGE operand
  - MODIFY IOPURGE command 404
- IOPURGE start option
  - displaying 330
  - modifying 403, 498
- IPADDR start option 507
- IPINFO start option 507
- IPL (initial program load)
  - scheduling for communication controller 409
- IPLTIME operand
  - MODIFY LOAD command 412
- IQDCHPID start option
  - displaying 332
  - modifying 498
  - setting 507
- IRNSTRGE start option
  - displaying 330
  - setting 507
- ISTCOSDF start option
  - displaying 330
  - modifying 498
  - setting 507
- ITER operand
  - DISPLAY APING command 29

## J

- JOBNAME operand
  - DISPLAY STORUSE command 273

## K

- keyboard 613

## L

- LENGTH operand
  - DISPLAY NCPSTOR command 206
  - DISPLAY VTAMSTOR command 339
- license, patent, and copyright information 617
- LIMINTCP start option
  - displaying 330
  - modifying 498
  - setting 507
- LIMITS operand
  - MODIFY CNOS command 359
- line errors, recording 398
- line groups, displaying 132, 168
- LINE operand
  - MODIFY NOTRACE command 427
  - MODIFY TRACE command 482
- line trace, NCP
  - displaying status of 315
  - starting 493
  - stopping 436
- lines, displaying 191
- link level 2 test, starting and stopping 406
- link stations
  - cross-subarea
    - displaying 257
    - recording line errors for 398
- links
  - logon manager, changing minimum number of 601
- LIST operand
  - DISPLAY CLSTRS command 63
  - DISPLAY LINES command 191
  - DISPLAY SESSIONS command 242
  - DISPLAY SRCHINFO command 253
  - DISPLAY STORUSE command 273
  - DISPLAY TOPO command 294
- LIST start option
  - displaying 330
  - setting 507
- LISTBKUP start option
  - setting 507
- load module
  - displaying 91
  - storing, replacing, purging, or renaming 409
- LOAD operand
  - VARY ACT command 549
- LOADFROM operand
  - VARY ACT command 550
- LOADMOD operand
  - MODIFY LOAD command 413
  - VARY ACQ command 530
  - VARY ACT command 550
- LOADSTA operand
  - VARY ACT command 550
- local non-SNA major node, displaying 151
- local SNA major node, displaying 150
- LOCSIZE operand 289
- logical unit (LU)
  - displaying 181
- LOGMODE operand
  - DISPLAY APING command 29
  - DISPLAY CNOS command 67
  - DISPLAY CONVID command 71



- LOGMODE operand (*continued*)
  - MODIFY CNOS command 359
  - MODIFY DEFINE command 377
  - VARY ACT command 551
  - VARY LOGON command 584
- logon interpret table (LOGTAB)
  - displaying 278
  - modifying resource associations 458
- logon manager
  - commands
    - displaying help for 598
    - entering 597
    - procedure name 597
    - where to enter 597
  - displaying resources 599
  - links, modifying minimum number of 601
  - purpose 597
  - starting 602
  - stopping 602
- logon mode table (MODETAB)
  - displaying 278
  - modifying resource associations 458
- LOGON operand
  - VARY ACT command 551
  - VARY LOGON command 584
- LOGTAB (logon interpret table)
  - displaying 278
  - modifying resource associations 458
- LU (logical unit)
  - displaying 181
- LU-mode table
  - displaying 196
  - modifying entries in 375
- LU1 operand
  - DISPLAY SESSIONS command 242
  - DISPLAY SRCHINFO command 253
  - VARY TERM command 592
- LU2 operand
  - DISPLAY SESSIONS command 242
  - DISPLAY SRCHINFO command 253
  - VARY TERM command 592
- LUGROUP major nodes, displaying 198
- LUNAME operand
  - DISPLAY CNOS command 67
  - DISPLAY CONVID command 71
  - DISPLAY LMTBL command 196
  - MODIFY CNOS command 359
  - MODIFY DEFINE command 377

## M

- MAC operand
  - MODIFY SECURITY command 448
- MACLNTH operand
  - MODIFY SECURITY command 449
- MACTYPE operand
  - MODIFY SECURITY command 449
- mainframe
  - education xvii
- maintenance operator subsystem (MOSS) dumps 386
- MAINTLVL start option
  - displaying 330
  - setting 507
- MAJNODE operand
  - DISPLAY RSCLIST command 228
- major node, displaying 138, 201

