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About this document

This quick reference summarizes information found in:

- z/OS Communications Server: IP Configuration Guide
- z/OS Communications Server: IP System Administrator’s Commands
- z/OS Communications Server: SNA Operation
- z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures

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.

This document is provided as a source of commonly used operation information for experienced system programmers and operators, and it contains information on:

- IP MVS™ Operator commands
- VTAM® commands
- VTAM start options

Use the table of contents to locate the reference information you need. For more detailed information, refer to the document listed at the start of each section.
Part 1. IP commands

In this section, commands are listed alphabetically. For more information on these commands, refer to "z/OS Communications Server: IP Configuration Guide" and "z/OS Communications Server: IP System Administrator’s Commands".
IP commands
Chapter 1. IP MVS operator commands

DISPLAY TCPIP

Display the status of the current TCP/IP images:

This is the general format of the DISPLAY command used to display the status of the current TCP/IP images.

```
Display TCPIP
```

This is the format of DISPLAY command used to display information about TCP/IP applications.

```
Display TCPIP, APPL=applid, CMD=CLIENT
```

DISPLAY TCPIP HELP

Display the syntax of MVS operator commands for TCP/IP:
DISPLAY TCPIP NETSTAT

Request NETSTAT information:
Notes:

1. The CLIent filter is valid only with ALL, ALLConn, BYTEinfo, CONn, and SOCKets.
2. The POrt filter is valid only with ALL, ALLConn, CONn, PORTList, SOCKets, VCRT, and VDPT.
3. The IPAddr filter is valid only with ALL, ALLConn, BYTEinfo, CONn, ND, RESCache, ROUTe, SOCKets, VCRT, VDPT, and VIPADCFG.
4. The NOTN3270 filter is valid only with ALL, ALLConn, BYTEinfo, CONn, and SOCKets.
5. The IPPort filter is valid only with ALL, ALLConn, CONn, SOCKets, VCRT, and VDPT.
6. The APPLD filter is valid only with ALL, ALLConn, and CONn.
7. The CONNType filter is valid only with ALLConn and CONn.
8. The INTFName filter is valid only with DEvlinks and H0me.
9. The valid protocol values are TCP and UDP.
10. The DNSAddr select string is valid only with RESCache.
11. The HOSTName select string is valid only with RESCache.
12. The valid protocol values are IP, ICMP, TCP, and UDP.
13. If the MAX parameter is not specified on the command, the default value for the MAX parameter is the value of the MAXRECS parameter on the GLOBALCONFIG profile statement.

Note: The minimum abbreviation for each parameter is shown in uppercase letters.
DISPLAY TCPIP OMPROUTE

Display OMPROUTE configuration and state information:

```
Display TCPIP ,,OMProute
```

```
OSPF OSPF options
RIP RIP options
GENERIC GENERIC options
RTTABLE TABLE
PRtable= ALL ,DEST=ip_addr ,DELETED
IPv6OSPF IPv6 OSPF options
IPv6RIP IPv6RIP options
GENERIC6 GENERIC6 options
RT6TABLE TABLE
DEST= ip_addr ,ip_addr/prefixlen,
DELETED
```

**OSPF options:**

```
LIST ,ALL
AREAS
InterfaceS
NBMA
NeighborS
Vlinks
```

```
AREASUM
EXTERNAL
DATABASE
DBSIZE
Interface
NAME=if_name
Neighbor
IPADDR=ip_addr
ROUTERS
STATISTICS
```

**LSA command:**

```
LSA ,LSTYPE=ls_type ,LSID=lslid ,ORIGINator=ad_router
```

```
,AREAID=area_id
```
IP MVS operator commands

RIP options:

```
LIST,ALL,
,InterfaceS
,ACCEPTED,
,Interface
,FILTERS
```

GENERIC options:

```
LIST,ALL
,InterfaceS
```

IPv6 OSPF options:

```
,ALL
,AREASUM,
,Interface
,NAME=if_name
,ID=if_id
,VLINK
,ENDPT=router-id
,Neighbor
,ID=router-id
,IFNAME=if_name
,DBSIZE
```

IPv6 LSA command:

```
LSA,,LSTYPE=ls_type,,LSID=lsid,,ORIGINator=ad_router
,AREAID=area_id
,IFNAME=if_name
```

IPv6RIP options:

```
,ALL
,ACCEPTED,
,Interface
,NAME=if_name
,FILTERS
```
 GENERIC6 options:

 DISPLAY TCPIP OSAINFO

 Request OSA information:

 ![Diagram of DISPLAY TCPIP OSAINFO syntax]

 Notes:
 1. If no modifiers are specified, all sections for which information exists are displayed.

 Rule: The parameters must be specified in the order shown in the syntax diagram.

 DISPLAY TCPIP STOR

 Display TCP/IP storage usage information or the service level of a TCP/IP module:

 ![Diagram of DISPLAY TCPIP STOR syntax]

 DISPLAY TCPIP SYSPLEX

 Request SYSPLEX information:

 ![Diagram of DISPLAY TCPIP SYSPLEX syntax]
Notes:

1. MAX limits the number of records displayed to the MVS operator's console.

DISPLAY TCPIP TELNET

This is the format of the DISPLAY command used to display the status of the current TN3270E Telnet server images.

HELP display command:

STOR display command:

CLIENTID display command:

CONNECTION display command:
INACTLUS display command:

OBJECT display command:
IP MVS operator commands

PROFILE display command:

```
Display TCPIP,tnproc,PROFILE
```

LUNS INACTLUS display command:

```
Display TCPIP,tnproc,LUNS,INACTLUS
```

LUNS OBJect display command:

```
Display TCPIP,tnproc,LUNS,OBJect
```

XCF GRoup display command:

```
Display TCPIP,tnproc,XCF,Group
```

XCF STats display command:

```
Display TCPIP,tnproc,XCF,Stats
```
**EZACMD command**

Issue commands from the operator console, TSO, or IBM® Tivoli® NetView® for z/OS®.

**Operator console syntax:**

```
prefix EZACMD 'command name' command options MAX=lines
```

**TSO syntax:**

```
EZACMD command name command options MAX=lines
```

**NetView syntax:**

```
NETVASSIS EZACMD command name command options MAX=lines
```

**MODIFY TCPIP command**

Dynamically change characteristics of an active task:

```
MODIFY procname, parameter
```

**Automated domain name registration application (EZBADNR)**

Control the automated domain name registration application (EZBADNR) from the operator's console using the MODIFY command:

```
MODIFY procname,
```

**CSSMTP application**

Control and monitor the Communication Server Simple Mail Transfer Protocol (CSSMTP) application:
IP MVS operator commands

Defense Manager daemon

Control Defense Manager daemon (DMD) functions:

- MODIFY procname, DISPLAY
- MODIFY procname, REFRESH
- MODIFY procname, FORCE_INACTIVE, stackname

FTP server

Start and stop tracing after initialization is complete:
Notes:

1. Prepend any option yyy with X to turn off that trace.

**IKE server**

Control IKE server functions:

```
MODIFY procname,DISPLAY
```

```
MODIFY procname,REFRESH
```

FILE='filename'

FILE='//'filename'
IP MVS operator commands

**NCPROUTE server**
Pass parameters to the NCPROUTE address space:

```
MODIFY procname, QUERY PARMS=parms, C=client
MODIFY procname, PROFILE
MODIFY procname, GATEWAYS
MODIFY procname, GATEWAYS,DELETE
MODIFY procname, TABLES
```

**Network security services server**
Control the network security services (NSS) server functions:

```
MODIFY procname,DISPLAY '-,URLCACHE-'
MODIFY procname,REFRESH ',FILE='filename' ',FILE=//filename'
```

**OMPROUTE**
Control OMPROUTE from the operator's console:

```
MODIFY procname,
```

```
KILL
RECONFIG
ROUTESA= ENABLE
DISABLE
TRACE=trace_level
DEBUG=debug_level
TRACE6=trace6_level
DEBUG6=debug6_level
SDEBUG=sdebug_level
OSPF OSPF options
RIP RIP options
GENERIC GENERIC options
RTTABLE
PRtable= ALL ,DEST=ip_addr ,DELETED
IPV6OSPF IPv6 OSPF options
IPV6RIP IPv6 RIP options
GENERIC6 GENERIC6 options
RT6TABLE
,DEST=ip_addr/prefixlen ,DELETED
```

**OSPF options:**
LSA command:

```
,LSA,LSTYPE=ls_type,LSID=lsid

,ORIGINator=ad_router,

,AREASUM,AREAID=area_id
```

RIP options:

```
,LIST,ALL

,InterFace

,FILTERS
```

GENERIC options:

```
,LIST,ALL

,InterFace
```

IPv6 OSPF options:
IP MVS operator commands

IPv6 LSA command:

IPv6 RIP options:

GENERIC6 options:

Policy Agent
Control the Policy Agent functions from the operator's console using the MODIFY command:
Resolver address space

Request the resolver address space to display or refresh its setup information:

REXEC server

Change the parameters on the Remote Execution server:

SMTP

The MODIFY SMTP command provides an interactive interface to the SMTP server that allows you to do the following:

- Query the operating statistics of the SMTP server
- Query the SMTP mail delivery queues
IP MVS operator commands

- Perform privileged system administration tasks such as shutting down the SMTP server and enabling or disabling various tracing and debugging options

SNALINK LU0 server

Halt the SNALINK LU0 interface:

SNALINK LU6.2 server

Stop or restart the SNALINK LU6.2 interface and control tracing:
SNMP agent

Modify some SNMP agent initialization parameters:

```
MODIFY snmp_agent_jobname, INTERVAL=n, TRACE, LEVEL=n
```

SNMP network SLAPM2 subagent

Control the Network SLAPM2 subagent functions from the operator's console using the MODIFY command:

```
MODIFY procname, Debug,Level=n, Cache,Time=t, Query
```

Syslog daemon

Control syslog daemon functions:

```
MODIFY procname, ARCHIVE DISPLAY,ARCHIVE DETAIL MAX=5, MAX=n, MAX=* 
```

Chapter 1. IP MVS operator commands 21
IP MVS operator commands

**TRAPFWD**
Modify the trap forwarder daemon:

```
MODIFY trap_daemon_jobname, REFRESH TRACE, QUERY LEVEL=n
```

**VMCF and TNF**
Display the names of current users of VMCF and TNF and remove names from the name lists:

```
MODIFY VMCF, TNF, DISPLAY, REMOVE, NAME=name
```

**X.25 NPSI server**
Pass parameters to the X.25 NPSI server:

```
MODIFY procname, CANCEL DEBUG digits, EVENTS id, HALT LIST, PKTTRACE ON LINKNAME=* pkttrace_options, OFF CLEAR LIST, RESTART mchlu, SNAP id, TRACE id DATA OFF, TRAFFIC
```

**z/OS Load Balancing Advisor**
Control the Load Balancing Advisor from the operator's console using the MODIFY command:

```
MODIFY procname,
```
z/OS Load Balancing Agent

Control the Load Balancing Agent from the operator's console using the MODIFY command:

```
MODIFY procname,
```

Target options:

```
TARGET options:
```

START TCPIP

Dynamically start a TCP/IP server or address space (including the TCP/IP address space):

```
START procname,
```

STOP TCPIP

Stop a TCP/IP server or address space (including the TCP/IP address space) that is in execution:

```
STOP procname
```
VARY TCPIP DATTRACE

Trace socket data (transforms) into and out of the physical file structure (PFS):

```
VARY TCPIP, procname, DATtrace, ON, OFF
```

**TRACE:**

```
FULL

ABBREV= abbrev_length

JOBNAME= job_name

IP= IPv4_address

PORTNum= port_number

IPv4_address:

ipv4_address

SUBNet= subnet_mask

/num_mask_bits

IPv6_address:

ipv6_address

/128

/prefixLength
```

VARY TCPIP DROP

Drop a single connection:

```
VARY TCPIP, procname, DRop, CONNection= connid
```

Drop all TCP connections associated with a TCP/IP server:

```
VARY TCPIP, procname, DRop,

POrt= portnum

JOBNAME= jobname

ASID= asid
```

IP MVS operator commands
VARY TCPIP OBEYFILE

Change the TCP/IP configuration:

```
VARY TCPIP,tnproc Obeyfile,CMDO=Obeyfile,datasetname
```

VARY TCPIP OSAENTA

Set up OSAENTA tracing:

```
VARY TCPIP,procname OSAENTA Command
```

**Command:**

```
,PORTNAME=osaportname,ON TRACE,OFF,DEL

Trace Parameters:

- FULL
- ABBREV=abbrev_length
- CLEARfilter
- DISCARD=PAYLOAD
- DISCARD=TLS
- DISCARD=DELETE
- DISCARD=IP
- DISCARD=UDP
- DISCARD=TCP
- DISCARD=ALL
- DISCARD=NONE
- DISCARD=discard_code

DATA=trace_amount,

FRAMES=trace_count,

TIME=trace_time
```
IP MVS operator commands

**Protocol Type:**
- PROTOcol=*
- PROTOcol=TCP
- PROTOcol=UDP
- PROTOcol=ICMP
- PROTOcol=ICMPV6
- PROTOcol=protocol_number

**IP Address:**
- IPaddr=*
- IPaddr=ipv4_address
  - /32
  - /num_mask_bits
- IPaddr=ipv6_address
  - /128
  - /prefix_length

**Packet Port:**
- PORTNum=*
- PORTNum=port_number

**Device Identifier:**
- DEVICEID=*
- DEVICEID=device_id

**Ethernet Type:**
- ETHType=*
- ETHType=IPV4
- ETHType=IPV6
- ETHType=ARP
- ETHType=SNA
- ETHType=ethernet_type

**MAC Address:**
- MAC=*
- MAC=mac_address

**VLAN ID:**
Notes:
1. Each option can be specified only once. The order of options is not important.
2. You must also issue the MVS TRACE command for component SYSTCPOT to activate the OSAENTA trace. Refer to [z/OS Communications Server: IP Diagnosis Guide](https://www.ibm.com/support/docview.wss?uid=swg21283097) for details.

**VARY TCPIP PKTTRACE**

Set up packet tracing:

```
VARY TCPIP, procname, PKTtrace
```

Command:

```
LINKName=*, OFF
LINKName=link_name, CLEAR
INTFName=*, OFF
INTFName=intf_name, CLEAR

Packet Length:

```
FULL
ABBREV
```

Protocol Type:

```
PROT=*
PROT=TCP
PROT=UDP
PROT=ICMP
PROT=ICMPV6
PROT=protocol_number
```

Packet Dest Address:
IP MVS operator commands

Packet Source Port:

Packet Dest Port:

Packet Port Number:

Packet Discard Code:

Notes:
1 Each option can be specified only once. The order of options is not important.
2 The MVS TRACE command must also be issued for component SYSTCPDA to activate the packet trace. Refer to z/OS Communications Server: IP Diagnosis Guide for details.

VARY TCPIP PURGECACHE

Delete the ARP cache entries for a link or neighbor cache entries for an interface:
**VARY TCPIP START**

Start a TCP/IP device or interface:

```
Vary -TCPIP-, procname, STArt, device_name
```

**VARY TCPIP STOP**

Stop a TCP/IP device or interface:

```
Vary -TCPIP-, procname, STOP, device_name
```

**VARY TCPIP SYSPLEX**

Change the TCP/IP stack's sysplex configuration:

```
Vary -TCPIP-, procname
```

```
SYSpex, LEAVEgroup
JOINgroup
DEACTivate, DVIPA=dvipa
REACTivate, DVIPA=dvipa
QUIesce, PORT=portnum, JOBNAME=jobname, ASID=asid
QUIesce, JOBNAME=jobname, ASID=asid
QUIesce, TARGET
RESUME, PORT=portnum, JOBNAME=jobname, ASID=asid
RESUME, JOBNAME=jobname, ASID=asid
RESUME, TARGET
```

**VARY TCPIP TELNET**

Obtain abend dumps based on a return code being set in a given module:

```
Vary -TCPIP-, tnproc, ABENDTRAP, modname
```

```
rcode, instance
```

Disable Telnet traces:

```
Vary TCPIP-, tnproc, DEBUG, OFF
```

**IP MVS operator commands**

Activate a Telnet LU:

```
Vary TCPIP,tnproc,Telnet,ACT,luname
```

Deactivate a Telnet LU:

```
Vary TCPIP,tnproc,Telnet,INACT,luname
```

Quiesce a Telnet port:

```
Vary TCPIP,tnproc,Telnet,QUIesce
```

Resume a Telnet port:

```
Vary TCPIP,tnproc,Telnet,RESUME
```

Stop a Telnet port:

```
Vary TCPIP,tnproc,Telnet,STOp
```

Activate a LUNS LU:

```
Vary TCPIP,tnproc,LUNS,ACT,luname
```

Deactivate a LUNS LU:

```
Vary TCPIP,tnproc,LUNS,INACT,luname
```

Quiesce a LUNS:

```
Vary TCPIP,tnproc,LUNS,QUIesce
```
Resume a LUNS:

```bash
Vary TCPIP,tnproc,LUNS,RESUME
```

Start a LUNS:

```bash
Vary TCPIP,tnproc,LUNS,START
```
Chapter 2. TSO commands

DIG command

Query name servers

+queryoption:

- digoption

+queryoption:
TSO commands

−digoption:
Enter the FTP environment

The following sections describe the syntax for FTP subcommands. You must be in the FTP environment to use the FTP subcommands.

**ACCT subcommand**
Supply account information
TSO commands

APPEND subcommand
Append a local data set

ASCII subcommand
Change the data transfer type to ASCII

AUth subcommand
Negotiate a security mechanism for the session

BIG5 subcommand
Change the data transfer type to BIG5:

BINARY subcommand
Change the data transfer type to Image

BLOCK subcommand
Set the block data transfer mode

CCC subcommand
Change control connection protection to clear
CD subcommand
Change the directory on the remote host:

```
CD directory
```

CDUP subcommand
Change to the parent of the working directory:

```
CDUp
```

CLEAR subcommand
Change control connection protection to clear:

```
Clear
```

CLOSE subcommand
Disconnect from a remote host:

```
Close
```

COMPRESS subcommand
Set the compressed data transfer mode:

```
Compress
```

CPROTECT subcommand
Change or display control connection protection:

```
CProtect
```

DEBUG subcommand
Set internal debug options:

```
Debug
```

DELETE subcommand
Delete files:
TSO commands

---DELete—foreign_file---

**DELIMIT subcommand**
Display the file name delimiter:

---DELImit---

**DIR subcommand**
Obtain a list of directory entries:

---Dir---

**DUMP subcommand**
Sets the internal extended trace options:

---DUMP---

**EBCDIC subcommand**
Change the data transfer type to EBCDIC:

---EBcdic---

**EUCKANJI subcommand**
Change the data transfer type to EUCKANJI:

---EUckanji---

**FEATURE subcommand**
Ask the server which features and extensions it supports:

---FEature---

**FILE subcommand**
Set the file structure to file

---File---
**GET subcommand**

Copy files:

```
GET foreign_file local_file [REPLACE]
```

**GLOB subcommand**

Toggle expansion of metacharacters

```
Glob
```

**HANGEUL subcommand**

Change the data transfer type to HANGEUL:

```
Hangeul
```

**HELP and ? subcommands**

Display help information:

```
Help
```

**IBMKANJI subcommand**

Change the data transfer type to IBMKANJI:

```
Ibmkanji
```

**JIS78KJ subcommand**

Change the data transfer type to JIS78KJ:

```
JIS78kJ
```
**TSO commands**

**JIS83KJ subcommand**
Change the data transfer type to JIS83KJ:

```plaintext
// JIS83Kj
[Ascii]
[Jisroman]
[Noso]
[NOType]
```

**KSC5601 subcommand**
Change the data transfer type to KSC-5601:

```plaintext
// Ksc5601
[Ascii]
[Sosi]
[EBcdic]
[Space]
```

**LANGuage subcommand**
Request server replies in another language, or reset language to the default:

```plaintext
// LANGuage
[language]
[subtag]
```

**LCD subcommand**
Change the local working directory

```plaintext
// LCD
[qualifier]
```

**LMKDIR subcommand**
Create a directory on the local host

```plaintext
// Lmkdir
[directory]
```

**LOCSITE subcommand**
Specify site information to the local host:

```plaintext
// LOCSITE
[option]
```

Options:
### TSO commands

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<th>Description</th>
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<td>Specifies the file type</td>
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<td>FWFriendly</td>
<td>Enables friendly file handling</td>
</tr>
<tr>
<td>ISPFSTATS</td>
<td>Enables ISPF statistics</td>
</tr>
<tr>
<td>LISTSUBdir</td>
<td>Specifies the list subdirectory</td>
</tr>
<tr>
<td>LRec</td>
<td>Specifies the record length</td>
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<td>MBDATACONN</td>
<td>Specifies the file system codepage and network transfer codepage</td>
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<td>Disables BD subtask</td>
</tr>
<tr>
<td>NOEPSV4</td>
<td>Disables EPSV 4</td>
</tr>
<tr>
<td>NOFWFriendly</td>
<td>Disables friendly file handling</td>
</tr>
<tr>
<td>NOISPFSTATS</td>
<td>Disables ISPF statistics</td>
</tr>
<tr>
<td>NOLISTSUBdir</td>
<td>Disables list subdirectory</td>
</tr>
<tr>
<td>NODULEQUIRELASTEOL</td>
<td>Enables require last line</td>
</tr>
<tr>
<td>NOPASSIVEIGNOREADDR</td>
<td>Enables passive ignore address</td>
</tr>
<tr>
<td>NOREADTAPEFastio</td>
<td>Disables READTAPE Fastio</td>
</tr>
<tr>
<td>NOQUOTESoverride</td>
<td>Enables quotes override</td>
</tr>
<tr>
<td>NOREADTAPEFormat</td>
<td>Enables READTAPE tape format</td>
</tr>
<tr>
<td>NOTAPEFastio</td>
<td>Disables fast I/O</td>
</tr>
<tr>
<td>NOTRACINGblanks</td>
<td>Disables trailing blanks</td>
</tr>
<tr>
<td>NOTRNcateg</td>
<td>Disables yrncate</td>
</tr>
<tr>
<td>NOUCSSUB</td>
<td>Disables UCSSUB</td>
</tr>
<tr>
<td>NOUCSTRUNC</td>
<td>Disables UCSTRUNC</td>
</tr>
<tr>
<td>NOWAVerec</td>
<td>Disables WAVerec</td>
</tr>
<tr>
<td>NOWRAPrecord</td>
<td>Disables NOWRAP record</td>
</tr>
<tr>
<td>NOWRTAPEFastio</td>
<td>Disables NOWRTAPE Fastio</td>
</tr>
<tr>
<td>PASSIVEIGNOREADDR</td>
<td>Enables passive ignore address</td>
</tr>
<tr>
<td>PSTYPE</td>
<td>Specifies the PDS type</td>
</tr>
<tr>
<td>PRImary</td>
<td>Specifies the primary amount</td>
</tr>
<tr>
<td>PROGRESS</td>
<td>Specifies the progress number</td>
</tr>
<tr>
<td>Qdisk</td>
<td>Specifies the Q disk</td>
</tr>
<tr>
<td>QUOTESoverride</td>
<td>Enables quotes override</td>
</tr>
<tr>
<td>READTAPEFormat</td>
<td>Enables READTAPE tape format</td>
</tr>
<tr>
<td>RECfm</td>
<td>Specifies the record format</td>
</tr>
<tr>
<td>REMOVEINBEOL</td>
<td>Enables remove in block end</td>
</tr>
<tr>
<td>RESTGet</td>
<td>Enables rest get</td>
</tr>
<tr>
<td>RETpd</td>
<td>Specifies the RET pd</td>
</tr>
<tr>
<td>PDSTYPE</td>
<td>Specifies the PDS type</td>
</tr>
<tr>
<td>PDSE</td>
<td>Specifies the PDSE</td>
</tr>
</tbody>
</table>
LOCSTAT subcommand

Display local status information:
### TSO commands

**options:**

<table>
<thead>
<tr>
<th>Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASAtrans</td>
</tr>
<tr>
<td>AUTOMount</td>
</tr>
<tr>
<td>AUTORecall</td>
</tr>
<tr>
<td>Blocks</td>
</tr>
<tr>
<td>BLOCKSIZE</td>
</tr>
<tr>
<td>Bufno</td>
</tr>
<tr>
<td>CConnctime</td>
</tr>
<tr>
<td>CHKpint</td>
</tr>
<tr>
<td>CHKPTPrefix</td>
</tr>
<tr>
<td>CONDdisp</td>
</tr>
<tr>
<td>CYlinders</td>
</tr>
<tr>
<td>DATAClass</td>
</tr>
<tr>
<td>DATACTime</td>
</tr>
<tr>
<td>DATAKEEPALIVE</td>
</tr>
<tr>
<td>DATASetmode</td>
</tr>
<tr>
<td>DB2</td>
</tr>
<tr>
<td>DBSUB</td>
</tr>
<tr>
<td>DCbdn</td>
</tr>
<tr>
<td>DCConnctime</td>
</tr>
<tr>
<td>Directory</td>
</tr>
<tr>
<td>DIRECTORYMode</td>
</tr>
<tr>
<td>DSNTYPE</td>
</tr>
<tr>
<td>DSWAITTIME</td>
</tr>
<tr>
<td>EATTR</td>
</tr>
<tr>
<td>ENcoding</td>
</tr>
<tr>
<td>EPSV4</td>
</tr>
<tr>
<td>FIFIO TIME</td>
</tr>
<tr>
<td>FIFOOPEN TIME</td>
</tr>
<tr>
<td>FILEtype</td>
</tr>
<tr>
<td>FTPkeepalive</td>
</tr>
<tr>
<td>FWFriendly</td>
</tr>
<tr>
<td>INacttime</td>
</tr>
<tr>
<td>ISPFSstats</td>
</tr>
<tr>
<td>LISTSUBdir</td>
</tr>
<tr>
<td>LRecl</td>
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<tr>
<td>MBdataconn</td>
</tr>
<tr>
<td>MBREQUIRELASEOL</td>
</tr>
<tr>
<td>MBSENDEOL</td>
</tr>
<tr>
<td>MGmtclass</td>
</tr>
<tr>
<td>MiGratevol</td>
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<tr>
<td>MYopentime</td>
</tr>
<tr>
<td>PASSIVEIGNOREADDR</td>
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<tr>
<td>POSTYPE</td>
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<tr>
<td>PRimary</td>
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<tr>
<td>QUOTESoverride</td>
</tr>
<tr>
<td>RDw</td>
</tr>
<tr>
<td>READTAPEFormat</td>
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<tr>
<td>RECfm</td>
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<tr>
<td>RESTGet</td>
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<tr>
<td>RETpd</td>
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<tr>
<td>SBDataconn</td>
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<tr>
<td>SBSENDEOL</td>
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<tr>
<td>SBSUB</td>
</tr>
<tr>
<td>SBSUBChar</td>
</tr>
<tr>
<td>SECondary</td>
</tr>
<tr>
<td>SECUREIMPLICITZOS</td>
</tr>
<tr>
<td>SPRead</td>
</tr>
<tr>
<td>SQLCol</td>
</tr>
<tr>
<td>STOrclass</td>
</tr>
<tr>
<td>TLSRFCLEVEL</td>
</tr>
</tbody>
</table>
Chapter 2. TSO commands

**LPWD subcommand**
Display the current working-level qualifier:

```
LPwd
```

**LS subcommand**
Obtain a list of file names:

```
LS [name] [Disk]
```

**DELETE subcommand**
Delete multiple files:

```
MDelete foreign_file
```

**MGET subcommand**
Copy multiple files:

```
MGet foreign_file [REPLACE]
```

**MKDIR subcommand**
Create a directory on the remote host:

```
MKdir directory [like local_directory]
```
TSO commands

**MKFIFO subcommand**
Create a named pipe on the remote host:

```
MKfifo path name
```

**MODE subcommand**
Set the data transfer mode:

```
MOde [C] [S]
```

**MPUT subcommand**
Copy multiple data sets to the remote host:

```
MPut local data set
```

**NOOP subcommand**
Test the connection:

```
NOop
```

**OPEN subcommand**
Connect to the FTP server:

```
Open host name 21 port number
```

**PASS subcommand**
Supply a password:

```
PAss password [newpass/newpass] :userdata
```

**PRIVATE subcommand**
Change data connection protection to private:

```
PRIvate
```
**PROMPT subcommand**

Toggle interactive prompting for M* commands:

```
>>> PROMpt
```

**PROTECT subcommand**

Change or display data connection protection:

```
>>> PROTect
   - CLEAR
   - SAFE
   - PRIVATE
```

**PROXY subcommand**

Execute FTP subcommand on secondary control connections:

```
>>> PROxy subcommand
```

**PUT subcommand**

Copy data sets to the remote host:

```
>>> PUT local_file foreign_file
```

**PWD subcommand**

Display the current working directory:

```
>>> Pwd
```

**QUIT subcommand**

Leave the FTP environment:

```
>>> QUIT
```

**QUOTE subcommand**

Send an uninterpreted string of data:

```
>>> QUOte string
```

**RECORD subcommand**

Set the file structure to record:

```
>>> RECord
```
**RENAME subcommand**
Rename files:

```
REName original_name new_name
```

**RESTART subcommand**
Restart a checkpointed data transfer:

```
REStart
```

**RMDIR subcommand**
Remove a directory on the remote host:

```
RMDir directory
```

**SAFE subcommand**
Change data connection protection to safe:

```
SAFE
```

**SCHINESE subcommand**
Change the data transfer type to SCHINESE:

```
SChinese
```

**SENDPORT subcommand**
Toggle the sending of port information:

```
SENDPort
```

**SENDSITE subcommand**
Toggle the sending of site information:

```
SENDSite
```
SITE subcommand

Send site specific information to a host:

```
 SITE options
```

options:

- `ASATrans`
- `AUTOMount`
- `AUTOREcall`
- `BLksizesize`
- `Blocks`
- `BLOCKSize`
- `Bufno`
- `CHKptntnumber`
- `CHMod`, `filename` or `symbolic filename`
- `CONDdisp`, `Catlg` or `Delete`
- `CTRLConn`, `7BIT`, `iconv_ascii`, `FTP_STANDARD_TABLE`
- `Cylinders`
- `DATAClassdata_class`
- `DATAKEEPALIVEseconds`
- `DATASETmode`
**TSO commands**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB2</td>
<td>- db2_name</td>
</tr>
<tr>
<td>DBCSUB</td>
<td>- data_set_name</td>
</tr>
<tr>
<td>DBCdsn</td>
<td></td>
</tr>
<tr>
<td>DEBUG</td>
<td></td>
</tr>
<tr>
<td>DESt</td>
<td></td>
</tr>
<tr>
<td>Directory</td>
<td></td>
</tr>
<tr>
<td>DIRECTORY</td>
<td></td>
</tr>
<tr>
<td>DSNTYPE</td>
<td>- SYSTEM</td>
</tr>
<tr>
<td>DSWAITIME</td>
<td>- minutes</td>
</tr>
<tr>
<td>DUMP</td>
<td></td>
</tr>
<tr>
<td>EATTR</td>
<td>- SYSTEM</td>
</tr>
<tr>
<td>ENCODING</td>
<td>- SBCS</td>
</tr>
<tr>
<td>FIFOIOTIME</td>
<td>- seconds</td>
</tr>
<tr>
<td>FIFOOPEN</td>
<td>- seconds</td>
</tr>
</tbody>
</table>

**Example Usage:**

```
DB2 = db2_name
DBSUB + DBCdsn = data_set_name
DEBUG = ACC, ALL, BAS, CMD, FLO, FSC(n), INT, JES, NONE, PAR, SEC, SOC(n), SQL, UTL, Xyy
DEST = destination
Directory = size
DIRECTORYMODE = SYSTEM, BASIC, LARGE
DSWAITIME = minutes
DUMP = ?, ALL, FSC, JES, NONE, SOC, SQL, Xyy
EATTR = SYSTEM, NO, OPT
ENCODING = SBCS, MBCS
FIFOIOTIME = seconds
FIFOOPEN = seconds
```
Chapter 2. TSO commands
SJISKANJI subcommand

Change the data transfer type to SJISKANJI:

STATUS subcommand

Retrieve status information from a remote host:

options:
STREAM subcommand
Set the stream data transfer mode:

```
STREAM
```

STRUCTURE subcommand
Set the file structure:

```
STRUCTURE
```

SUNIQUE subcommand
Toggle the storage method:

```
SUNIQUE
```

SYSTEM subcommand
Display the operating system name:

```
SYSTEM
```

TCHINESE subcommand
Change the data transfer type to TCHINESE:

```
TCHINESE
```

Chapter 2. TSO commands  55
**TSO commands**

**TSO subcommand**
Use TSO commands:

```
TSO command_line
```

**TYPE subcommand**
Set the data transfer type:

```
Type
```

**UCS2 subcommand**
Change data transfer type to unicode UCS-2:

```
UCs2
```

**USER subcommand**
Identify yourself to a host or change your TSO user ID password:

```
User user_id Password
```

Where Password is:

```
password /new_password/new_password :userdata
```

```
account_information
```
GDDMXD command

Invoke the GDDMXD CLIST command:

```
GDDMXD ON
```

```
GDDMXD OFF
```

The following sections describe the syntax for GDDMXD command options.

### Identifying the target display option

```
internet_address::target_server
```

```
.target_screen
```

### ANFontn option

Specify the X Window System font used for characters in the alphanumeric presentation space:

```
gddmx*ANFontn: fontname
```

### CMap option

Specify whether the default color map is loaded or bypassed:

```
gddmx*CMap: Y N
```

### Compr option

Control the technique used to compress bit-mapped data:

```
gddmx*Compr: O A
```

### Enter option

Override the default key mapping for enter:

```
gddmx*Enter: keysym_name
```

### GColornn option

Specify a color name:

```
gddmx*GColornn: c
```
**Geometry option**
Specify the size and location of the initial GDDMXD graphics presentation space:

```
gddmx*Geometry: width x height + x_offset + y_offset
```

**GMCPnn option**
Override GDDM® multicolor patterns with workstation color names:

```
gddmx*GMCPnn: c
```

**HostRast option**
Perform Raster image processing at the System/370 host:

```
gddmx*HOSTRAST: N Y X
```

**NewLine option**
Override the default key mapping for NewLine:

```
gddmx*NewLine: keysym_name
```

**XSync option**
Request that the X Window System process one request at a time:

```
gddmx*XSync: N Y
```

**ZWL option**
Tell GDDMXD/MVS to draw all lines using 0-width lines:

```
gddmx*ZWL: N Y
```

**HOMETEST command**
Verify your host name and address configuration:

```
HOMETEST
```
**KDESTROY command**

Delete Kerberos ticket data sets:

```
KDESTROY -f -q
```

**KINIT command**

Connect to the Kerberos system:

```
KINIT -i -r -v -l -irvl
```

**KLIST command**

Display your current tickets:

```
KLIST -user_id.TMP.TKT0 -file data_set_name -srvtab
```

**KPASSWD command**

Change your password:

```
KPASSWD -u user_name -i instance
```

**LPQ command**

Request a list of the printer queue on a remote printer:

```
```

**Opt Parms 1:**

```
ALL -Printer -name -Host -host AT -host
```

**Opt Parms 2:**

```
TRace -Type -Version
```
LPR command

Print to a remote printer:

```
LPR data_set_name
```

Optional parameters:

- **AT** — **host**
- **BIG5**
- **NOBinary** — **Binary**
- **BURst** — **NOBURst**
- **CC**
- **NOCc**
- **CFirst** — **CClass**
- **Copies** — **copies**
- **EOFf** — **NOEOFf**
- **Euckanji**
- **Filter** — **filter**
- **HAngeul**
- **HEader**
- **NOHeader**
- **IBMkanji**
- **Indent** — **number**
- **JIS78kj**
  - **ASCII**
  - **JISROMAN**
- **JIS83kj**
  - **ASCII**
  - **JISROMAN**
- **JNum** — **number**
- **Job** — **jobname**
- **Ksc5601**
- **LANDscape**
- **LANDNOcz**
- **LATEconn**
- **Lncz**
- **55**
- **Linecount** — **count**
- **NOLinecount**
- **Mail**
- **NAME** — **name**
- **POstscript**
- **NOPostscript**
- **Printer** — **name**
More optional parameters:

<table>
<thead>
<tr>
<th>Host</th>
<th>host</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCinese</td>
<td></td>
</tr>
<tr>
<td>SJiskanji</td>
<td></td>
</tr>
<tr>
<td>SLowshutdown</td>
<td></td>
</tr>
<tr>
<td>SOsi</td>
<td></td>
</tr>
<tr>
<td>SOsi ASCII</td>
<td></td>
</tr>
<tr>
<td>SOsi EBCDIC</td>
<td></td>
</tr>
<tr>
<td>SOsi NONE</td>
<td></td>
</tr>
<tr>
<td>SOsi SPACE</td>
<td></td>
</tr>
<tr>
<td>TCinese</td>
<td></td>
</tr>
<tr>
<td>TIMEout</td>
<td></td>
</tr>
<tr>
<td>Title</td>
<td>title</td>
</tr>
<tr>
<td>TOPmargin</td>
<td>number</td>
</tr>
<tr>
<td>NOTOPmargin</td>
<td></td>
</tr>
<tr>
<td>TRACe</td>
<td></td>
</tr>
<tr>
<td>TRANslatetable</td>
<td>name</td>
</tr>
<tr>
<td>Type</td>
<td>USCFxlate</td>
</tr>
<tr>
<td>User</td>
<td>name</td>
</tr>
<tr>
<td>Version</td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td>width</td>
</tr>
<tr>
<td>Xlatetable</td>
<td>name</td>
</tr>
<tr>
<td>-o</td>
<td>option</td>
</tr>
</tbody>
</table>

**LPRM command**

Remove a job from the printer queue on a remote host:

```
   LPRM           job_id          Opt Parms 1:  Opt Parms 2:  
```

**Opt Parms 1:**

```
   (Printer    name         Host     host         AT     host       
```

**Opt Parms 2:**

```
   TRACe       Type          Version |
```

**LPRSET command**

Set the default printer and host name:

```
   LPRSET  printer@host       Optional Parameters:  
```
### TSO commands

**Optional Parameters:**

- Query
- TRace
- Version

---

### MAKESITE command

Generate new `hlq.HOSTS.SITEINFO` and `hlq.HOSTS.ADDRINFO` data sets:

- `MAKESITE HLQ=hlq, MGMTclas=management_class`
- `DATAclas=data_class, STORclas=storage_class, Unit=unit`
- `VOLser=volume_serial`

---

### NETSTAT command

Use the TSO NETSTAT command to display the network configuration and status on a local TCP/IP stack:

- `- NETSTAT Report Option Target Output {Filter Target}`

**Report Option:**
**Command:**

```
-ORop -n
```

**Target:**

```
-Tcp tcpname
```

**Output:**

```
-FORMAT LONG
-REPORT
-STACK TITLES
```

**Filter:**
Notes:

1. The minimum abbreviation for each parameter is shown in uppercase letters.
2. The CLIent filter is valid with ALL, ALLConn, BYTEinfo, CONn, CLients, SOCKets, and TELnet.
3. The HOSTName filter is valid only with ALL, ALLConn, BYTEinfo, CONn, RESCache, SOCKets, TELnet, and VCRt.
4. The IPAddr filter is valid only with ALL, ALLConn, BYTEinfo, CONn, Gate, ND, RESCache, ROUTe, SOCKets, TELnet, VCRt, and VDPt, and VIPADCfg.
5. The NOTN3270 filter is valid only with ALL, ALLConn, BYTEinfo, CONn, CLients, and SOCKets.
6. The POrt filter is valid only with ALL, ALLConn, CONn, PORTList, SOCKets, TELnet, VCRT, and VDPt.
7. The IPPort filter is valid only with ALL, ALLConn, CONn, SOCKets, TELnet, VCRT, and VDPt.
8. The APPLD filter is valid only with ALL, ALLConn, and CONn.
9. The CONNType filter is valid only with ALLConn and CONn.
10. The INTFName filter is valid only with DEvlinks and HOme.
11. The valid protocol values are TCP and UDP.
The DNSAddr filter is valid only with RESCache.
The POLicyn filter is valid only with SLAP.
The valid protocol values are IP, ICMP, TCP, and UDP.
The APPLname filter is valid only with TELnet.
The LUName filter is valid only with TELnet.

**NSLOOKUP command**

Query a name server in command mode:

```
NSLOOKUP [ Option ]
```

Option:

```
all
class=class
dnod2
d2
nodebug
debug
nodefname
defname
domain=name
noignoretc
ignoretc
53
port=port
A
querytype=type
recurse
norecurse
retry=limit
root=name
search
nosearch
srchlist=domain
timeout=interval
novc
vc
```

Issue queries to name servers in interactive mode:

```
NSLOOKUP Enter
```

---

TSO commands
SubCommand:

- `domain_name`
- `domain_address`
- `server_name`
- `server_address`
- `data_set_name`
- `exit`
- `finger_loginname`
- `help`
- `ls`
- `ls -a`
- `ls -d`
- `ls -h`
- `ls -t`
- `ls -s`
- `ls -t type`
- `ls server name`
- `ls -a server name`
- `ls -d server name`
- `ls -h server name`
- `ls -t server name`
- `ls -s server name`
- `ls root server name`
- `ls -a root server name`
- `ls -d root server name`
- `ls -h root server name`
- `ls -t root server name`
- `ls -s root server name`
- `ls set Option`
- `ls view data_set_name`

Option:
PING command

The PING command sends an echo request to a foreign node (remote host) to determine whether the node is accessible.

```
PING [host_name] [- Option]
```

Option:
**REXEC command**

Send a command to the remote host and receive the results on your local host:

```
REXEC -? -b tab -d -m -n -l user_id
-s 512 -p password -s port -t dataset_name
```

**RPCINFO command**

Display server information:

```
RPCINFO -p -h host
-u host prognum -v versnum -n portnum
-t host prognum -v versnum
-b prognum versnum
```

**RSH command**

Send a command to the remote host and receive the results on your local host:

```
RSH -? -b tab -d -l user/password -s 514
```
### TSO commands

`foreign_host—command—foreign_host—command`

#### MSG SMTP command

**Command for the general user:**

```
>>> SMSG smtp_jobname HELP
   NUMQueue
   Queues
   Stats
```

**Command for the privileged user:**

```
>>> SMSG SMTP DEBUG
   EXpire IP_address
   NODbug
   NOTrace
   SHutdown
   STOPEXIT
   STARTEXIT
   TRace
```

#### SMTPNOTE command

Send electronic mail to one or more recipients on NJE or TCP networks:

```
>>> SMTPNOTE To (recipient) Cc (recipient) NOCc
   Subject (subject) Dataset (data_set_name) Batch
   Reuse
```

#### TELNET command

```
>>> TELNET
   foreign_host—port_number
   Help
   (Linemode DEBUG TRANslate data_set_name)
```

The following sections describe the syntax for TELNET command options:
**AO option**  
Terminate output display:

```
AO
```

**AYT option**  
Query the connection:

```
AYt
```

**BRK option**  
Send the break or attention keystroke to a host:

```
Brk
```

**HELP option**  
Display help information:

```
Help
```

**IP option**  
Interrupt the process:

```
Ip
```

**PA1 option**  
Send the PA1 keystroke to a host:

```
Pa1
```

**QUIT option**  
End the telnet session:

```
Quit
```

**SYNCH option**  
Clear the data path:

```
Synch
```
TSO commands

`¢ and ` options

Send ASCII control characters to a host in line mode:

```
c-
```

Terminal and conversion type option

```
VT282
VT100
TTY
SJISKANJI
JIS78KJ
JIS83KJ
BIG5
EUCKANJI
OECKANJI
HANGEUL
KSC5601
SCHINESE
TCHINESE
```

TESTSITE command

Verify hlq.HOSTS.ADDRINFO and hlq.HOSTS.SITEINFO data sets correctly resolve the name of a host, gateway, or net:

```
--TESTSITE--
```

TRACERTE command

Debug network problems:

```
--TRACERTE--?
```

Options:
Chapter 2. TSO commands

TSO commands

- Addrtype (ipv4, ipv6)
- DEBUG
- Intf (interface)
- Limdisp
- MAX (hop)
- NOName
- NORoute
- PORT (num)
- Srcip (srcAddr)
- TCP (tcpname)
- Tos (tos)
- TRY (attempts)
- Verbose
- WAIT (seconds)
Chapter 3. z/OS UNIX commands

**dig command**

Gather information from the Domain Name System servers:

**Command Line Mode**

```
dig query -h
```

**Multiple Query Mode**

```
dig @server name type class query -b address -c class -f filename -k filename -n -p port# -t type -x addr -y name:key
```

```
+queryopt
```

+queryopt or +global_queryopt:
dnsdomainname command

Display the DNS domain name of the system:

Notes:
1  Only one of the -c, -g, and -r parameters can be specified.
**dnssec-keygen command**

Generate keys for DNSSEC, secure DNS, as defined in RFC 2535 or for use in Transaction Signatures (TSIG), which is defined in RFC 2845:

```
> dnssec-keygen [Parameters]
```

**Parameters:**

- `a` algorithm
- `b` keysize
- `g` generator
- `n` nametype
- `c` class
- `p` protocol-value
- `r` randomdev
- `s` strength-value
- `t` type
- `v` level

**dnssec-makekeyset command**

Create a key set file from one or more keys created by the `dnssec-keygen` command:

```
> dnssec-makekeyset [Parameters]
```

**dnssec-signkey command**

Sign a key set for a child zone:
**dnssec-signzone command**

Sign a DNS zone with one or more key files:

```bash
dnssec-signzone zonefile -a keyfile -c class -d directory -e end-time -f output-file -i interval -n ncpus -o origin -p randomdev -s start-time -t -v level -h
```

**dnsmigrate command**

Convert named boot files for the DNS BIND 4.9.3 name server into named .conf files suitable for the DNS BIND 9 name server:

```bash
dnsmigrate -i input_file -o output_file
```

**ftp command**
### host command

Identify the IP addresses associated with a specified DNS host name or identify the DNS host names associated with a specified IP address:

```
host host
```

### hostname command

Display the fully qualified DNS hostname of the local system:
**Notes:**

1. Only one of the -c, -g, and -r parameters can be specified.

**ipsec command**

Display and modify IP security information on the local host:

```
ipsec Primary Option Global Option
```

**Primary Option:**

```
-f IP Filter Option Stackname Option
-F Defensive Filter Option Target Option
-m Manual Tunnel Option Stackname Option
-k IKE Tunnel Option Stackname Option
-y Dynamic Tunnel Option Stackname Option
-i Interface Option Stackname Option
-t IP Traffic Test Option Stackname Option
-o NATT Port Translation Option Stackname Option
-w IKED Network Security Option Stackname Option
-x Network Security Server Option -znsclienttname
-?
```

**Global Option:**

```
-d debuglevel
```
Stackname Option:
- `p stackname`
- `z nsclientname`

Target Option:
- `p stackname`

IP Filter Option:
- `display -r detail -c current`
- `display -r short -c current`
- `default`
- `reload`

Filter Selection:
- `-a Ynn -Mnn`
- `-n IpFilterRuleName`
- `-N DefensiveFilterName`
- `-g IpFilterGroupName`

Defensive Filter Option:
- `display -r detail`
- `display -r short -d detail -w wide`
- `add Defensive Filter Spec -N DefensiveFilterName`
- `update Defensive Filter Update Spec -N DefensiveFilterName`
- `delete -N all DefensiveFilterName`

Defensive Filter Specification:
Manual Tunnel Option:

- `display -r detail`  
  - `display -r short`  
  - `activate Man Tunnel Sel`  
  - `deactivate Man Tunnel Sel`  
  - `-a all`

Man Tunnel Selection:

- `-a ManVpnActionName`

IKE Tunnel Option:

- `display -r detail -c current`  
  - `display -r short`  
  - `deactivate IKE tunnel Sel`  
  - `refresh IKE Tunnel Sel2`  
  - `-a all`

IKE Tunnel Selection:

- `-a KeyExchangeRuleName`

IKE Tunnel Selection2:

- `-a KeyExchangeRuleName`

Dynamic Tunnel Option:
Dyn Tunnel Selection:

```
-a Ynn
-n IpDynVpnActionName
-l LocalDynVpnRuleName
```

Dyn Tunnel Selection2:

```
-a Ynn
-l LocalDynVpnRuleName
```

Interface Option:

```
display -r detail
-r short
detail
-wide
```

IP Traffic Test Option:

```
SrcIpAddr DestIpAddr tcp SrcPort DestPort
udp SrcPort DestPort
icmp
icmpv6
igmp
ipip
ah
esp
ospf

IN SecurityClass out
-r short
detail
-wide
```

NATT Port Translation Option:
IKED Network Security Option:

Network Security Server Option:

mailstats command

Printing statistics:

named command

Start a name server:
netstat command

Use the z/OS UNIX netstat command to display the network configuration and status on a local TCP/IP stack:

Note: netstat is a synonym for the onetstat command in the z/OS UNIX shell. The onetstat command syntax is the same as that for the netstat command.

Report Option:
Command:

- D n

Target:

- p tcpname

Output:

- M LONG SHORT
Notes:
1. -B filter is valid only with -A, -a, -c, -s, -t, -O, and -V.
2. -E filter is valid only with -A, -a, -b, -c, -e, -s, and -t.
3. -H filter is valid only with -A, -a, -b, -c, -q, -s, -t, and -V.
4. -I filter is valid only with -A, -a, -b, -c, -f, -g, -n, -O, -q, -r, -s, -t, and -V.
5. -P filter is valid only with -A, -a, -c, -O, -o, -s, -t, and -V.
6. -T filter is valid only with -A, -a, -b, -c, -e, and -s.
7. -G filter is valid only with -A, -a, and -c.
8. -X filter is valid only with -a, and -c.
9. -K filter is valid only with -d and -h.
10. -Y filter is valid only with -j.
11. The valid protocol values are TCP, and UDP.
12. -Q filter is valid only with -q.
13. The valid protocol values are ICMP, IP, TCP, and UDP.
**nssctl command**

The z/OS UNIX `nssctl` command is used to display information for NSS clients that are currently connected to the local NSS server.

```plaintext
nssctl -- Primary Option

d--- Filter Option
?

-d

?--- Debug Option

-c nsclientname
-D ipsec
-xmlappliance

### Primary Option:

```

### Filter Option:

```

-d

?--- Debug Option

-z debuglevel

### Debug Option:

```

**nsupdate Command**

Dynamically update a name server:

#### Command mode:

```

#### Subcommand mode:
Start nsupdate subcommand mode

```
nsupdate Enter
```

Subsequent subcommand entry (valid with version 9 of nsupdate)

```
quit
preq
nxrdomain
yxdomain
nxrrset
yxrrset
server
send
show
update add
zone
```

onslookup and nslookup command

Note: nslookup is a synonym for the onslookup command in the z/OS UNIX shell. The nslookup command syntax is the same as that for the onslookup command.