- MAX operand
  - DISPLAY ADJSSCPS command 22, 131
  - DISPLAY APPLS command 37
  - DISPLAY CDRMS command 53
  - DISPLAY CDRSCS command 57
  - DISPLAY CLSTRS command 63
  - DISPLAY DIRECTRY command 88
  - DISPLAY EXIT command 129
  - DISPLAY GROUPS command 133
  - DISPLAY ID command 143
  - DISPLAY LINES command 192
  - DISPLAY LUGROUPS command 199
  - DISPLAY MAJNODES command 201
  - DISPLAY PATHTAB command 214
  - DISPLAY PENDING command 216
  - DISPLAY RSCLIST command 228
  - DISPLAY SESSIONS command 242
  - DISPLAY SRCHINFO command 253
  - DISPLAY STATIONS command 258
  - DISPLAY STATS command 264
  - DISPLAY STORUSE command 273
  - DISPLAY TABLE command 278
  - DISPLAY TERMS command 282
  - DISPLAY TGPS command 285
  - DISPLAY TRL command 321
  - DISPLAY USERVAR command 328
- MAXLOCAT start option
  - displaying 330
  - modifying 498
  - setting 507
- MAXLURU start option
  - displaying 330
  - modifying 498
  - setting 507
- MAXSSCPS start option
  - displaying 330
  - modifying 498
  - setting 507
- MAXSUBA start option
  - displaying 330
  - setting 507
- MDLTAB (model name table)
  - displaying 278
  - modifying resource associations 458
- MEMBER operand
  - MODIFY MEMBER command 601
- message flooding prevention table (FLDTAB)
  - displaying 278
  - modifying resource associations 458
- messages
  - including module ID in 414
  - modifying suppression level 450
- MIHTMOUT start option
  - displaying 330
  - modifying 498
  - setting 507
- MINLINK operand
  - MODIFY MINLINK command 601
- minor node, displaying 138
- MODE operand
  - MODIFY NOTRACE command 427
  - MODIFY TRACE command 482
- model LU groups, displaying 198
- model name table (MDLTAB)
  - displaying 278
  - modifying resource associations 458
- model resources, displaying 203

MODETAB (logon mode table)  
   displaying 278  
   modifying resource associations 458  
 MODIFY ALSLIST command 346  
 MODIFY APINGDTP command 349  
 MODIFY APINGTP command 350  
 MODIFY BFRUSE command 351  
 MODIFY CDRM command 352  
 MODIFY CHKPT command 354  
 MODIFY CNOS command 355  
 MODIFY COMPRESS command 360  
 MODIFY CSALIMIT command 362  
 MODIFY CSDUMP Command 365  
 MODIFY CSM command 370  
 MODIFY DEFAULTS command 372  
 MODIFY DEFINE command 373  
 MODIFY DIRECTRY command 377  
 MODIFY DR command 380  
 MODIFY DUMP command 384  
 MODIFY ENCR command 390  
 MODIFY EXIT command 392  
 MODIFY GR command 396  
 MODIFY HELP command 598  
 MODIFY IMR command 397  
 MODIFY INFO command 599  
 MODIFY INOPCODE command 398  
 MODIFY INOPDUMP command 401  
 MODIFY IOPD command 402  
 MODIFY IOPURGE command 403  
 MODIFY LINEDEF command 404  
 MODIFY LL2 command 405  
 MODIFY LOAD command 407  
 MODIFY MEMBER command 600  
 MODIFY MINLINK command 601  
 MODIFY MSGMOD command 414  
 MODIFY NCP Command 415  
 MODIFY NEG POLL command 416  
 MODIFY NOTNSTAT command 416  
 MODIFY NOTRACE command 417  
 MODIFY POLL command 436  
 MODIFY PPOLOG command 437  
 MODIFY PROFILES command 438  
 MODIFY QUERY command 439  
 MODIFY RESOURCE command 439  
 MODIFY RTP command 445  
 MODIFY SECURITY command 445  
 MODIFY SESSION command 449  
 MODIFY STOP command 601  
 MODIFY SUPP command 450  
 MODIFY TABLE command 451  
 MODIFY TGP command 459  
 MODIFY TNSTAT command 460  
 MODIFY TOPO command 462  
 MODIFY TRACE command 467  
 MODIFY USERVAR command 494  
 MODIFY VTAMOPTS command 498  
 MODSRCH operand  
   MODIFY RESOURCE command 443  
 module name  
   including in messages 414  
 MODULE operand  
   DISPLAY VTAMSTOR command 339  
   MODIFY EXIT command 395  
 module trace  
   displaying status of 315  
   starting 493  
   stopping 436  
 MOSS (maintenance operator subsystem) dumps 386  
 MSGLEVEL start option  
   displaying 330  
   modifying 498  
   setting 507  
 MSGMOD operand  
   MODIFY MSGMOD command 415  
 MSGMOD start option  
   displaying 330  
   modifying 414, 498  
   setting 507  
 MULTIPATH start option 498, 507  
 mutually exclusive operand table 540  
 MXSAWBUF start option  
   displaying 330  
   setting 507  
 MXSSCPRU start option  
   displaying 330  
   setting 507  
 MXSUBNUM start option  
   displaying 330  
   setting 507