Querying a name server in command mode:

```
onslookup -Option name address server_name server_address
```

Issue multiple queries to name servers in interactive mode:

```
onslookup -server_name -server_address Enter
```

Options:
ping command

Send an echo request to a foreign node (remote host) to determine whether the node is accessible:

Note: ping is a synonym for the oping command in the z/OS UNIX shell. The oping command syntax is the same as that for the ping command.
**orexec and rexec commands**

Execute a command on the remote host:

```bash
orexec [-? -d -l user_id -p password] [-s port]

orexec [-C -V] foreign_host command
```

**Note:** `rexec` is a synonym for the `orexec` command in the z/OS UNIX shell. `rexec` command syntax is the same as that for the `orexec` command.

**orpcinfo and rpcinfo commands**

Display server information:

```bash
```

**Note:** `rpcinfo` is a synonym for the `orpcinfo` command in the z/OS UNIX shell. `rpcinfo` command syntax is the same as that for the `orpcinfo` command.
snmp command

Note: snmp is a synonym for the osnmp command in the z/OS UNIX shell. snmp command syntax is the same as that for the osnmp command.

Get MIB variables:

```
./snmp -d 0 -d debug_level -h localhost -h target host -r 2 -r retry number
```

```
-get
-getnext
-getbulk
```

```
-m 10 -n 0
```

```
-m max repetitions -n non-repeaters
```

```
-mib_variable
```

Set the MIB variables:

```
./snmp -d 0 -d debug_level -h localhost -h target host -r 2 -r retry number
```

```
-set
```

```
-mib_variable vartype value
```

Walk the MIB tree:

```
./snmp -d 0 -d debug_level -h localhost -h target host -r 2 -r retry number
```
Displaying `osnmp` help:

```
>> snmp -?
```

Receive a trap:

```
>> snmp -d 0 -p 162
```

Finding a MIB variable name:

```
>> snmp -d 0 -f mib_variable
```

---

**traceroute command**

Debug network problems:

**Note:** `traceroute` is a synonym for the `otracert` command in the z/OS UNIX shell. `traceroute` command syntax is the same as that for the `otracert` command.

```
>> traceroute -?
```

**Options:**
pasearch command

Query information from the Policy Agent (Pagent):

Option:
popper command

```
  popper  - b <directory name>
           - d
           - n <message count>
           - s
           - t <file name>
           - T <timeout>
           - u
```

pwchange command

Generate hexadecimal encryption key to update password for SNMP use:

```
pwchange  - e
           - p HMAC-MD5
           - u auth
           - u key_usage
           - s

old_password new_password
   IPAddress
   hostname
   engineID
```
**pwtotokey command**

Convert password into hexadecimal encryption key for SNMP or OMPROUTE use:

```
```

**rndc command**

Remotely control the operation of a name server:

```
rndc [command ...] [-c config] [-s server] [-p port] [-y key] [-V]
```

**rndc-confgen command**

Create configuration files for rndc:

```
```

**sendmail command**

```
sendmail [user_name] [command_line_switch]
```

**trmdstat command**

```
trmdstat
```
Report Option:

- I
- A
- C
- F
- G
- H
- I
- N
- O
- T
- U
- ?

Report Content:

(1) - D
(2) - E
(3) - S

Filter:

- i initial_time
- f final_time
- p 1-65535
- p port_range
- h ip_address
- j stack_name
- k ip_address
- s ip_address
- t ip_address
- c correlator
- n interface_name
Global:

- $d$ 0

- $d$ $n$

Notes:

1 Valid only when -A/-C/-F/-G/-N/-Q/-T/-U is specified.
2 Valid only when -T is specified.
3 Valid only when -A/-F/-T/-U is specified.
4 Valid only when -A/-C/-F/-G/-I/-N/-Q/-T/-U is specified.
5 Valid only when -A/-C/-F/-G/-Q/-T/-U is specified except when -A -S or -F -S are specified.
6 Valid only when -A/-C/-F/-G/-N/-Q/-U is specified except when -A -S is specified.
7 Valid only when -T and -S is specified.
8 Valid only when -A/-G/-Q/-T is specified except when -A -S or -T -S are specified.
9 Valid only when -A/-G/-Q/-T is specified except when -A -S is specified.
10 Not valid when -S or -I is specified.
11 Valid only when -F is specified.
Chapter 4. Other IP commands, options, and subcommands

Table 1. IP commands, options, and subcommands

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Other IP commands, options, and subcommands
Part 2. VTAM commands

VTAM commands are listed in this section alphabetically. For more information about these commands, see z/OS Communications Server: SNA Operation and z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures.
VTAM commands
Chapter 5. Operator display commands

**D ADJCLUST command**

Display the adjacent cluster (routing) tables and their entries in the order to be used for APPN searches:

```
DISPLAY NET,ADJCLUST,NETID=netid,SCOPE=ONLY
```

**D ADJCP command**

Display the attributes of a specific adjacent node and the connections in which it is currently involved:

```
DISPLAY NET,ADJCP,ID=adjacent_cp_name,SCOPE=ONLY
```

**D ADJSSCPS command**

Display user-defined and dynamic adjacent SSCP tables:

```
DISPLAY NET,ADJSSCPS,CDRM=sscp_name
```

```
,MAX=DSPLYDEF_start_option_value
```

```
,MAX=number_of_resources
```

```
,NETID=netid
```

```
,SCOPE=ONLY
```

```
,SCOPE=ALL
```

```
,SCOPE=ONLY
```

Display adjacent SSCP table for specific cross-domain resource:

```
DISPLAY NET,ADJSSCPS,CDRSC=cdrsc_name
```
Display commands

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

```
DISPLAY NET, ADJSSCPs, ADJLIST=list_name

Display all lists of adjacent CDRMs:

DISPLAY NET, ADJSSCPs, ADJLIST=*```

**D APING command**

Test whether a route to another LU 6.2 resource or control point is available and display performance information for the route if the resource supports an APING server:

```
DISPLAY NET, APING, ID=resource_name`

```
, CONSEC=1
, CONSEC=number_of_consecutive_packets
, ECHO=YES
, ECHO=NO
, ITER=2
, ITER=number_of_send_and_receive_iterations
, LIST=ALL
, LIST=SUMMARY
, LOGMODE=#INTER
, LOGMODE=logon_mode_name
, PASSWORD
, SIZE=100
, SIZE=size_of_packet
, TP=APINGD
, TP=transaction_program_name
, USERID=user_id```
**D APINGDTP command**

Display the number of APINGD transaction programs permitted to run concurrently for responding to APING requests from other nodes:

```plaintext
DISPLAY NET,APINGDTP
,LIST=ONLY
```

**D APINGTP command**

Display the number of APING transaction programs permitted to run concurrently for sending APING command requests to other node; optionally, display the number of active sessions for the APINGD TP and show information about those sessions:

```plaintext
DISPLAY NET,APINGTP
,LIST=ONLY
```

**D APPLS command**

Display the status of active application program major nodes in the domain along with their subordinate application program minor nodes:

```plaintext
DISPLAY NET,APPLS
,ID=name
```
Display commands

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

D APPNTOSA command

Display the APPN-to-subarea class-of-service mapping table:

`DISPLAY NET,APPNTOSA`

D AUTOLOG command

Display the controlling applications for which there are pending AUTOLOGON requests:

`D NET,AUTOLOG`, `GID=controlling_appl`, `SCOPE=ONLY`, `SCOPE=ALL`, `MAX=DSPLYDEF_start_option_value`, `MAX=*`, `number_of_resources`

D BFRUSE command

Display information about VTAM buffer use and storage usage summary information for VTAM modules:

`DISPLAY NET,BFRUSE`, `BUFFER=*`, `BUFFER=SHORT`, `BUFFER=SUMMARY`, `buffid`, `(-buffid,SUMMARY)`
**D BNCOSMAP command**

Display native and nonnative COS mappings defined for a border node:

```plaintext
DISPLAY NET,BNCOSMAP,NETID=netid,SCOPE=ONLY
```

**D CDRMS command**

Display the status of active cross-domain resource manager (CDRM) major nodes and their subordinate minor nodes:

```plaintext
DISPLAY NET,CDRMS,NET=SM590000,MAX=DSPLYDEF_start_option_value,SCOPE=ALL
```

**Notes:**

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

**D CDRSCS command**

Display information about cross-domain resources, including independent LUs:

```plaintext
DISPLAY NET,CDRSCS,NET=SM590000
```
Display commands

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

D CLSTRS command

Display the status of physical units (PUs) subordinate to an NCP node, a local SNA node, or a switched subarea node:
Notes:
1 Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.

**D CNOS command**

Display LU 6.2 information associated with an application program and a partner LU and logon mode:

```plaintext
DISPLAY NET, CNOS, ID=appl_name, LUNAME=lu_name,
   LOGMODE=logon_mode_name
```

**D CONVID command**

Provide information about active conversations with the specified application program:

```plaintext
DISPLAY NET, CONVID, ID=appl_name,
   ETIME=number_of_minutes,
   LOGMODE=logon_mode_name, LUNAME=lu_name
```
Display commands

D 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,TYPE=SUBAREA
```

Display the APPN class-of-service (COS) table entries and the APPNCOS table used to create each entry:

```
>> DISPLAY NET,COS,TYPE=APPN
```

D CPCP command

Display detailed CP-CP session status:

```
>> DISPLAY NET,CPCP,
```

Notes:
1. Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.
2. Since 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.

D CSDUMP command

Display the current CSDUMP triggers set earlier by the MODIFY CSDUMP command or the CSDUMP start option:

```
>> DISPLAY NET,CSUDPUMP
```
D CSM command

Monitor the use of storage managed by the communications storage manager (CSM):

```plaintext
>> DISPLAY NET,CSM,OWNERID=ownerid
```

Display the status of the CSM Monitoring:

```plaintext
>> DISPLAY NET,CSM,MONITOR
```

D CSMUSE command

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

```plaintext
>> DISPLAY NET,CSMUSE,POOL=poolname,OWNERID=ownerid
```

D DIRECTRY command

Display information about a resource:

```plaintext
>> DISPLAY NET,DIRECTRY,ID=name,SCOPE=ONLY
```

Display a resource name that is in any network:

```plaintext
>> DISPLAY NET,DIRECTRY,ID=*.name,MAX=DSPLYDEF_start_option_value
```

```plaintext
>> DISPLAY NET,DIRECTRY,ID=*,MAX=number_of_resources,SCOPE=ONLY
```
Display commands

D DISK command

Provide information about an IBM 3720 or 3745 Communication Controller’s disk contents:

\[ \text{DISPLAY NET,DISK, ID=ncp_name} \]

D DLURS command

Display all DLURs for which this host acts as dependent LU server (DLUS):

\[ \text{DISPLAY NET,DLURS} \]

D EE command

Display general Enterprise Extender information:

\[ \text{DISPLAY NET,EE, LIST=SUMMARY, LIST=DETAIL, EEVERIFY} \]

Display Enterprise Extender connection information by LINE or PU name:

\[ \text{DISPLAY NET,EE, ID=\text{name}, LIST=SUMMARY, LIST=DETAIL} \]

Note: The name represents either an Enterprise Extender LINE or switched PU which has an active connection.

Display Enterprise Extender connection information by IPADDR:

\[ \text{DISPLAY NET,EE, IPADDR=local_ipaddr, HOSTNAME=(remote_hostname)} \]

Display Enterprise Extender connection information by HOSTNAME:

\[ \text{DISPLAY NET,EE, LIST=SUMMARY, MAX=DSPLYDEF_start_option_value} \]
D EEDIAG command

Display Enterprise Extender (EE) connections that meet or exceed a specified retransmission threshold:

```
DISPLAY NET,EEDIAG,REXMIT=retransmission_rate_percentage
```

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
```
Tip: Specify the CLEAR operand on this command to clear the diagnostic counters. The SRQRETRY information is displayed before the diagnostic counters are cleared.

Clearing Enterprise Extender diagnostic counters:

```
DISPLAY NET,EEDIAG,CLEAR=ALL
```

Display Enterprise Extender connectivity test information:

```
DISPLAY NET,EEDIAG,TEST=YES,MAXROUTE=16
```

Query outstanding Enterprise Extender display commands:

```
DISPLAY NET,EEDIAG,TEST=PENDING
```

EEDIAG command filters:

Limit the D EEDIAG command scope to one EE connection that is identified by LINE or PU name:

```
,EIDIAG-ID=name
```

The name value represents either an Enterprise Extender LINE or a switched PU that has an active EE connection.

Limit the D EEDIAG command scope to EE connections that are identified by IPADDR:
Limit the D EEDIAG command scope to EE connections that are identified by HOSTNAME:

```
-,IPADDR=local_ipaddr,HOSTNAME=(remote_hostname)

-,IPADDR=(remote_ipaddr)

-,IPADDR=(local_ipaddr,remote_ipaddr)

(,remote_ipaddr)
```

### D EXIT command

Display the name, exit level, module name, and status of installation-wide exit routines:

```
DISPLAY NET,EXIT, ID=exit_name

-,MAX=DSPLYDEF_start_option_value

-,MAX=number_of_resources
```

### D GRAFFIN command

Display affinity information for generic resources:

```
DISPLAY NET,GRAFFIN,LU=*,GNAME=*,
(1)

-,LU=name,GNAME=name

(1)

-,MAX=DSPLYDEF_start_option_value

-,MAX=max_affinities
```

**Notes:**

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

Provide information about line groups:

```
display net,groups
    ,id=name
    ,(name)
    ,[max=dsplydef_start_option_value]
    ,[scope=all]
    ,scope=act
    ,scope=actonly
    ,scope=all
    ,scope=inact
    ,scope=inactonly
    ,scope=pending
    ,scope=reset
```

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

D GRPREFS command

Display the generic resources preferences table

```
Display net,grprefs
```

D ID command

Display a resource:

```
display net,id=name
    ,hprdiag=no
    ,hprdiag=yes
    ,clear=none
    ,clear=all
    ,clear=nore
    ,clear=reset
```
Display commands

Display a resource name in any network:

```plaintext
DISPLAY NET, ID=*.*.name
```

Display a resource name using an IP address:

```plaintext
DISPLAY NET, ID=ipaddress, IDTYPE=IPADDR
```

**D INOPCODE command**

Determine the dump attributes for all VTAM INOPCODE commands or all VTAM INOPCODE commands in a given VTAM module:

```plaintext
DISPLAY NET, INOPCODE, MODULE=modulename
```
Display commands

D INOPDUMP command
Determine the global status for INOPDUMP:

\[
\text{DISPLAY NET,INOPDUMP}
\]

D LINES command
Display the status of lines and channel links in the domain:

\[
\text{DISPLAY NET,LINES}
\]

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

D LMTBL command
Display partner LUs in LU-mode table:
Display commands

Display logon mode names in LU-mode table:

```
DISPLAY NET,LMTBL,ID=appl_name,LUNAME=lu_name,TYPE=LOGMODE
```

D LUGROUPS command

Display all LUGROUP major nodes:

```
DISPLAY NET,LUGROUPS
```

Display a specific LUGROUP major node:

```
DISPLAY NET,LUGROUPS, ID=lugroup_major_node_name
```

Display a model LU group:

```
DISPLAY NET,LUGROUPS, ID=model.lu_group
```
Display commands

Display a model LU:

```
>> DISPLAY NET,LUGROUPS, ID=model_lu_name, GROUP=model_lu_group
```

D MAJNODES command

Display the status of all active major nodes in the domain:

```
>> DISPLAY NET, MAJNODES
```

D 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
```

D NCPSTOR command

Display either the storage contents of a communication controller running an NCP, or an NCP dump stored in an IBM 3720 or 3745 Communication Controller:

```
>> DISPLAY NET, NCPSTOR, ADDR=address, ID=ncp_name
```

```
, LENGTH=32, STORAGE=MAIN
```

```
, LENGTH=number_of_bytes, STORAGE=DUMPMAIN
```

```
, STORAGE= DUMPVEC
```

```
, STORAGE= MAIN
```
D NETSRVR command

Display information about network node servers:

\[\text{DISPLAY NET,NETSRRV} \ldots\]

D PATHS command

Display dial-out path information about a switched physical unit:

\[\text{DISPLAY NET,PATHS} \ldots\]

D PATHTAB command

Display the status of explicit routes and their associated virtual routes for this host:

\[\text{DISPLAY NET,PATHTAB} \ldots\]

D PENDING command

Display information about resources in the domain that are in a “pending” state:

\[\text{DISPLAY NET,PENDING} \ldots\]

D ROUTE command

Display the status of routes:
Display commands

```plaintext
\textasciitilde \textasciitilde \text{DISPLAY NET,ROUTE=DESTSUB=\text{subarea\_number}}\text{,ER=\text{ALL}}\text{,DESTSUB=\text{subarea\_number}}\text{,ER=\text{ALL}}\text{,ER=er\_number-},VR=vr\_number\text{,TEST=NO}
```

Display blocked virtual routes:

```plaintext
\textasciitilde \textasciitilde \text{DISPLAY NET,ROUTE=BLOCKED}\text{,NETID=netid}\text{,ORIGIN=\text{subarea\_pu\_name}}\text{,ORIGIN=ALL}
```

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.

Display held virtual routes:

```plaintext
\textasciitilde \textasciitilde \text{DISPLAY NET,ROUTE=HELD}
```

D RSCLIST command

Display information about resources whose names match a particular pattern:

```plaintext
\textasciitilde \textasciitilde \text{DISPLAY NET,RSCLIST=ID=name}\text{,ID=\text{name}}\text{,ID=\text{name}}\text{,ID=\text{name}}
```
Notes:

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

Display information concerning HPR pipes:

```bash
DISPLAY NET,RTPS,ALSNAME=name,APPNCOS=name,CPNAME=name,
CONGEST=ALL,CONGEST=YES,NO,ALL,
FIRSTCP=name,FIRSTTG=number,
ID=name,TCID=tcid,
TEST=YES,NO,
LIST=DETAIL,DETAIL, SUMMARY,
MAX=DSPLYDEF_start_option_value,number_of_resources,
QDEPTH=ALL,qdepth,
STALL=ALL,YES,NO,ALL,
SWITCH=ALL,YES,NO,ALL,
```

Display RTP pipes that meet or exceed a specified retransmission threshold

```bash
DISPLAY NET,RTPS,REXMIT=retransmission_rate_percentage,
CLEAR=NONE,ALL,NONE,
LIST=DETAIL,DETAIL, SUMMARY,
MAX=DSPLYDEF_start_option_value,number_of_resources,
```

Clear the RTP pipes diagnostic counters

```bash
DISPLAY NET,RTPS,CLEAR=ALL,
CPNAME=name, ID=name,
```
### D SAMAP command

Display the subarea mapping table from an ICN host:

```
>> DISPLAY NET,SAMAP
```

### D SATOAPPN command

Display the subarea-to-APPN class-of-service mapping table:

```
>> DISPLAY NET,SATOAPPN
```

### D SESSIONS command

Display all sessions:

```
>> DISPLAY NET,SESSIONS
```

All operand:

```
LIST=COUNT
LIST=SUMMARY
SCOPE=ALL
SCOPE=ACT
SCOPE=ACT
SCOPE=PENDING
Q
```

Max operand:

```
MAX=DSPLYDEF_start_option_value
MAX=*number_of_resources*
```

Display a specific session:

```
>> DISPLAY NET,SESSIONS,SID=session_id
```
Display commands

**D SNSFILTR command**
Display the current active SAW sense filter:

```
DISPLAY NET,SNSFILTR
```

**D SRCHINFO command**
Display summary 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 detailed information about outstanding subarea and APPN searches:
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:
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.

D STATIONS command

Display the status of all cross-subarea link stations for active major nodes:

Display commands
D STATS command

Display resource statistics:

```
DISPLAY NET,STATS,TYPE=VTAM
```

Display data compression statistics:

```
DISPLAY NET,STATS,TYPE=COMPRESS
```

Display coupling facility structure statistics:

```
DISPLAY NET,STATS,TYPE=CFS
```

The `vv` value is the VTAM XCF group ID, as specified on the XCFGRPID start option. The `tt` value is the TCP XCF group ID, as specified on the XCFGRPID parameter on the GLOBAL CONFIG statement.

If a VTAM XCF group ID is specified, and no TCP XCF group ID is specified, the `tt` value is not present. If a TCP XCF group ID is specified, and no VTAM XCF group ID is specified, `vv` is 01. If both a VTAM XCF group ID and a TCP XCF group ID were not specified, `vv` and `tt` are not present.

**Entry Options:**

```
,DEVIPA=dvipa_address
,LIST=list_number
,LIST=ALL
,FROM=I
,FROM=starting_list_number
```

**Scope Options:**

```
,SCOPE=ONLY
,SCOPE=ALL
```

---

Display commands

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Display commands

Max Options:

\[ \text{MAX}=\text{DSPLYDEF\_start\_option\_value} \]
\[ \text{MAX} = \ast \]
\[ \text{NUM} = \text{number\_of\_resources} \]

D STORUSE command

Display storage usage for applications:

\[ \text{DISPLAY NET,STORUSE,APPL=} \]
\[ (\text{appl\_name}) \]
\[ \text{MAX}=\text{DSPLYDEF\_start\_option\_value} \]
\[ \text{MAX} = \ast \]
\[ \text{NUM} = \text{number\_of\_resources} \]

Display storage usage for application jobs:

\[ \text{DISPLAY NET,STORUSE,JOBNAME=} \]
\[ (\text{appl\_job\_name}) \]
\[ \text{MAX}=\text{DSPLYDEF\_start\_option\_value} \]
\[ \text{MAX} = \ast \]
\[ \text{NUM} = \text{number\_of\_resources} \]

Display storage usage for data spaces:

\[ \text{DISPLAY NET,STORUSE,DSPNAME=} \]
\[ (\text{data\_space\_name}) \]
\[ \text{MAX}=\text{DSPLYDEF\_start\_option\_value} \]
\[ \text{MAX} = \ast \]
\[ \text{NUM} = \text{number\_of\_resources} \]

Display storage usage for storage pools:
**D TABLE command**

Display the table type and the number of resources that are associated with the table (use count) and identify the users of a table:

```
DISPLAY NET,TABLE,ID=table_name
```

**D TERMS command**

Display the status of device-type logical units (terminals) that are in active major nodes:

```
DISPLAY NET,TERMS,ID=name
```
Display commands

D TGPS command
Display the currently defined TG profiles by name, along with the transmission group characteristics that they represent:

Display commands

D TNSTAT command
Display the current status of global and TRLE tuning statistics and the CNSL and TIME values: (If system management facility (SMF) recording is enabled, this is also indicated.)

D TOPO command
Display a summary of the topology database:

Notes:
1 Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.
Display commands

Display a specific node:
```
Display NET, TOPO, ID=cp_name, APPNCOS=cos_name, LIST=ALL
```

Display adjacent nodes:
```
Display NET, TOPO, ID=cp_name, LIST=ADJ, APPNCOS=cos_name
```

Display nodes of a specific type:
```
Display NET, TOPO, LIST=BN, CDSRVR, EN, ICN, NN, VN, APPNCOS=cos_name
```

Display all nodes with a specific locsize:
```
Display NET, TOPO, LIST=NN, LOCSIZE=locate_size
```

Display TDU statistics information:
```
Display NET, TOPO, LIST=TDUINFO, SCOPE=ACTIVITY, SCOPE=RECENT
```

Display a specific TG or TGs:
```
```

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 NET, TOPO, LIST=NN, LOCSIZE=locate_size
```

Display TDU statistics information:
```
Display NET, TOPO, LIST=TDUINFO, SCOPE=ACTIVITY, SCOPE=RECENT
```

Display a specific TG or TGs:
Display commands

Display Enterprise Extender connection network unreachable partner information on a network node:

```
/display net, topol, list=unrchtim
```

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

Displaying a summary of topology database update (TDU) diagnostic information:

```
/display net, topol, list=tdudiag, num=number_of_entries
```

Displaying TDU diagnostic information for a node:

```
/display net, topol, list=tdudiag, id=cp_name, num=number_of_tdu_updates, clear=yes/no
```
Displaying TDU diagnostic information for a TG:

```
DISPLAY NET,TOPO-, LIST=TDUDIAG-, ORIG=cp_name-, DEST=cp_name-
```

```
, NUM=ID
```

```
, TGN=tg_number-
```

```
, NUM=number_of_TDU_updates
```

```
, CLEAR=NO
```

```
, CLEAR=YES
```

**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.

---

**D TRACES command**

Display the status of BUF, GPT, IO, LINE, QDIOSYNC, SIT, STATE, and TG traces:

```
DISPLAY NET, TRACES-, TYPE=NODES
```

```
, ID= (+)
```

```
(1), IDTYPE=RESOURCE
```

```
, IDTYPE=CP
```

```
, IDTYPE=SSCP
```

```
, IDTYPE=RESOURCE
```

**Notes:**

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

Display the status of a communication network management trace:

```
DISPLAY NET, TRACES-, TYPE=CNM
```

Display the status of the user Exit buffer trace:

```
DISPLAY NET, TRACES-, TYPE=EXIT-, ID= ISTEXCAA-
```

```
, ISTEXCCS-
```

```
, ISTEXCOM-
```

Display the status of a module trace:

```
DISPLAY NET, TRACES-, TYPE=MODULE
```

Display the status of a network controller line trace:

```
DISPLAY NET, TRACES-, TYPE=NETCTLR-, ID=3710 pu_name-
```

Display the status of an SMS (buffer use) trace:
Display commands

Display the status of the APPN route selection trace in a network node:

\[-\text{DISPLAY NET,TRACES,TYPE=ROUTE}\]

Notes:
1. TYPE=ROUTE is only allowed in a network node.

Display the status of a resource state trace:

\[-\text{DISPLAY NET,TRACES,TYPE=STATE}\]

Display the status of a TSO user trace:

\[-\text{DISPLAY NET,TRACES,TYPE=TSO,Id=\{\star,\}user_id}\]

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:

\[-\text{DISPLAY NET,TRACES,TYPE=VTAM}\]

Display the status of all active traces:

\[-\text{DISPLAY NET,TRACES,TYPE=ALL}\]

D TRL command

Display the entries in the active TRL major nodes:

\[-\text{DISPLAY NET,TRL,CONTROL=\{\star,\}MPC,\{\star,\}TCP,\{\star,\}XCF,ULPID=name}\]
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,XCFP=cp_name
```

Display the entries in one or more specific TRL major nodes:

```
DISPLAY NET,TRL,TRLMN=name
```

---

**D TSOUSER command**

Display the status of a TSO user ID:

```
DISPLAY NET,TSOUSER,ID=user_id
```

---

**D USERVAR command**

Display all USERVARS:

```
DISPLAY NET,USERVAR
```

Display a specific USERVAR:

```
DISPLAY NET,USERVAR,ID=uservar_name
```
Display commands

**D VTAMOPTS command**

Display selected start options:

```
>> DISPLAY NET,VTAMOPTS,[FORMAT=CURRENT],
   ,OPTION=*,
   ,OPTION=(option),
```

Display a group of related start options:

```
>> DISPLAY NET,VTAMOPTS,[FORMAT=CURRENT],
   ,FUNCTION=APPNCHAR,
   ,FUNCTION=CONNECT,
   ,FUNCTION=HPREE,
   ,FUNCTION=MESSAGES,
   ,FUNCTION=NETMGMT,
   ,FUNCTION=PERFTUNE,
   ,FUNCTION=RECSTATS,
   ,FUNCTION=SECURITY,
   ,FUNCTION=SESSION,
   ,FUNCTION=SSCPCP,
   ,FUNCTION=STORAGE,
   ,FUNCTION=SYSLEX,
   ,FUNCTION=TRACDUMP,
   ,FUNCTION=VTAMINIT,
   ,FUNCTION=ZAPCON
```

**D VTAMSTOR command**

Display storage contents associated with a storage address:

```
>> DISPLAY NET,VTAMSTOR,ADDRESS=storage_address,
   ,LENGTH=32
```

Display storage associated with a module:

```
>> DISPLAY NET,VTAMSTOR,MODULE=module_name
```
Display storage associated with a network address:

```
DISPLAY NET,VTAMSTOR

NETADDR=(subarea_address,element_address)

NETID=network_id
```

Display storage associated with a resource name:

```
DISPLAY NET,VTAMSTOR,RESOURCE=resource_name

TYPE=CDRM
  -CP
  -LUALIAS
  -RESOURCE
  -SHADOW
  -SSCP
  -USERVAR
  -XCFCP
```
Display commands
Chapter 6. Operator halt commands

HALT (Z) command

Request a normal halt of VTAM without disrupting active LU-LU sessions:

```
HALT NET
,CDLINK=ACT
,CDLINK=ACT
```

Z CANCEL command

Request a halt of VTAM via abend:

```
HALT NET,CANCEL
,DUMP=NO
,DUMP=NO
```

Z QUICK command

Request a halt of VTAM disrupting active LU-LU sessions:

```
HALT NET,QUICK
,CDLINK=ACT
,CDLINK=ACT
```
Halt commands
Chapter 7. Operator modify commands

**F ALSLIST command**

Add an entry to an adjacent link station list:

```
MODIFY procname,ALSLIST, ACTION=ADD, ID= *
```

Delete an entry from an adjacent link station list:

```
MODIFY procname,ALSLIST, ACTION=DELETE, ID= *
```

Replace an entry in an adjacent link station list:

```
MODIFY procname,ALSLIST, ACTION=REPLACE, ID= *
```

Create a dynamic (or clone) CDRSC and add an entry in an adjacent link station list:

```
MODIFY procname,ALSLIST, ACTION=CREATE, ID= *
```

**F APINGDTP command**

Change the number of APINGD transaction programs permitted to run concurrently for responding to APING requests from other nodes:

```
MODIFY procname,APINGDTP, INSTANCE= UNLIMITED
```
Modify commands

**F APINGTP command**

Change the number of APING transaction programs permitted to run concurrently for sending APING command requests to other nodes:

```
MODIFY procname,APINGTP,INSTANCE=UNLIMITED,value
```

**F BFRUSE command**

Dynamically change the total amount of common service area (CSA) storage that VTAM is allowed to use for the IO buffer pool:

```
MODIFY procname,BFRUSE,BUFFER=IOBUF,XPANLIM=value
```

**F CDRM command**

Change the owner (external CDRM) of a particular cross-domain resource (CDRSC) or set of CDRSCs:

```
MODIFY procname,CDRM=new_cdrm,new_cdrm,new_cdrm,old_cdrm
```

**F CHKPT command**

Save a copy of the directory database or the topology database (or both) to a checkpoint data set:

```
MODIFY procname,CHKPT,TYPE=ALL
```

**F CNOS command**

Set session limits to zero for one logon mode:

```
MODIFY procname,CNOS,ID=appl_name,LIMITS=(0,0,0)
```
Set session limits to zero for all logon modes:

\[
\text{MODIFY procname,CNOS,\text{ID=appl_name},\text{LIMITS=(0,0,0)},\text{LUNAME=lu_name}}
\]

Set session limits to nonzero:

\[
\text{MODIFY procname,CNOS,\text{ID=appl_name},\text{LIMITS=(sesslim,minwinl,minwinr)}}
\]

Use existing session limits:

\[
\text{MODIFY procname,CNOS,\text{ID=appl_name},\text{LOGMODE=logon_mode_name}}
\]
Modify commands

**F COMPRESS command**

Change the compression levels set by the APPL definition statement:

```
MODIFY procname,COMPRESS,COMPVTAM=overall_limit
```

Change the compression level set by start option:

```
MODIFY procname,COMPRESS
```

**F CSALIMIT command**

Dynamically change the amount of common service area (CSA) storage that VTAM is allowed to use:

```
MODIFY procname,CSALIMIT=value
```

**F CSDUMP command**

Dump the current address space and VIT data space now, or set up a trigger that invokes a dump of the current address space and VIT data space and possibly a dump of a remote VTAM, when either a particular sense code or a particular message is issued:

```
MODIFY procname,CSDUMP,SENSE=sense_code
```
Tip: You can use the CSDUMP start option to set a CSDUMP message trigger, a sense code trigger, or both.

Remove the CSDUMP trigger:

```
MODIFY proctype,CSDUMP,DELETE=ALL
  MESSAGE
  SENSE
```

**F CSM command**

Dynamically change the amount of storage used by the communications storage manager (CSM) or activate changes made to the CSM parmlib member without requiring an IPL:

```
MODIFY proctype,CSM,ECSA=maxecs,FIXED=maxfix
```

Modify CSM Monitoring as follows:

```
MODIFY proctype,CSM,MONITOR=DYNAMIC
```

**F DEFAULTS command**

Modify the DLOGMOD value for a resource:

```
MODIFY proctype,DEFAULTS,ID=resource_name,DLOGMOD=logon_mode
```

Change the delay timer for disconnection of a switched PU:

```
MODIFY proctype,DEFAULTS,ID=resource_name,DISCNTIM=time_period
```
F DEFINE command

Set session limit to zero:

```bash
MODIFY procname,DEFINE,ID=appl_name,DLIMITS=(0,0,0)
```

Set session limits to nonzero:

```bash
MODIFY procname,DEFINE,ID=appl_name,DLIMITS=(dsestime,dminwinl,dminwinr),LOGMODE=logon_mode_name,LUNAME=lu_name,AUTOSES=number_of_winner_sessions,DELETE=NALLOW,DRAINV=ALLOW,DRESPL=ALLOW
```

Use existing session limits:

```bash
MODIFY procname,DEFINE,ID=appl_name,LOGMODE=logon_mode_name,LUNAME=lu_name,AUTOSES=number_of_winner_sessions,DELETE=NALLOW,DRAINV=ALLOW,DRESPL=ALLOW
```

Delete an unusable LU-mode entry:

```bash
MODIFY procname,DEFINE,ID=appl_name,LUNAME=lu_name,DELETE=UNUSE
```
F DIRECTRY command

Change the ownership of APPN resources in the directory database:

\[
\text{MODIFY procname,DIRECTRY,FUNCTION=UPDATE,}\text{ID=cdrsc_major_node_name,resource_name}
\]

Delete a resource from the directory database:

\[
\text{MODIFY procname,DIRECTRY,FUNCTION=DELETE,}\text{ID=cdrsc_major_node_name,resource_name}
\]

F DR command

Delete a logical unit from a physical unit, or a physical unit from a line:

\[
\text{MODIFY procname,DR,TYPE=DELETE,}\text{ID=lu_name,FROM=pu_name,pu_name,FROM=line_name}
\]

Move a physical unit:

\[
\text{MODIFY procname,DR,TYPE=MOVE,}\text{ID=pu_name,FROM=line_name,TO=line_name,ACTIVATE=NO,ACTIVE=YES,ADDR=link_station_address}
\]

F DUMP command

Static dump of remote NCP (via link station) to host:

\[
\text{MODIFY procname,DUMP,}\text{ID=link_station_name,DUMPDS=name,ACTION=COMP,OPTION=STATIC,RMPO=NO,TYPE=NCP}
\]

Static dump of NCP to host:

\[
\text{MODIFY procname,DUMP,}\text{ID=ncp_name,ACTIVATE=COMP,DUMPDS=name}
\]
Modify commands

Static dump of NCP to hard disk:

```plaintext
MODIFY procname, DUMP, ID=ncp_name, ACTION=STORE, OPTION=STATIC
```

Dynamic dump of NCP to host:

```plaintext
MODIFY procname, DUMP, ID=ncp_name, OPTION=Dyna, ACTION=COMP
```

Notes:
1. If the NCP has been acquired before activation, DUMPDS is required.