## N

NACPROBE start option  
   modifying 498  
   setting 507  
 NBRMODE operand  
   MODIFY CNOS command 360  
 NCP (Network Control Program)  
   acquiring 528  
   dumping 386  
   dynamic reconfiguration 381, 565  
   line trace  
     displaying status of 315  
   loading 409  
   major node, displaying 151  
   releasing 588  
   storage, displaying 206  
 NCPBUFSZ start option  
   displaying 330  
   setting 507  
 negative polling limit, modifying 416  
 NEG POLL operand  
   MODIFY NEG POLL command 416  
 NETADDR operand  
   DISPLAY VTAMSTOR command 339  
 NETID operand  
   DISPLAY ADJCLUST command 15  
   DISPLAY ADJSSCPS command 22  
   DISPLAY BNCOSMAP command 51  
   DISPLAY CDRSCS command 58  
   DISPLAY COS command 74  
   DISPLAY ID command 143  
   DISPLAY ROUTE command 219  
   DISPLAY VTAMSTOR command 340  
   MODIFY TABLE command 455  
 NETID start option  
   displaying 330  
   setting 507  
 NETSRVR operand  
   MODIFY DIRECTRY command 380  
 network configuration  
   logon manager, modifying 600  
 Network Control Program (NCP)  
   acquiring 528

- Network Control Program (NCP) *(continued)*
  - dumping 386
  - dynamic reconfiguration 381, 565
  - line trace
    - displaying status of 315
  - loading 409
  - major node, displaying 151
  - releasing 588
  - storage, displaying 206
- network controller (3710) line trace
  - displaying status of 315
  - starting 493
  - stopping 436
- network node server list, displaying 208
- network node servers, displaying 208, 295
- network nodes, displaying 295
- NEWALS operand
  - MODIFY ALSLIST command 349
- NEWNAME operand
  - MODIFY LOAD command 413
- NEWPATH operand
  - VARY ACT command 552
- NEWTAB operand
  - MODIFY TABLE command 455
- NFRAMES operand
  - MODIFY LL2 command 407
- NMVTLOG start option
  - displaying 330
  - setting 507
- NNSPREF option
  - display vtamopts command 336
  - modify vtamopts command 498
  - start command 507
- node congestion, displaying 299
- node type, displaying 299, 330
- node, displaying 138
- NODELST start option
  - displaying 330
  - setting 507
- NODETYPE start option
  - displaying 330
  - setting 507
- NOLOGON operand
  - VARY NOLOGON command 586
- NOPROMPT start option
  - setting 507
- NOTIFY operand
  - MODIFY LOAD command 413
  - VARY TERM command 592
- NOTNSTAT start option
  - displaying 330
  - setting 507
- NOTRACE start option
  - setting 507
- NQNMODE start option
  - displaying 330
  - modifying 498
  - setting 507
- NSRFSIZE start option
  - displaying 330
  - setting 507
- NTRANS operand
  - MODIFY LL2 command 407
- NUM operand
  - DISPLAY STATS command 264
  - DISPLAY STORUSE command 274