Transfer CSP or MOSS dump from hard disk to host:

```plaintext
MODIFY procname, DUMP, ID=ncp_name, TYPE=CSP, MOSS, ACTION=COMP
```

Notes:
1. If the NCP has been acquired before activation, DUMPDS is required.

Transfer NCP, CSP, or MOSS dump from hard disk to host:

```plaintext
MODIFY procname, DUMP, ID=ncp_name, ACTION=TRANSFER, TYPE=NCP, TYPE=CSP, MOSS
```

Notes:
1. If the NCP has been acquired before activation, DUMPDS is required.
Notes:
1. If the NCP has been acquired before activation, DUMPDS is required.

Purge dump from hard disk:

\[
\text{MODIFY procname,DUMP,}\text{ID=ncp\_name,}\text{ACTION=PURGE,TYPE=NCP,TYPE=CSP,MOSS}NCP
\]

**F ENCR command**

Change the cryptography specifications for logical units:

\[
\text{MODIFY procname,ENC=R,COND=,OPT=,REQD=,ID=lu\_name}
\]

**F EXIT command**

Activate or replace an exit routine:

\[
\text{MODIFY procname,EXIT,OPTION=ACT,REPL,}\text{ID=ISTEXCDM,PARMS=character\_string,ISTEXCVR,ISTCMMND,ISTEXCAA,ISTEXC谋,ISTEXCPM,ISTEXCS,ISTEXCGR,ISTEXCSD,ISTEXCVU,MODULE=module\_name}
\]

Activate a multiple instance of ISTEXCPM:

\[
\text{MODIFY procname,EXIT,OPTION=ACT,ID=ISTEXCPM.instance\_name,PARMS=character\_string}
\]

Replace a multiple instance of ISTEXCPM:
Modify commands

Deactivate an exit routine:

```
MODIFY procmname,EXIT=INACT,OPTION=FORCE,ID=ISTEXCPM.
```

Deactivate a multiple instance of ISTEXCPM:

```
MODIFY procmname,EXIT=INACT,OPTION=FORCE,ID=ISTEXCPM.
```

F GR command

Delete a generic resource:

```
MODIFY procmname,GR=GNAME=netid.generic_resource,OPTION=DELETE
```

F IMR command

Start intensive mode recording:

```
MODIFY procmname,IMR=ID=link_station_name,pu_name,OPTION=ACT
```
Modify commands

Stop intensive mode recording:

```
MODIFY procname,IMR=,ID=link_station_name,pu_name,OPTION=INACT
```

**F INOPCODE command**

Controls the dump attribute of VTAM INOPCODEs:

```
MODIFY procname,INOPCODE=(, , DUMPENABLE)
```

**Notes:**

1. When specifying an InOpCode for the second parameter, always specify three digits by including any leading zeros.
2. If an InOpCode is specified for the second parameter, the first parameter cannot be ALL.

**F INOPDUMP command**

Controls the automatic dumping of VTAM when an inoperative condition occurs in one of VTAMs data link control layers:

```
MODIFY procname,INOPDUMP=OFF,ON,TRLE=trle_name,(trle_name)
```

**F IOPD command**

Change the I/O problem determination (IOPD) time-out interval:

```
MODIFY procname,IOPD=IOINT=number_of_seconds
```

**F IOPURGE command**

Set a time interval after which outstanding I/O is assumed to be lost and recovery steps are taken:

```
MODIFY procname,IOPURGE=timeout_value
```
F LINEDEF command

Dynamically change the definition of a redefinable line:

```
MODIFY procname,LINEDEF, ID=line_name, USE=DEFINED
```

F LL2 command

Start a continuous link level 2 test:

```
MODIFY procname,LL2, ID=name, OPTION=CONT, DATA=data,
```

```
,NFRAMES=1
,NFRAMES=number_of_test_messages
```

Start a brief link level 2 test:

```
MODIFY procname,LL2, ID=name, DATA=data,
```

```
,NFRAMES=1
,NFRAMES=number_of_test_messages
```

```
,NTRANS=10
,NTRANS=number_of_test_messages
```

Stop a link level 2 test:

```
MODIFY procname,LL2, ID=name, OPTION=CANCEL
```

F LOAD command

Store a load module on the hard disk, and optionally for a 3745, schedule an IPL:

```
MODIFY procname,LOAD, ID=ncp_name, ACTION=ADD,
```

```
,IPLTIME=(date,time), NOTIFY=60,
```

```
,NOTIFY=NO,
```

```
,NOTIFY=time_period,
```

```
,LOADMOD=load_module_name
```
Modify commands

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
   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
   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
```
Modify commands

F MSGMOD command

Specify whether VTAM messages contain an identifier that indicates the VTAM module that originated the message:

```
MODIFY procname,MSGMOD=NO
MODIFY procname,MSGMOD=YES
```

F NCP command

Send a request to NCP to execute the specified command for the specified resource:

```
MODIFY procname,NCP=,ID=ncp_name=,COMMAND=TRSWITCH=,RESNM=resource_name
```

F NEGPOLL command

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:

```
MODIFY procname,NEGPOLL=number_of_responses=,ID=line_name
```

F NOTNSTAT command

Terminate global or TRLE tuning statistics:

```
MODIFY procname,NOTNSTAT=TRLE=trle_name,
```

F NOTRACE command

Stop a buffer contents trace:

```
MODIFY procname,NOTRACE=,TYPE=BUF=,ID=node_name
```

Stop a communication network management trace:
Modify commands

Stop a user Exit buffer trace:

```
MODIFY procname,NOTRACE-,TYPE=EXIT-,ID=ISTEXCAA
```

```
/OPTION= ALL

(option)

(')

ACCTING

ADJSSCP

ALIAS

ALS

BEGIN

END

GWPATH

INITAUTH

REPL

SECAUTH

VRSEL

XRF
```

```
MODIFY procname,NOTRACE-,TYPE=EXIT-,ID=ISTEXCCS
```

```
/OPTION= ALL

(option)

(')

BEGIN

CONNSTAT

DYNA_XID

PRED_XID

END
```

```
MODIFY procname,NOTRACE-,TYPE=EXIT-,ID=ISTEXCDM
```

```
/OPTION= ALL

(option)

(')

BEGIN

INITAUTH

ADS_SEL

BN_SEL

CDS_SEL

CRR_SEL

ICN_SEL

REPL

END
```
Modify commands

Stop a generalized PIU trace:

\[
\text{MODIFY procname,NOTRACE},\text{TYPE=GPT},\text{ID=\textit{node\_name}},\text{IDTYPE=RESOURCE},\text{ALSNAME=\textit{adjacent\_link\_station\_name}},\text{SCOPE=ONLY,SCOPE=ALL,DEVICE=\textit{hex\_device\_address}}
\]

Stop an input/output trace:

\[
\text{MODIFY procname,NOTRACE},\text{TYPE=IO},\text{ID=\textit{node\_name}},\text{IDTYPE=RESOURCE},\text{SCOPE=ONLY,SCOPE=ALL,DEVICE=\textit{hex\_device\_address}}
\]

Stop a module trace:

\[
\text{MODIFY procname,NOTRACE},\text{TYPE=MODULE},\text{OPTION=&\textit{option},(option)}\text{\textbackslash,\textbackslash,\textbackslash,COMMAND,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbackslash,\textbacklash
Modify commands

Stop OSA-Express2 diagnostic data synchronization for an OSA-Express2 adapter:

STOP OSA-Express2 diagnostic data synchronization for an OSA-Express2 adapter:

Stop the APPN route selection trace in a network node:

Notes:
1. TYPE=ROUTE is allowed only in a network node.

Stop a scanner interface trace:

Stop an SMS (buffer use) trace:

Stop a resource state trace:

Operands used with ID

OPERANDS

OPTION= ALL

(node_name)

(ADJCP)

APPL
CDRM
CDRSC
GROUP
LINE
LNKST
LU
NCNP
PU
Modify commands

Operands used with ID:

```plaintext
,IDTYPE=RESOURCE
,IDTYPE=CP
  -SSCP -RESOURCE
```

OPTION Operand:

```plaintext
,OPTION=ALL
  -option
  -ADJCP
  -APPL
  -CDRM
  -CDRSC
  -GROUP
  -LINE
  -LNKST
  -LU
  -NCP
  -PU
```

Stop a transmission group trace:

```plaintext
MODIFY procname,NOTRACE=TYPE=TG,TYPE=TG,TYPE=TG,TYPE=TG,TYPE=TG,TYPE=TG,TYPE=TG
```

Stop a TSO user ID trace:

```plaintext
MODIFY procname,NOTRACE=TYPE=TSO,TYPE=TSO,TYPE=TSO,TYPE=TSO,TYPE=TSO
```

Stop a VTAM internal trace:
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, HPDTOPTS, 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 (ciagrpopt)
that include CIA as an individual option equivalent. The applicable group options are EEOPTS, HPDTOPTS, 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 (ciagrpopt) 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, HPDTOPTS, HPROPTS, LCSOPTS, QDIOOPTS, STDOPTS, 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.

---

**F POLL command**

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:

```plaintext
MODIFY proclname,POLL=number_of_seconds,,ID=line_name
```

---

**F PPOLOG command**

Request that VTAM start or stop sending copies of VTAM operator commands and VTAM messages to the primary program operator (PPO):

```plaintext
MODIFY proclname,PPOLOG=YES
```

---

**F PROFILES command**

Refresh an active application's set of RACF® profiles:

```plaintext
MODIFY proclname,PROFILES,,ID=appl_name
```

---

**F RESOURCE command**

Modify the DLOGMOD value for a resource:
Modify commands

```
userid Modify procname, RESOURCE, ID=resource_name, DLOGMOD=logon_mode_name
```

Add or change the ADJLIST value for a cross-domain resource:

```
userid Modify procname, RESOURCE, ID=resource_name, ADJLIST=list_name, ACTION=UPDATE
```

Delete the ADJLIST value for a cross-domain resource:

```
userid Modify procname, RESOURCE, ID=resource_name, ADJLIST=list_name, ACTION=DELETE
```

Change the delay timer for disconnection of a switched PU:

```
userid Modify procname, RESOURCE, ID=resource_name, DISCNTIM=time_period
```

Change the number of search requests for a resource:

```
userid Modify procname, RESOURCE, ID=resource_name, SRCOUNT=number_of_search_requests
```

Change the value of the search reduction timer for a resource:

```
userid Modify procname, RESOURCE, ID=resource_name, SRTIMER=number_of_seconds
```

Change the error message display option for an APPL or CDRSC:

```
userid Modify procname, RESOURCE, ID=resource_name, SIRFMSG=OLUSSCP
  ALLSSCP
  STARTOPT
  NONE
```

Reset the search reduction entry for a resource:

```
userid Modify procname, RESOURCE, ID=resource_name, SRCLEAR=YES
```

Modify the registration value for a resource:

```
userid Modify procname, RESOURCE, ID=resource_name, REGISTER=CDSERVR
  NETSRVR
  NO
```

Modify the ASRCVLM value for an application program:
Modify commands

MODIFY proclname,RESOURCE=,ID=resource_name,ASRCVLM=amount_of_storage

Modify the MODSRCH value for an application program:

MODIFY proclname,RESOURCE=,ID=resource_name,MODSRCH=FIRST

Modify the VTAMTOPO value for a reporting status:

MODIFY proclname,RESOURCE=,ID=resource_name,VTAMTOPO=REPORT

F RTP command

Request that VTAM 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:

MODIFY proclname,RTP=,ID=rtp_pu_name

F SECURITY command

Increase the cryptography specification for an LU:

MODIFY proclname,SECURITY=,ID=lu_name,ENCR=COND

(1)
,ENCRTYPE=DES
,ENCRTYPE=TDES24

Notes:
1 ENCRTYPE can not be downleveled. If the current value is TDES24, MODIFY SECURITY ENCRTYPE=DES will not be allowed.

Modify which cryptographic key name is used for an LU:

MODIFY proclname,SECURITY=,ID=lu_name,CKEY=ALTERNATE

Initiate SLU authentication for an LU:
Increase the message authentication specification for an LU:

```
MODIFY procname,SECURITY, ID=lu_name, CERTIFY=YES
```

F SESSION command

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:

```
MODIFY procname,SESSION=number_of_sessions, ID=line_name
```

F SUPP command

Change the message suppression level after VTAM has been started:

```
MODIFY procname,SUPP=NOSUP
```

F 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
```

Change resource associations with a CoS table or load a new CoS table and associate it with a resource:
Modify commands

- 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=old_table_name
- FLDTAB
- LOGTAB
- MDLTAB
- MODETAB
- USSTAB
- COSTAB, NETID=netid, ORIGIN=ncp_name

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

F TGP command

Change the transmission group (TG) profile associated with a 2.1 connection:

- MODIFY procname, TGP, TGPNAME=tg_profile_name
- ID=adjacent_link_station_name
- ID=cp_name, TGN=tg_number

F TNSTAT command

Initiate global or TRLE tuning statistics. Also used to alter the CNSL and TIME tuning statistics values.

- MODIFY procname, TNSTAT, ACTION=ACTIVATE
- ACTION=UPDATE, CNSL=NO, YES
F TOPO command

Delete a node:

```
MODIFY procname,TOPO-ID=cp_name,FUNCTION=DELETE,
SCOPE=LOCAL,SCOPE=LOCAL,NEXTWORK,TYPE=FORCE
```

Delete a transmission group:

```
MODIFY procname,TOPO-ID=cp_name,FUNCTION=DELETE,
ORIG=cp_name,DEST=cp_name,
TGN=tg_number,SCOPE=LOCAL,SCOPE=LOCAL,NEXTWORK,TYPE=FORCE
```

Modify the status of a node for route calculation:

```
MODIFY procname,TOPO-ID=cp_name,FUNCTION=NORMAL QUIESCE,
SCOPE=LOCAL,SCOPE=LOCAL,NEXTWORK
```

Modify the status a transmission group for route calculation:

```
MODIFY procname,TOPO-FUNCTION=NORMAL QUIESCE,
ORIG=cp_name,DEST=cp_name,
TGN=tg_number,SCOPE=LOCAL,SCOPE=LOCAL,NEXTWORK
```

Clear Enterprise Extender connection network unreachable partner information on a network node:
Modify commands

---

**Rule:** The ORIG, VRN, and DEST operands are optional on the MODIFY `procname`,TOPO,FUNCTION=CLRUNRCH command; however, at least one of these three operands must be specified.

Clear APPN routing tree information:

---

**Rule:** The values FUNCTION=CLRUNRCH and FUNCTION=CLRTREES are valid on the MODIFY `procname`,TOPO command only when the command is issued on a network node.

---

### F TRACE command

Start or modify a buffer contents trace:

---

Start or modify a communication network management trace:

---

Start or modify a user Exit buffer trace:

---
Start or modify a generalized PIU trace:

```
MODIFY procname,TRACE-,TYPE=GPT-,ID=node_name
```
Modify commands

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:
Start or modify an NCP line trace:

```
MODIFY procname,TRACE,TYPE=LINE,ID=line_name,COUNT=ALL
```

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=DATA
```

Start or modify OSA-Express2 diagnostic data synchronization for an OSA-Express2 adapter:

```
MODIFY procname,TRACE,TYPE=QDIOSYNC,ID=*,SYNCID=trle_name,OPTION=ALLINOUT,SyncID=identifier,SAVE=YES
```

Start the APPN route selection trace in a network node:

```
MODIFY procname,TRACE,TYPE=ROUTE,BFRNUM=100
```
Notes:

1. TYPE=ROUTE is allowed only in a network node.
2. The initial default value for BFRNUM is 100. Once 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 procsname,TRACE,,TYPE=SIT,,ID=line_name
```

Start or modify an SMS (buffer use) trace:

```
MODIFY procsname,TRACE,,TYPE=SMS,,ID=VTAMBUF
```

Start or modify a resource state trace:

```
MODIFY procsname,TRACE,,TYPE=STATE
```

Operands used with ID:

- OPTION=ALL
- OPTION= (option)
  - ADJCP
  - APPL
  - CDRM
  - CDRSC
  - GROUP
  - LINE
  - LNKST
  - LU
  - NCP
  - PU

Operands used with ID:

- IDTYPE=RESOURCE
- IDTYPE=CP
- IDTYPE=SSCP
- RESOURCE
- SAVE=NO
- SAVE=YES
Start or modify a transmission group trace:

```
MODIFY procname,TRACE=,TYPE=TG,,ID=line_name
```

Start or modify a TSO user ID trace:

```
MODIFY procname,TRACE=,TYPE=TSO,,ID=tso_user_id
```

Start or modify the VTAM internal trace:

```
MODIFY procname,TRACE=,TYPE=VTAM
```

- **OPTION=**  
  - ALL  
  - (option)  
  - (ADJCP)  
    - APPL  
    - CDRM  
    - CDRSC  
    - GROUP  
    - LINE  
    - LNKST  
    - LU  
    - NCP  
    - PU

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Modify commands

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 DLUOPTS, EEOPTS, HPDTOPTS, HPROPTS, QDIOOPTS, and XCOPTS.

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, HPDTOPTS, HPROPTS, QDIOOPTS, TCPOPTS and XCOPTS.

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, CPCPOPTS, CSMOPTS, DLUOPTS, EEOPTS, HPDTOPTS, HPROPTS, LCSOPTS, QDIOPTS, STDOPTS, TCPOPTS, and XCOPTS.

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.

**F USERVAR command**

Create a new USERVAR:

```
MODIFY procname,USERVAR--,ID=uservar_name,
  OPTION=UPDATE,
  TYPE=DYNAMIC,
  APPC=NO,UVEXIT=NO,
  VALUE=appl_name
```

Update an existing USERVAR and change the TYPE:

```
MODIFY procname,USERVAR--,ID=uservar_name,
  OPTION=UPDATE,
  TYPE=DYNAMIC,
  APPC=NO,UVEXIT=NO,
  VALUE=appl_name
```

Update an existing USERVAR, leaving the TYPE unchanged:

```
MODIFY procname,USERVAR--,ID=uservar_name,
  OPTION=UPDATE,
  TYPE=DYNAMIC,
  APPC=NO,UVEXIT=NO,
  VALUE=appl_name
```
Modify commands

```plaintext
MODIFY procname,USERVAR, ID=uservar_name, OPTION=UPDATE
```

Delete a USERVAR:

```plaintext
MODIFY procname,USERVAR, ID=uservar_name, OPTION=DELETE
```

F VTAMOPTS command

Change certain values that might have been specified on VTAM start options:

```plaintext
MODIFY procname, VTAMOPTS
```

(1) 

```plaintext
,APPC=NO,UVEXIT=NO
```

(2) 

```plaintext
,APPNCOS=class-of-service_name
```

(3) 

```plaintext
,ASIRFMSG=ALLSSCP
```

(4) 

```plaintext
,BNDYN=FULL
```

(5) 

```plaintext
,BSCMDRS=STATS
```

```plaintext
,CMPMIPS=compression_ratio
```
Modify commands

- `ISTCOSDF` = `ALL`, `APPL`, `DEPLU`, `INDLU`, `NONE`
- `LIMINTCP` = `number_of_seconds`
- `MAXEETST` = `max_ee_connectivity_tests`
- `LSIRFMSG` = `ALLNNNS`, `OLUNNS`, `NONE`
- `MAXLOCAT` = `max_locate_congestion_threshold`, `MAXLURU` = `ru_length`
- `MAXSSCPS` = `number_of_sscps`, `MIHTMOUT` = `units_of_time`
- `MPCACT` = `NOWAIT`, `WAIT`
- `MSGLEVEL` = `BASE`, `V4R1`, `V4R2`, `V4R3`, `V4R4`, `CS390`
- `MSGMOD` = `YES`, `NO`
- `MULTPATH` = `TCPVALUE`, `NO`
- `NNSPREF` = `NONE`, `network_node_server`
- `NUMTREES` = `number_of_routing_trees`
- `OSIEVENT` = `ALL`, `NONE`, `PATTERNS`
- `OSIMGMT` = `YES`, `NO`
- `OSITOPO` = `ALLCDRSC`, `ILUCDRSC`
- `PIUMAXDS` = `calculation_factor`
- `PLUALMSG` = `SUPPRESS`, `NOSUPP`
- `PDTRCBUF` = `number_of_buffers`
Notes:

1. APPN/COS can be modified only if NODETYPE was specified during VTAM START processing.
2. BNDYN can be modified only if BN=YES was specified during VTAM START processing.
3. BNORD can be modified only if BN=YES was specified during VTAM START processing.
4. CDSREFER can be modified only if NODETYPE=NN and CDSERVR=NO were specified during VTAM START processing.
5 CMPMIPS is meaningful only if the value for CMPVTAM is greater than 1.
6 CONNTYPE can be modified only if NODETYPE was specified during VTAM START processing.
7 CPCP can be modified only if NODETYPE was specified during VTAM START processing.
8 DIRSIZE can be modified only if NODETYPE=NN was specified during VTAM START processing.
9 DIRTIME can be modified only if NODETYPE=NN was specified during VTAM START processing.
10 Due to 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. Once the problem has been diagnosed or documentation has been collected, this option should be disabled once again (using the MODIFY VTAMOPTS command).
11 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.
12 The ENCRYPTN start option cannot be modified if ENCRYPTN=NO was specified during VTAM START processing.
13 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.
14 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.
15 This option is meaningful only if VTAM provides RTP-level HPR support.
16 If the current value of the HPRSESLM start option is DISABLED, then the HPRSESLM value can be changed only by stopping and restarting VTAM.
17 When specifying an InOpCode for the second parameter, always specify three digits by including any leading zeros.
18 If an InOpCode is specified for the second parameter, the first parameter cannot be ALL.

19 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.

20 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 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 each be ignored and message IST1917I will be generated.

21 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 this zSeries system. Although this option can be modified (and the modification will immediately be displayed) while the IUTIQDIO MPC group is currently active, any modifications will 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 only uses the CHPID value when building the IUTIQDIO MPC group. To change CHPIDs for an active MPC group, the following must be done:
1. All TCP/IP iQDIO 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***).

22 Due to 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
Modify commands

command) on all necessary hosts only when trying to diagnose specific problems. Once the problem has been diagnosed or documentation has been collected, this option should be disabled once again (using the MODIFY VTAMOPTS command).

23 MAXLOCAT can be modified only if NODETYPE was specified during VTAM START processing.

24 The MPCACT 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.

25 MULTIPATH is meaningful only if the NODETYPE start option is also specified.

26 NNSPREF can be specified only if NODETYPE=EN is specified during VTAM START processing.

27 NUMTREES can be modified only if NODETYPE=NN was specified during VTAM START processing.

28 OSIEVENT=PATTERNS is not valid when OSIMGMT=YES.

29 OSITOPO=ALLCDRSC is not valid when OSIMGMT=YES.

30 PMTUD is meaningful only if the NODETYPE start option is also specified.

31 RESUSAGE can be modified only if NODETYPE=NN was specified during VTAM START processing.

32 ROUTERES can be modified only if NODETYPE=NN was specified during VTAM START processing.

33 SNVC can be modified only if BN=YES was specified during VTAM START processing.

34 SORDER can be modified only if VTAM has been started as an interchange node or a migration data host.

35 SRCOUNT is meaningful only when SRCHRED=ON.

36 SRTIMER is meaningful only when SRCHRED=ON.

37 SSEARCH can be modified only if NODETYPE=NN was specified during VTAM START processing.

38 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.

39 TDUDIAG is meaningful only if the NODETYPE=NN start option is also used.

40 UNRCHTIM is meaningful only if the NODETYPE start option is also used.

41 VFYREDTI can be modified only if NODETYPE=NN was specified during VTAM START processing.

42 VRTG can be modified only if NODETYPE and HOSTSA are specified.

43 VRTGCPCP can be modified only if NODETYPE and HOSTSA are specified.
Chapter 8. Starting VTAM

START command

START procname,,(Options)

For the syntax of the start options that you can specify on this command, see Chapter 10, “Start options,” on page 201.
Starting VTAM
Chapter 9. Operator VARY commands

V ACQ command

Acquire an NCP, and optionally its subordinate resources, from another host:

\[
\text{VARY NET,ACQ, ID=ncp_name, OWNER=host_name, PUSUB }, \text{ACT }
\]

Operands used with ACT:

\[
\text{LOGON=appl_name, LOGMODE=login_mode_name, SCOPE=COMP, SCOPE=ALL, DUMPSTA=link_station_name, LOADMOD=load_module_name, U}
\]

Acquire “inactive” NCP, and optionally its subordinate resources, without activating them:

\[
\text{VARY NET,ACQ, ID=ncp_name, PUSUB }, \text{ACT }, \text{LOGON=appl_name, LOGMODE=login_mode_name, SCOPE=COMP, SCOPE=ALL, DUMPSTA=link_station_name, LOADMOD=load_module_name, U}
\]

Acquire “inactive” NCP, and optionally its subordinate resources, and activate them:

\[
\text{VARY NET,ACQ, ID=ncp_name, ACT, PUSUB }, \text{LOADMOD=load_module_name, U}
\]

Acquire nonswitched PU and its LUs:

\[
\text{VARY NET,ACQ, ID=pu_name, ACT, PUSUB }, \text{LOGON=appl_name, LOGMODE=login_mode_name, SCOPE=COMP, DUMPSTA=link_station_name, LOADMOD=load_module_name, U}
\]

Operands used with ACT:

\[
\text{SCOPE=COMP, SCOPE=ALL, DUMPSTA=link_station_name}
\]

V ACT command

Activate an NCP major node:

\[
\text{VARY NET,ACT, ID=ncp_name, DUMPSTA=link_station_name, PUSUB }
\]
Vary commands

\[
\text{LOAD}=U, \text{LOADFROM}=\text{HOST}, \text{DUMPLOAD}=\text{NO}, \text{SAVEMOD}=\text{NO}
\]

\[
\text{NEWPATH}=
\]

\[
\text{RNAME}=
\]

\[
\text{U}=
\]

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:**

\[
\text{LOADFROM}=\text{HOST}, \text{DUMPLOAD}=\text{NO}, \text{SAVEMOD}=\text{NO}
\]

\[
\text{LOADFROM}=\text{EXTERNAL}, \text{DUMPLOAD}=\text{NO}, \text{SAVEMOD}=\text{NO}
\]

\[
\text{LOADFROM}=\text{HOST}, \text{DUMPLOAD}=\text{NO}, \text{SAVEMOD}=\text{NO}
\]

\[
\text{LOADFROM}=\text{EXTERNAL}, \text{DUMPLOAD}=\text{NO}, \text{SAVEMOD}=\text{NO}
\]

\[
\text{LOADFROM}=\text{HOST}, \text{DUMPLOAD}=\text{NO}, \text{SAVEMOD}=\text{NO}
\]

\[
\text{LOADFROM}=\text{EXTERNAL}, \text{DUMPLOAD}=\text{NO}, \text{SAVEMOD}=\text{NO}
\]
Vary commands

LOADSTA Operand:

```
LOADSTA= link_station_name
```

NCP Load Operands:

```
LOADSTA Operand
LOADMOD= load_module_name
LOADFROM Operand
```

Activate a switched major node:

```
VARY NET,ACT, ID=major_node_name
, DWACT=NO
, DWACT= YES
, LOGON=appl_name
, LOGMODE=logon_mode_name
, SCOPE=COMP
, SCOPE= ALL
, SCOPE= ONLY
, 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
```
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:

```
VARY NET,ACT, ID=, IDTYPE=XCFCP
```

Activate a control point (CDRSC minor node or application program minor node):

```
VARY NET,ACT, ID=, IDTYPE=RESOURCE
```

Activate an SSCP (CDRM minor node):

```
VARY NET,ACT, ID=, HPR= NO, IDTYPE=SSCP
```

Notes:
1. HPR and VRTGCPCP are only valid if VRTG=YES is coded for the CDRM, and the CDRM is in an inactive state.
2. HPR and VRTGCPCP are only valid if VRTG=YES is coded for the CDRM, and the CDRM is in an inactive state.

Warm start a major node:
Activate a definition file (a major node with no subordinate resources):

```
VARY NET, ACT, ID=major_node_name, WARM
```

Check the syntax of a definition file (major node):

```
VARY NET, ACT, ID=major_node_name, SCOPE=SYNTAX
```

```
LOADMOD=load_module_name
```

Dynamically reconfigure resources in a major node:

**Note:** For an NCP major node, follow the syntax diagram for “Activating an NCP major node” and specify the UPDATE operand.

```
VARY NET, ACT, ID=major_node_name, SCOPE=COMP, UPDATE=IMPLICIT
```

```
UPDATE=ADD
```

```
UPDATE=ALL
```

Dynamically reconfigure TRLEs in a TRL major node:

```
VARY NET, ACT, ID=trl_major_node_name, UPDATE=ADD
```

```
UPDATE=IMPLICIT
```

```
UPDATE=ADD
```

```
UPDATE=ALL
```

**Notes:**

1. Specifying UPDATE=IMPLICIT is the same as UPDATE=ADD.

Activate a group under an Enterprise Extender XCA major node:

```
VARY NET, ACT, ID=group_name, SCOPE=COMP
```

```
SCOPE=ALL
```

```
SCOPE=COMP
```

```
SCOPE=ONLY
```

```
SCOPE=U
```
Vary commands

Activate other resources:

\[
\text{VARY NET,ACT, ID=\text{name}, \text{DWACT=NO}} \quad \text{NO} \quad \text{YES} \\
\text{,LOGON=appl\_name, \text{LOGMODE=logon\_mode\_name}} \\
\text{,SCOPE=COMP} \\
\text{U=channel\_unit\_address} \\
\]

Notes:

1. The U operand is valid for a local SNA PU or a channel link.

Activate a model CDRSC and, optionally, activate all the clone CDRSCs created from it:

\[
\text{VARY NET, ACT, ID=model\_cdrsc\_name, \text{SCOPE=COMP}} \\
\text{U=channel\_unit\_address} \\
\]

V ANS command

Enable 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:

\[
\text{VARY NET, ANS=OFF/ON, ID=line\_name, ACT} \\
\]

V AUTOLOG command

Initiate automatic logon processing for resources that are defined with controlling applications:

\[
\text{VARY NET, AUTOLOG, ID=controlling\_appl} \\
\]
V CFS command

Connect or disconnect from a VTAM coupling facility structure:

```
VARY NET, CFS, ACTION=CONNECT
VARY NET, CFS, ACTION=DISCONNECT
```

V DIAL command

Establish a switched subarea connection, a switched connection to a type 1, 2, or 2.1 device (adjacent link station), or a CPSVRMGR session between a dependent LU requester (DLUR) and a dependent LU server (DLUS):

```
VARY NET, DIAL, ID=resource_name
```

V DRDS command

Dynamically reconfigure an NCP or a nonswitched peripheral node:

```
VARY NET, DRDS, ID=dr_file_name
```

V HANGUP command

Take down a switched subarea connection or a switched connection to a type 1, 2, or 2.1 device.

```
VARY NET, HANGUP, ID=link_station_name
```

V INACT command

Deactivate an NCP major node:

```
VARY NET, INACT, ID=ncp_name
```

Deactivate an NCP line:
Vary commands

Deactivate a CDRM major node:

VARY NET,INACT, ID=line_name, TYPE=FORCE, IMMED, UNCOND

Deactivate a CDRM minor node:

VARY NET,INACT, ID=node_name, IDTYPE=SSCP, SAVESESS, TYPE=FORCE, IMMED, UNCOND

Deactivate a CDRSC minor node:

VARY NET,INACT, ID=node_name, DELETE=YES, IDTYPE=CP, TYPE=FORCE, IMMED, UNCOND

Deactivate the dynamic XCF local SNA major node:

VARY NET,INACT, ID=ISTLSXCF, TYPE=FORCE, IMMED, UNCOND

Deactivate a dynamic XCF local SNA PU:

VARY NET,INACT, ID=name, IDTYPE=XCFCP, TYPE=FORCE, IMMED, UNCOND

Deactivate a dynamic switched PU:
Deactivate a dependent LU requester (DLUR):

```
VARY NET,INACT, ID=dlur_name,
   FINAL=NO
   TYPE= FORCE
   GIVEBACK
   IMMED
   UNCOND
```

Notes:

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

Deactivate a PU supported by a DLUR:

```
VARY NET,INACT, ID=pu_name,
   FINAL=NO
   TYPE= FORCE
   GIVEBACK
   IMMED
   UNCOND
```

Deactivate RTP PUs:

```
VARY NET,INACT, ID=rtp_pu_name,
   FINAL=NO
   TYPE= FORCE
```

Deactivate other PUs:

```
VARY NET,INACT, ID=pu_name,
   FINAL=NO
   TYPE= FORCE
   IMMED
   UNCOND
```
Deactivate a group under an XCA major node for EE:

\[
\text{VARY NET,INACT,ID=group\_name,TYPE=FORCE,IMMED,UNCOND}
\]

Deactivate a model application and all the APPLs created from it:

\[
\text{VARY NET,INACT,ID=model\_appl\_name,TYPE=FORCE,IMMED,REACT,UNCOND,SCOPE=ALL}
\]

Deactivate other resources:

\[
\text{VARY NET,INACT,ID=name,TYPE=FORCE,IMMED,REACT,UNCOND}
\]

Deactivate a model CDRSC and, optionally, deactivate all the clone CDRSCs created from it:

\[
\text{VARY NET,INACT,ID=model\_cdrsc\_name,TYPE=FORCE,IMMED,UNCOND,DELETE=NO,SCOPE=ALL,DELETE=value\_of\_DELETE\_operand\_on\_model\_CDRSC,DELETE=NO,DELETE=YES}
\]

Deactivate a clone CDRSC:

\[
\text{VARY NET,INACT,ID=clone\_cdrsc\_name,TYPE=FORCE,IMMED,UNCOND,DELETE=value\_of\_DELETE\_operand\_on\_model\_CDRSC,DELETE=NO,DELETE=YES}
\]
V INOP command

Terminate a manual dial operation if the VTAM operator is unable to complete the call:

```plaintext
VARY NET,INOP,ID=line_name
```

V LOGON command

Create or change an automatic logon specification:

```plaintext
VARY NET,LOGON=appl_name,ID=slu_name,LOGMODE=logon_mode_name
```

V NOLOGON command

Delete an existing automatic logon specification:

```plaintext
VARY NET,NOLOGON=,ID=slu_name,crdsc_name,plu_name,uservar_name
```

V PATH command

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:

```plaintext
VARY NET,PATH=NOUSE,USE,GID=group_id,PID=path_id
```

V REL command

Release a previously acquired NCP:

```plaintext
VARY NET,REL,ID=ncp_name,OWNER=host_name,CIDLK=ACT,CDLINK=ACT
```

Release a PU:
Vary commands

V TERM command

VARY TERM command using name or name pair:

VARY TERM command using session ID:
Chapter 10. Start options

Start options are listed in this section alphabetically; however, you can code them in any order.