- NUMTREES start option
  - displaying 330
  - modifying 498
  - setting 507

## O

- OLDALS operand
  - MODIFY ALSLIST command 349
- OLDTAB operand
  - MODIFY TABLE command 455
- OLU operand
  - DISPLAY SRCHINFO command 254
- OPTION operand
  - DISPLAY VTAMOPTS command 335
  - MODIFY CSALIMIT command 364
  - MODIFY DUMP command 389
  - MODIFY EXIT command 395
  - MODIFY IMR command 398
  - MODIFY LL2 command 407
  - MODIFY NOTRACE command 428
  - MODIFY TABLE command 456
  - MODIFY TRACE command 483
  - MODIFY USERVAR command 496
- ORIG operand
  - DISPLAY TOPO command 298
  - MODIFY TOPO command 465
- ORIGIN operand
  - DISPLAY ROUTE command 219
  - MODIFY TABLE command 457
- OSA-Express
  - modify notrace command 425
  - modify trace command 477
- OSIEVENT start option
  - displaying 330
  - modifying 498
  - setting 507
- OSIMGMT start option
  - displaying 330
  - modifying 498
  - setting 507
- OSITOPO start option
  - displaying 330
  - modifying 498
  - setting 507
- OSRFSIZE start option
  - displaying 330
  - setting 507
- OWNER operand
  - DISPLAY CLSTRS command 63
  - DISPLAY LINES command 192
  - VARY ACQ command 530
  - VARY REL command 590
- OWNERID operand
  - DISPLAY CSM command 80
- ownership of resources, modifying 378

## P

- PARMS operand
  - MODIFY EXIT command 395
- PASSWORD operand
  - DISPLAY APING command 29
- PATH operand
  - VARY PATH command 587
- PATHINFO operand 243



- paths, dial-out
  - displaying 212
  - making available or unavailable 587
- PDTRCBUF start option
  - displaying 330
  - modifying 498
  - setting 507
- PEND operand
  - MODIFY INFO command 599
- pending operations, time-out interval for 402
- pending requests, time-out interval for 403
- pending state, displaying resources in 215
- physical unit (PU)
  - acquiring 528
  - displaying 174
  - releasing 588
  - switched
    - displaying dial-out path information for 212
    - establishing switched connection for 564
    - making dial-out path available for 587
    - terminating switched connection for 567
- PID operand
  - VARY PATH command 588
- PIUMAXDS start option
  - displaying 330
  - modifying 498
  - setting 507
- PLU operand
  - DISPLAY SESSIONS command 243
  - VARY TERM command 593
- PLUALMSG start option
  - displaying 330
  - modifying 498
  - setting 507
- PMTUD start option
  - displaying 330
  - modifying 498
  - setting 507
- POLL operand
  - MODIFY POLL command 437
- polling
  - modifying negative response limit 416
- polling delay, modifying 437
- POOL operand
  - DISPLAY STORUSE command 274
- POOLTYPE operand
  - DISPLAY STORUSE command 274
- PPO (primary program operator)
  - logging commands and messages 437
- PPOLOG operand
  - MODIFY PPOLOG command 438
- PPOLOG start option
  - displaying 330
  - modifying 498
  - setting 507
- prerequisite information xvii
- primary program operator (PPO)
  - logging commands and messages 437
- profiles
  - RACF, updating 438
  - transmission group
    - displaying 285
    - modifying 459
- PROMPT start option
  - setting 507
- PSRETRY start option
  - displaying 330

- PSRETRY start option (*continued*)
  - modifying 498
  - setting 507
- PSSTRACE start option
  - modifying 498
  - setting 507
- PSWEIGHT start option 498
- PU (physical unit)
  - acquiring 528
  - displaying 174
  - releasing 588
  - switched
    - displaying dial-out path information for 212
    - establishing switched connection for 564
    - making dial-out path available for 587
    - terminating switched connection for 567
- PU operand
  - MODIFY NOTRACE command 434
  - MODIFY TRACE command 489
- PUSUB operand
  - VARY ACQ command 530

## R

- RACF (Resource Access Control Facility)
  - profiles, updating 438
- RECLIM operand
  - MODIFY IMR command 398
- REGISTER operand
  - MODIFY RESOURCE command 443
- resource
  - configuration list 5
- Resource Access Control Facility (RACF)
  - profiles, updating 438
- RESOURCE operand
  - DISPLAY VTAMSTOR command 340
- resource state (STATE) trace
  - displaying status of 315
  - starting 493
  - stopping 436
- RESP operand
  - MODIFY CNOS command 360
- RESUSAGE start option
  - displaying 330
  - modifying 498
  - setting 507
- RFC (request for comments)
  - accessing online xix
- RMPO operand
  - MODIFY DUMP command 389
  - VARY ACT command 577
- RNAME operand
  - VARY ACT command 552
- route addition resistance, displaying 299
- ROUTERES start option
  - displaying 330
  - modifying 498
  - setting 507
- routes
  - displaying 214
  - testing 218
- run-length encoding (data compression) 361