Precede the option list with three commas and enclose the group of options in parentheses.

Start options that are entered on the START command must be separated by commas. Do not leave any blanks between options.

For more information on the START command, see z/OS Communications Server: SNA Operation.

Options:

- NETID=network_id
- SSCPID=sscp_id
- SSCPNAME=name
- AFFDELAY=600
- AFFDELAY=number_of_seconds
- ALSREQ=NO
- ALSREQ=YES
- API64R=YES
- API64R=NO
- APPNCOS=NONE
- APPNCOS=class_of-service_name
- ASIRFMSG=OLUSSCP
- ASIRFMSG=OLUSSCP
- ASIRFMSG=ALLSSCP
- ASIRFMSG=OLUSSCP
- ASIRFMSG=ALLSSCP
- ASIRFMSG=NONE
- ASYDE=TERM
- ASYDE=KEEP
- AUTHLEN=YES
- AUTHLEN=NO
- AUTOTRY=AUTOCAP
- AUTOTRY=CORR
- AUTOTRY=ALL
- AUTOTRY=NONE
- AUTOTI=0
- AUTOTI=time_period
- BN=NO
- BN=YES
- BNDYN=LIMITED
- BNDYN=LIMITED
- BNDYN=NONE
- BNDYN=FULL
Start options

1. **BNORD=PRIORITY**
2. **BNORD=PRIORITY DEFINED**
3. **BSCMDRS=(STATS,INOPS)**
4. **BSCMDRS=STATS NOSTATS (,INOPS)(,NOINOPS)**
5. **BSCTMOUT=286**
6. **BSCTMOUT=units_of_time**
7. **CACHETI=8**
8. **CACHETI=number_of_minutes**
9. **CINDXSIZ=8176**
10. **CMPMIPS=100**
11. **CMPVTAM=0**
12. **CONNTYPE=APPN**
13. **CONNTYPE=APPN LEN**
14. **CNMRTMSG=SUPPRESS**
15. **CNMRTMSG=NOSUPP**
16. **CPCDRSC=NO**
17. **CPCDRSC=YES**
Start options

- INOPCODE=(ALL, ALL, DUMPDEFAULT)
- INOPDUMP=OFF
- IPADDR=ip_address
- IQDCHPID=ANY
- LIST=start_option_list_id
- LISTBKUP=start_option_list_id
- START=180
- IOMSGLIM=number_of_message_pairs
- IOINT=number_of_seconds
- IOPURGE=timeout_value
- IPINFO=SENDALL
- IQDI OSTG=MAX
- IRNSTRGE=size
- ISTCOSDF=INELU
- LIST=start_option_list_id
- LISTBKUP=start_option_list_id
- IRNSTRGE=DEFAULTS
- PROMPT

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LSIRFMSG=NONE
MAINTLVL=maintenance_level

MAXEETST=500
MAXEETST=max_ee_connectivity_tests

MAXHNRES=100
MAXHNRES=max_hostname_resolutions

MAXLOCAT=5000
MAXLOCAT=max_locate_congestion_threshold

MAXSSCPs=10
MAXSSCPs=number_of_SSCPs

MIHTMOUT=1800
MIHTMOUT=units_of_time

MSGMOD=NO
MSGMOD=YES

MXSAWBUF=10000
MXSAWBUF=number_of_buffers

MXSSCPRU=4096
MXSSCPRU=ru_length

MULTPATH=NO
MULTPATH=YES

TCPVALUE

V4R1
V4R2
V4R3
V4R4
CS390
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. Due to the volume of messages that can be generated, it is not recommended that this option be enabled during normal operations. 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. Once 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 EEVERIFY 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.
19 ENCRYPTN=CCA needs to be coded when Triple Des Encryption is desired.
20 The ENSEMBLE setting is used to either permit or deny connectivity to the intraensemble data network (IEDN) and the intranode management network (INMN) by allowing or denying activation of OSX and OSM interfaces.
21 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.
22 HOSTSA specifies the subarea number of this VTAM. If HOSTSA is not coded, then a default subarea number of 1 is used.
23 HPR is meaningful only if NODETYPE is also used.
24 This option is meaningful only if VTAM provides RTP-level HPR support.
25 HPRSESLM=DISABLED is meaningful only on interchange nodes.
26 INITDB is meaningful only if the NODETYPE=NN start option is also used.
27 When specifying an InOpCode for the second parameter, always specify three digits by including any leading zeros.
28 If an InOpCode is specified for the second parameter, the first parameter cannot be ALL.
29 INOPDUMP status is propagated to resources that are defined within a transport resource list entry when the entry is activated and the TRLE InOpDump status has not been explicitly set.
30 The INOPCODE start option provides more granular control of the INOPDUMP function. Refer to the INOPCODE in this section and the DISPLAY INOPCODE command in z/OS Communications Server: SNA Operation for additional details.
31 IPADDR 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 option must be specified in order to activate an Enterprise Extender link. The IPADDR start option specifies the default IPv4 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.

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 this zSeries system. Although this option can be modified (and the modification will immediately be displayed) while the IUTIQDIO MPC group is currently active, any modifications will 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 only uses the CHPID value when building the IUTIQDIO MPC group. To change CHPIDs for an active MPC group, the following must be done:

1. All TCP/IP iQDIO (HiperSockets™) 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***).

This option only affects iQDIO devices that use a MFS of 64k. The smaller frame sizes will always use 126 SBALs.

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.

LISTBKUP can only be coded in a start option file. If you enter it on the START command or at an operator prompt, VTAM will ignore it.

Due to 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. Once the problem has been diagnosed or documentation has been collected, this option should be disabled once again (using the MODIFY VTAMOPTS command).

MAXLOCAT is meaningful only if NODETYPE is specified.

MULTIPATH is meaningful only if the NODETYPE start option is also specified.

NNSPREF can be specified only if NODETYPE=EN is specified during VTAM START processing.
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).

- **NQNMODE=NAME**
- **NUMTREES** = number of routing trees
- **OSIMGMT=NO**
- **OSRTSIZE** = number of queue pointers
- **PIUMAXDS** = calculation factor
- **PMTUD** = TCPVALUE

### Start options

1. **NUMTREES=100**
   - **OSIEVENT=PATTERNS**
   - **OSIMGMT=NO**
   - **OSITOPO=(ILUCDRSC)**
   - **OSRTSIZE=43**
   - **PIUMAXDS=200**
   - **PMTUD=TCPVALUE**

2. **PMTUD** = TCPVALUE
   - **PPLOG=NO**
   - **PPOLOG=NO**

3. **PMTUD** = TCPVALUE
   - **PPLOG=NO**
   - **PPOLOG=NO**
Start options

- **SDLCMDRS**: (STATS, INOPS) or YES
- **SDLVLCP**: ADAPT
- **SECLVLCP**: LEVEL1 or ADAPT
- **SIRFMSG**: ALLSSCP or NONE
- **SLUALMSG**: NOSUPP or SUPPRESS
- **SNMGM**: NO or YES
- **SNAPREQ**: 1000 or number_of_requests
- **SNVC**: 3 or subnet_visit_count
- **SONLIM**: (60, 30) or (percent_1, percent_2)
- **SRCHRED**: OFF or ON
- **SRCOUNT**: 10 or number_of_search_requests

---

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Start options

(12)

- **SRTIMER=30**
- **SRTIMER=number_of_seconds**
- **SSCPDYN=YES**
- **SSCPDYN=NO**

(13)

- **SSEARCH=YES**
- **SSEARCH=NO**
- **SSCPORD=PRIORITY**
- **SSCPORD=DEFINED**

(14)

- **TCPNAME=**
- **TCPNAME=tcp_job-name**

(15)

- **TDUDIAG=1000**
- **TDUDIAG=resource_threshold**
Start options

- **NOTNSTAT**
- **TNSTAT**
  - **NOCNSL**
  - **CNSL**
  - **TIME=60**
  - **TIME=minutes**

- **TOPOTIME** = topology_gc_time

- **NOTRACE, TYPE=BUF**
  - **TRACE, TYPE=BUF**
  - BUF trace operands

- **NOTRACE, TYPE=IO**
  - **TRACE, TYPE=IO**
  - IO trace operands

- **NOTRACE, TYPE=LINE**
  - **TRACE, TYPE=LINE**
  - LINE trace operands

- **NOTRACE, TYPE=MODULE**
  - **TRACE, TYPE=MODULE**
  - MODULE operands

- **NOTRACE, TYPE=QDIOSYNC**
  - **TRACE, TYPE=QDIOSYNC**
  - QDIOSYNC trace operands

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Start options

Buffer pool values:

\[(\text{baseno}, \text{bufsize}, \text{slowpt}, \text{F}, \text{xpanno}, \text{xpanpt}, \text{xpanlim})\]

BUF trace operands:

\[\text{ID}=\text{node_name}, \text{AMOUNT}=\text{PARTIAL}, \text{AMOUNT}=\text{FULL}\]
Start options

```
\[\text{IDTYPE} = \text{RESOURCE}, \text{SAVE} = \text{YES}\]
\[\text{IDTYPE} = \text{CP}, \text{SSCP, RESOURCE}, \text{SAVE} = \text{NO}, \text{YES}\]
```

CSDUMP message trigger:

```
\text{MESSAGE} = \text{(27) (28)}
\text{message\_id\_number, REMOTE = NO}
\text{IST1504I, REMOTE = NO}
\text{(IST1504I, message\_value\_field)}
\text{(message\_id\_number, message\_value\_field)}
\text{TCPNM = TCPIP\_Jobname, MATCHLIM = matchlim\_value}
```

CSDUMP sense code trigger:

```
\text{SENSE = sense\_code, RU = ru\_code, TCPNM = TCPIP\_Jobname, MATCHLIM = matchlim\_value}
```

IO trace operands:

```
\text{ID = node\_name, EVERY, IDTYPE = RESOURCE, SAVE = YES}
\text{IDTYPE = CP, SSCP, RESOURCE, SAVE = NO, YES}
```

LINE trace operands:

```
\text{ID = line\_name, COUNT = ALL, number\_of\_bytes (30)}
```

MODULE operands:
Start options

Operands used with ID:

```
IDTYPE=RESOURCE
IDTYPE=CP
  -SSCP
  -RESOURCE
```

OPTION operand:

```
OPTION=ALL
  -option
  -(option)
  -ADJCP
    -APPL
    -CDRM
    -CDRSC
    -GROUP
    -LINE
    -LU
    -NCP
    -PU
```

QDIOSYNC trace operands:

```
,OPTION=ALLINOUT
  -SYNCID=trle_name
  -SYNCID=identifier
```

```
,SAVE=YES
  -SAVE=NO
  -YES
```
Start options

SIT trace operands:

\[\text{ID} = \text{line_name}, \text{COUNT} = \text{ALL} (30)\]

\[\text{TRACEPT} = \text{trace_point_id}\]

STATE trace operands:

\[\text{ID} = \text{node_name} \] Operands used with ID 
\[\text{OPTION} \text{ operand}\]

VIT operands:

\[\text{MODE} = \text{INT}, \text{SIZE} = 4M\]

\[\text{BFRNUM} = 2\]

\[\text{MODE} = \text{EXT} \]
\[\text{BFRNUM} = \text{number}\]

\[\text{INT} \]
\[\text{SIZE} = \text{size}\]

\[\text{OPTION} = (\text{API, CIO, MSG, NRM, PIU, PSS, SMS, SSCP})\]

\[\text{SUBTRACE} = \text{ARBP}, \text{OPTION} = \text{HPR}\]

\[\text{ALL} \]

\[\text{hprgrpopt}\]

\[\text{(...)HPR,}...\]

\[\text{(...)hprgrpopt,}...\]

\[\text{SUBTRACE} = \text{DIO}, \text{OPTION} = \text{CIA}\]

\[\text{ALL} \]

\[\text{ciagrpopt}\]

\[\text{(...)CIA,}...\]

\[\text{(...)ciagrpopt,}...\]

\[\text{SUBTRACE} = \text{TGVC}, \text{OPTION} = \text{SSCP}\]

\[\text{ALL} \]

\[\text{groupopt}\]

\[\text{(...)SSCP,}...\]

\[\text{(...)groupopt,}...\]

Notes:

1  NUMTREES is meaningful only if the NODETYPE=NN start option is also used.
PMTUD is meaningful only if the NODETYPE start option is also specified.

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.

QDIOSTG defaults to MAX for 64-bit (z/Architecture) machines and MIN for non 64-bit machines.

RESUSAGE is meaningful only if the NODETYPE=NN start option is also used.

ROUTERES is meaningful only if the NODETYPE=NN start option is also used.

SAVERSCV is meaningful only if NODETYPE is also used.

The SECLVLCP start option is meaningful only if the NODETYPE and VERIFYCP start options are also used.

SNVC is meaningful only if the BN=YES start option is also used.

SORDER is meaningful only in an interchange node or a migration data host.

SRCOUNT is meaningful only if the SRCHRED=ON start option is also used.

SRTIMER is meaningful only if the SRCHRED=ON start option is also used.

SSEARCH is meaningful only if the NODETYPE=NN start option is also used.

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.

TDUDIAG is meaningful only if the NODETYPE=NN start option is also being used.

TOPOTIME is meaningful only if the NODETYPE start option is also used.

Do not use NOTRACE when starting VTAM, except to override a TRACE start option coded in a predefined list.

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.

NOTRACE,TYPE=VTAM is accepted but ignored. Tracing is started with the default trace table size and the default options.

UNRCHTIM is meaningful only if the NODETYPE start option is also used.

UPDDELAY is meaningful only if the OSIMGMT=YES start option is also used.

The VERIFYCP start option is meaningful only if the NODETYPE start option is also used.

VFYREDTI is meaningful only if the NODETYPE=NN start option is also used.
Start options

24 VRTG is meaningful only if the NODETYPE and HOSTSA start options are also used.

25 VRTGCPCP is meaningful only if the NODETYPE and HOSTSA start options are also used.

26 XCFINIT=YES is the default if VTAM is started as an APPN node (that is, the NODETYPE start option has been specified). XCFINIT=YES is not allowed for pure subarea nodes. XCFINIT=DEFINE is the default if VTAM is started as a pure subarea node (the NODETYPE start option has not been specified).

27 When an error message is received on any parameter of the CSDUMP start option, the remaining parameters for this CSDUMP start option are ignored. Enter the complete CSDUMP start option again when you are prompted.

28 When the same parameter is entered multiple times on a CSDUMP message trigger, only the last occurrence is accepted.

29 When the same parameter is entered multiple times on a CSDUMP sense trigger, only the last occurrence is accepted.

30 COUNT applies only to the IBM 3720 and 3745 Communication Controllers.

31 The default options apply only to MODE=INT.

32 PSS and SMS can be turned off.

33 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, HPDTOPTS, HPROPTS, QDIOOPTS, and XCFOPTS.

34 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.

35 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, HPDTOPTS, HPROPTS, QDIOOPTS, TCPOPTS, and XCFOPTS.

36 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) inside the parentheses.

37 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, HPDTOPTS, HPROPTS, LCSOPTS, QDIOOPTS, STDOPTS, TCPOPTS, and XCFOPTS.

38 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.
Chapter 11. Other VTAM codes and commands

Table 2. Other VTAM codes and commands

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<th>Command type</th>
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<td>Status codes</td>
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VTAM commands
Appendix. 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 may view the information through the z/OS Internet Library website or the z/OS Information Center. If you continue to experience problems, send an email to mhvrdfs@us.ibm.com or write to:

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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. Refer to 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/

One exception is command syntax that is published in railroad track format, which is accessible using screen readers with the Information Center, as described in “Dotted decimal syntax diagrams.”

Dotted decimal syntax diagrams

Syntax diagrams are provided in dotted decimal format for users accessing the Information 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 refer to 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 only
applies 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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