## S

- SACONNS 507

- SAMAP option
  - display samap command 239
- SAVE operand
  - MODIFY TRACE command 489
- SAVEMOD operand
  - VARY ACT command 553
- SAVERSCV operand
  - modify vtamopts command 498
  - start command 507
- SAVESESS operand
  - VARY INACT command 577
- SAW (session awareness) data filter table
  - modifying resource associations 458
- SAWMAXDS start option
  - displaying 330
  - setting 507
- SAWMXQPK start option
  - displaying 330
  - modifying 498
  - setting 507
- scanner interface trace (SIT)
  - displaying status of 315
  - starting 493
  - stopping 436
- SCOPE operand
  - DISPLAY ADJCLUST command 15
  - DISPLAY ADJCP command 17
  - DISPLAY ADJSSCPS command 22
  - DISPLAY APPLS command 38
  - DISPLAY BNCOSMAP command 51
  - DISPLAY CDRMS command 54
  - DISPLAY CDRSCS command 58
  - DISPLAY CLSTRS command 64
  - DISPLAY DIRECTRY command 89
  - DISPLAY GROUPS command 133
  - DISPLAY ID command 143
  - DISPLAY LINES command 192
  - DISPLAY LMTBL command 196
  - DISPLAY LUGROUPS command 199
  - DISPLAY MODELS command 204
  - DISPLAY NETSRVR command 208
  - DISPLAY RSCLIST command 229
  - DISPLAY SESSIONS command 243
  - DISPLAY STATIONS command 258
  - DISPLAY TABLE command 278
  - DISPLAY TERMS command 282
  - MODIFY NOTRACE command 434
  - MODIFY TOPO command 465
  - MODIFY TRACE command 490
  - VARY ACT command 554
  - VARY TERM command 593
- SDLCMDRS start option
  - displaying 330
  - modifying 498
  - setting 507
- SECLVLCP start option
  - displaying 330
  - setting 507
- security profiles, updating 438
- servers, network node, displaying 208
- session awareness (SAW) data filter table
  - modifying resource associations 458
- session limits, modifying
  - MODIFY CNOS command 357
  - MODIFY SESSION command 449
- SESSION operand
  - MODIFY SESSION command 450
- session status, displaying 241
- sessions
  - terminating 591
- shortcut keys 613
- SID operand
  - DISPLAY SESSIONS command 244
  - DISPLAY SRCHINFO command 254
  - VARY TERM command 594
- SIRFMSG start option
  - displaying 330
  - modifying 498
  - setting 507
- SIT (scanner interface trace)
  - displaying status of 315
  - starting 493
  - stopping 436
- SIZE operand
  - DISPLAY APING command 30
  - MODIFY TRACE command 490
- SLOWVAL start option
  - displaying 330
  - modifying 498
  - setting 507
- SLU operand
  - DISPLAY SESSIONS command 244
  - VARY TERM command 594
- SLUALMSG start option
  - displaying 330
  - modifying 498
  - setting 507
- SME buffer (EXIT) trace
  - displaying status of 314
  - starting 492
  - stopping 435
- SMEAUTH start option
  - displaying 330
  - setting 507
- SMS (buffer use) trace
  - displaying status of 315
  - starting 493
  - stopping 436
- SNA protocol specifications 611
- SNAPREQ start option
  - displaying 330
  - setting 507
- SNGSESLU operand
  - MODIFY CNOS command 360
- SNVC start option
  - displaying 330
  - modifying 498
  - setting 507
- softcopy information xvii
- SONLIM start option
  - displaying 330
  - setting 507
- SORDER start option
  - displaying 330
  - modifying 498
  - setting 507
- SRCHRED start option
  - displaying 330
  - modifying 498
  - setting 507
- SRCLEAR operand
  - MODIFY RESOURCE command 444
- SRCOUNT operand
  - MODIFY RESOURCE command 444

- SRCOUNT start option
  - displaying 330
  - modifying 498
  - setting 507
- SRTIMER operand
  - MODIFY RESOURCE command 444
- SRTIMER start option
  - displaying 330
  - modifying 498
  - setting 507
- SSCPDYN start option
  - displaying 330
  - setting 507
- SSCPID start option
  - displaying 330
  - setting 507
- SSCPNAME start option
  - displaying 330
  - setting 507
- SSCPORD start option
  - displaying 330
  - setting 507
- SSDTMOUT start option
  - displaying 330
  - modifying 498
  - setting 507
- SSEARCH start option
  - displaying 330
  - modifying 498
  - setting 507
- START command
  - for logon manager 602
  - for VTAM 507
- start list
  - changing 6
  - use of 5
- start options
  - displaying 330
  - modifying 506
  - setting 526
- starting VTAM 526
- STATE (resource state) trace
  - displaying status of 315
  - starting 493
  - stopping 436
- statistical information, displaying 261
- STOP operand
  - MODIFY STOP command 602
- stopping VTAM
  - HALT CANCEL command 345
  - HALT command 344
  - HALT QUICK command 346
- STORAGE operand
  - DISPLAY NCPSTOR command 206
- storage pools
  - displaying storage usage for 272
- storage usage information, displaying 272
- storage, NCP, displaying 206
- STRGR start option
  - displaying 330
  - setting 507
- STRMNPS start option
  - displaying 330
  - setting 507
- STRNAME operand
  - DISPLAY STATS command 264
- SUBTRACE operand
  - displaying 312
  - modifying 491
  - setting 507
- summary of changes xxiii
- SUPP operand
  - MODIFY SUPP command 451
- SUPP start option
  - displaying 330
  - modifying 498
  - setting 507
- suppression level of messages, modifying 450
- switched major node, displaying 152
- switched PU
  - displaying dial-out path information for 212
  - establishing switched connection for 564
  - making dial-out path available or unavailable 587
  - terminating switched connection for 567
- SWNORDER start option
  - displaying 330
  - modifying 498
  - setting 507
- syntax diagram, how to read xiv

## T

- tables
  - changing associations of 453
  - deleting associations of 453
  - displaying 277
  - loading 453
- TCP/IP
  - online information xix
- TCPNAME start option 507
- Technotes xvii
- terminals, displaying 281
- TEST operand
  - DISPLAY ROUTE command 220
- TG (transmission group) information
  - displaying 291
- TG (transmission group) profiles
  - displaying 285
  - modifying 459
- TG (transmission group) trace
  - displaying status of 315
  - starting 493
  - stopping 436
- TGN operand
  - DISPLAY TOPO command 298
  - MODIFY TGP command 459
  - MODIFY TOPO command 465
- TGPNAME operand
  - MODIFY TGP command 460
- TIME operand
  - MODIFY TNSTAT command 461
- TNSTAT start option
  - displaying 330
  - setting 507
- TO operand
  - MODIFY DR command 384
- TOCP operand
  - DISPLAY SRCHINFO command 254
- topology database
  - deleting entries from 463
  - displaying 291
  - saving 354

- TOSSCP operand
  - DISPLAY SRCHINFO command 254
- TP operand
  - DISPLAY APING command 30
- TRACE start option
  - displaying 312
  - modifying 475
  - setting 507
- TRACEPT operand
  - MODIFY TRACE command 492
- traces
  - displaying status of 312
  - starting and modifying 475
  - stopping 425
- trademark information 625
- TRANSLAT start option
  - displaying 330
  - setting 507
- transmission group (TG) information
  - displaying 291
- transmission group (TG) profiles
  - displaying 285
  - modifying 459
- transmission group (TG) trace
  - displaying status of 315
  - starting 493
  - stopping 436
- transport resource list (TRL)
  - displaying 320
- TRL (transport resource list)
  - displaying 320
- TRLE operand
  - DISPLAY TRL command 321
- truncation of message text 414
- TSO user ID
  - displaying status of 326
- TSO user trace
  - displaying status of 315
  - starting 494
  - stopping 436
- tuning statistics
  - starting the recording of 460
  - stopping the recording of 417
- TYPE operand
  - DISPLAY LMTBL command 196
  - DISPLAY SRCHINFO command 254
  - DISPLAY STATS command 265
  - DISPLAY TRACES command 314
  - DISPLAY VTAMSTOR command 340
  - MODIFY CDRM command 354
  - MODIFY CHKPT command 355
  - MODIFY DR command 384
  - MODIFY DUMP command 389
  - MODIFY NOTRACE command 435
  - MODIFY TABLE command 457
  - MODIFY TOPO command 466
  - MODIFY TRACE command 492
  - MODIFY USERVAR command 497
  - VARY INACT command 578
  - VARY REL command 590
  - VARY TERM command 594

## U

- U operand
  - VARY ACT command 555

- ULPID operand
  - DISPLAY TRL command 321
- unformatted system services (USS) table
  - command syntax 14
  - displaying 278
  - modifying resource associations 458
- UPDATE operand
  - VARY ACT command 556
- UPDDELAY start option
  - displaying 330
  - modifying 498
  - setting 507
- USE operand
  - DISPLAY LINES command 193
  - MODIFY LINEDEF command 405
- USERID operand
  - DISPLAY APING command 30
- USERVAR applications
  - defining, changing, or deleting 495
  - displaying 328
- USS (unformatted system services) table
  - command syntax 14
  - displaying 278
  - modifying resource associations 458
- USSTAB start option
  - displaying 330
  - setting 507
- UVEXIT operand
  - MODIFY USERVAR command 497

## V

- VALUE operand
  - MODIFY USERVAR command 497
- VARY ACQ command 527
- VARY ACT command 531
- VARY ANS command 561
- VARY AUTOLOG 562
- VARY DIAL command 564
- VARY DRDS command 565
- VARY HANGUP command 567
- VARY INACT command 568
- VARY INOP command 581
- VARY LOGON command 582
- VARY NOLOGON command 584
- VARY PATH command 586
- VARY REL command 588
- VARY TERM command 591
- VARYWLD start option
  - displaying 330
  - modifying 498
  - setting 507
- VERIFYCP start option
  - displaying 330
  - setting 507
- version and release of VTAM, displaying 330
- VFYRED start option
  - displaying 330
  - modifying 498
  - setting 507
- VFYREDTI start option
  - displaying 330
  - modifying 498
  - setting 507
- virtual nodes, displaying 296
- virtual route (VR)
  - displaying status of 214, 218

- VIT (VTAM internal trace)
  - displaying status of 315
  - starting 494
  - stopping 436
- VOSDEACT start option
  - displaying 333
  - modifying 498
  - setting 507
- VR (virtual route)
  - displaying status of 214, 218
- VR operand
  - DISPLAY ROUTE command 219
- VRTG start option
  - displaying 330
  - modifying 498
  - setting 507
- VRTGCPCP operand
  - VARY ACT command 560
- VRTGCPCP start option
  - displaying 330
  - modifying 498
  - setting 507
- VTAM
  - changing with MODIFY 6
  - changing with VARY 5
  - halting 5
- VTAM internal trace (VIT)
  - displaying status of 315
  - starting 494
  - stopping 436
- VTAM, online information xix
- VTAMEAS start option
  - displaying 330
  - setting 507

## W

- WARM operand
  - VARY ACT command 560
- WARM start option
  - displaying 330
  - setting 507
- weight of node, displaying 299
- wildcard network IDs
  - DISPLAY ADJCP command 17
  - DISPLAY ID command 141
  - MODIFY TGP command 459
- wildcard resource names
  - DISPLAY APPLS command 37
  - DISPLAY CDRMS command 53
  - DISPLAY CDRSCS command 57
  - DISPLAY CLSTRS command 63
  - DISPLAY GROUPS command 133
  - DISPLAY LINES command 191
  - DISPLAY RSCLIST command 225
  - DISPLAY TERMS command 282
  - DISPLAY TGPS command 285
  - DISPLAY TOPO command 294
  - DISPLAY TRACES command 313

## X

- XCA (external communication adapter) major node
  - displaying 152
- XCFINIT start option
  - displaying 330

- XCFINIT start option (*continued*)
  - setting 507
- XLENGTH operand
  - DISPLAY VTAMSTOR command 341
- XNETALS start option
  - displaying 330
  - setting 507

## Z

- Z (HALT) command 343
- z/OS Basic Skills Information Center xvii
- z/OS, documentation library listing 627



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