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

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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 User’s Guide and Commands
- 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.
Summary of changes

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

Changes made in z/OS Communications Server Version 2 Release 2, as updated June 2017

This document contains information previously presented in z/OS® Communications Server: IP Configuration Guide, SC27-3650-06, which supported z/OS Version 2 Release 2.

New information

z/OS Configuration Assistant for Communications Server support for import of TCPIP configuration, see “VARY TCPIP EXPORTPROF” on page 23.

Changed information

• Improved control over default VTAM VIT options, see the following topics:
  – “F NOTRACE command” on page 149
  – “F TRACE command” on page 162
  – “F VTAMOPTS command” on page 170
  – “Start options” on page 191

Changes made in z/OS Version 2 Release 2, as updated September 2016

This document contains information previously presented in z/OS Communications Server: Quick Reference, SC27-3665-03, which supported z/OS Version 2 Release 2.

Changes made in z/OS Version 2 Release 2, as updated March 2016

This document contains information previously presented in z/OS Communications Server: Quick Reference, SC27-3665-02, which supported z/OS Version 2 Release 2.

Changed information

• Shared Memory Communications - Direct Memory Access, see the following topics:
  – “D TRL command” on page 130
  – “F VTAMOPTS command” on page 170
  – “Start options” on page 191

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Changes made in z/OS Version 2 Release 2

This document contains information previously presented in z/OS Communications Server: Quick Reference, SC27-3665-01, which supported z/OS Version 2 Release 1.

Changed information

• Shared Memory Communications over RDMA adapter (RoCE) virtualization, see the following topics:
  – “F CSDUMP command” on page 138
  – “Start options” on page 191

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

This document contains information previously presented in z/OS Communications Server: Quick Reference, SC27-3665-00, which supported z/OS Version 2 Release 1.

Changed information

• Shared Memory Communications over RDMA adapter (RoCE) virtualization, see the following topics:
  – “F CSDUMP command” on page 138
  – “Start options” on page 191

Summary of changes for z/OS Version 2 Release 1

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

• z/OS Summary of Message and Interface Changes
• z/OS Introduction and Release Guide
• z/OS Planning for Installation
• z/OS Migration
Chapter 1. IP commands

In this section, commands are listed alphabetically.

For more information on these commands, see z/OS Communications Server: IP Configuration Guide and z/OS Communications Server: IP System Administrator's Commands.

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, procname, APPL=applid, CMD=CLIENT
```

DISPLAY TCPIP HELP

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

```
Display TCPIP, tcpproc, Help
```

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Netstat Display command:

```
Netstat
  ACCESS
  ALL
  ALLConn
  ARp
  BYTEinfo
  CACHinfo
  CONFIG
  Conn
  DEFADDR
  Devlinks
  Drop
  Home
  IDS
  ND
  PORTList
  RESCache
  ROUTe
  SOCKETs
  SRCIP
  STATS
  TTLS
  VCR
  VDP
  VIPADCFG
  VIPADyn
```

Omproute Display command:

```
OMProute
  OSPF
  RIP
  GENERIC
  RTTABLE
  IPV6OSPF
  IPV6RIP
  GENERIC6
  RT6TABLE
```

Sysplex Display command:

```
SYSplex
  GROUP
  PORTS
  VIPADyn
```
Sysplex Vary command:

畴_Sysplex
畴_DEACTivate
畴_JOINGroup
畴_LEAVEgroup
畴_QUIesce
畴_REACTivate
畴_RESUME

DISPLAY TCPIP NETSTAT

Request NETSTAT information:
Notes:
1. The CLIent filter is valid only with ALL, ALLConn, BYTEinfo, COUn, and SOCKets.
2. The POrt filter is valid only with ALL, ALLConn, COUn, PORTList, SOCKets, VCR, and VDPT.
3. The IPAddr filter is valid only with ALL, ALLConn, BYTEinfo, COUn, ND, RESCache, ROUTe, SOCKets, VCR, VDPT, and VIPADCFG.
4. The NOTN3270 filter is valid only with ALL, ALLConn, BYTEinfo, COUn, and SOCKets.
5. The IPPort filter is valid only with ALL, ALLConn, COUn, SOCKets, VCR, and VDPT.
6. The APPLD filter is valid only with ALL, ALLConn, and COUn.
7. The SMCID filter is valid only with ALL, ALLConn, COUn, and DEvlks.
8. The CONNTType filter is valid only with ALLConn and COUn.
9. The INTFName filter is valid only with DEvlks and HOme.
10. The valid protocol values are TCP and UDP.
11. The DNSAddr select string is valid only with RESCache.
12. The HOSTName select string is valid only with RESCache.
13. The valid protocol values are IP, ICMP, TCP, and UDP.
14. 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, procname, OMProute
```

**OSPF options:**

- LIST
- AREAS
- InterfaceS
- NBMA
- NeighBoRS
- VLINKS
- LSA command
  - AREASUM
  - EXTERNAL
  - DATABASE
    - AREAID=area_id
  - DBSIZE
  - Interface
    - NAME=if_name
  - NeighBoR
    - IPADDR=ip_addr
  - ROUTERS
  - STATISTICS

**LSA command:**

```
LSA, LTYPE=ls_type, LSID=lsid, ORIGINator=ad_router
```

- AREAID=area_id

**RIP options:**
Chapter 1. IP commands

### GENERIC options:
- LIST
  - ALL
  - Interface
    - NAME=if_name

### IPv6 OSPF options:
- ALL
  - AREA
    - SUM
      - Interface
        - NAME=if_name
        - ID=if_id
  - VLINK
    - ENDPT=router-id
  - NeighBoR
    - ID=router-id
    - IFNAME=if_name
  - DBSIZE
  - IPv6 LSA command
    - EXTERNAL
    - DATABASE
      - AREASUM
    - ROUTERS
    - STATIsTics

### IPv6 LSA command:
- LSA
  - LSTYPE=ls_type
  - LSID=lsid
  - ORIGINator=ad_router
  - AREAIID=area_id
  - IFNAME=if_name

### IPv6RIP options:
- ALL
  - ACCEPTED
    - Interface
      - NAME=if_name
  - FILTERS

### GENERIC6 options:
- ALL
  - Interface
    - NAME=if_name
**DISPLAY TCPIP OSAINFO**

Request OSA information:

```
Display TCPIP, procname, OSAinfo, INTFName=intf_name
```

Notes:

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

**Rule:** You must specify the parameters 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:

```
Display TCPIP, procname, STOR, MODULE=modname_name
```

**DISPLAY TCPIP SYSPLEX**

Request SYSPLEX information:

```
Display TCPIP, procname
```

```
SYSpex, VIPAdyn, IPAddr=ipaddr, INTFName=intfname
```

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:

```plaintext
Display TCPIP, tnproc, Help
```

STOR display command:

```plaintext
Display TCPIP, tnproc, STOR
```

CLIENTID display command:

```plaintext
Display TCPIP, tnproc, ClientID
```

CONNECTION display command:

```plaintext
Display TCPIP, tnproc, Connection
```
INACTLUS display command:

```plaintext
Display TCPIP, tnproc, INACTLUS, Telnet
```

OBJECT display command:

```plaintext
Display TCPIP, tnproc, Object
```

PROFILE display command:

```plaintext
Display TCPIP, tnproc, Profile
```
Chapter 1. IP commands

Display TCPIP, tnproc, PROFile, Port=ALL

- PROFile=CURRENT
- PROFile=prfid
- PROFile=ACTive
- PROFile=ALL
- PROFile=Basic
- PROFile=Pending
- PROFile=Secure

SUMmary, DETail, MAX=100

Display TCPIP, tnproc, TNproc, PROFile=CURRent

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

XCF STats display command:

Display TCPIP, tnproc, XCF, STats
DISPLAY TCPIP TRACE

Display information about network management applications that are using the
real-time application-controlled TCP/IP trace network management interface (NMI)
to obtain real-time network management data from the TCP/IP stack. See
Real-time application-controlled TCP/IP trace NMI in the z/OS Communications
Server: IP Programmer’s Guide and Reference for more information about this
NMI.

```
_DISPLAY TCPIP, procname, TRACE
```

```
- DETAIL
- NAME=jobname
- TYPE=DAT
   ,MAX=200
   ,MAX=*
   ,NAME=jobname
   ,TYPE=DAT
   ,MAX=lines
```

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=100 , MAX=lines
```

TSO syntax

```
EZACMD command name command options MAX=100
```

NetView syntax

```
NETVASIS EZACMD command name command options MAX=100
```

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,
  DEBug, Level=debug_level,
  DISPLAY, DEBUG,
  DNS, DNSID=dns_label, ZONES,
  ZONEID=zone_label,
  SUMMARY, DETAIL,
  MAX=100,
  MAX++,
  MAX=recs,
  SUMMARY, DETAIL,
  MAX=100,
  MAX++,
  MAX=recs.
```

CSSMTP application

Control and monitor the Communication Server Simple Mail Transfer Protocol (CSSMTP) application:

```
MODIFY procname,
  Display, CONFIG
  F IPlist
  LOGlevel,
  Summary
  SPoolstatus
  Summary
  ALL
  Detail
  ALL
  TKID=tkid
  TARgets
  ADDR=ipAddress
  FLUSHRetry,
  AGE=days
  TKID=tkid
  LOGlevel,
  LEVEL=logLevel
  REFRESHIPlist
  REFRESHTargets
  RESume
  IMMEDIATE
  SUSpend
  DELAY
  IMMEDIATE
  USERexit,
  LEVEL=NONE
  VERSION2
  VERSION3
```

Defense Manager daemon

Control Defense Manager daemon (DMD) functions:

```
MODIFY procname, DISPLAY
```

```
MODIFY procname, REFRESH
  FILE='filename'
  FILE='//filename'
```

```
MODIFY procname, FORCE_INACTIVE, stackname
```
**FTP server**

Start and stop tracing after initialization is complete:

```
MODIFY jobname, DEBUG=(

? , ALL , BAS , CMD , FLO , FSC-(n) , INT , JES , NONE , PAR , SEC , SOC-(n) , SQL , UTL ,
X-yyy

)
```

```
DUmp=(

? , n , ALL , FSC , JES , NONE , SOC , SQL ,
(1)
X-yyy

)
```

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'
```
NCPROUTE server
Pass parameters to the NCPROUTE address space:

```
MODIFY procname, QUERY PARMS=parms, C=client
```

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

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

OMPROUTE
Control OMPROUTE from the operator's console:

```
MODIFY procname, KILL RECONFIG
   ROUTESA= ENABLE, DISABLE
   TRACE=trace_level
   DEBUG=debug_level
   TRACEx=traceX_level
   DEBUGx=debugX_level
   SADEBUG=saddebug_level
   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= PRtable= ALL, DEST=ip_addr, DELETED
   ,OPTIONS
```

OSPF options:
LSA command:

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

```
ORIGINator=ad_router
  AREAID=area_id
```

RIP options:

```
LIST
  ALL
  INTERFACE
```

```
FILTERS
  NAME=if_name
```

**GENER** IC options:

```
LIST
  ALL
  INTERFACE
```

IPv6 OSPF options:
IPv6 LSA command:

```
lsa, lstype=ls_type, lsid=lsid, originator=ad_router
```

IPv6 RIP options:

```
all, accepted
```

`Interface NAME=if_name`

`Filters NAME=if_name`

**GENERIC6 options:**

```
all
```

`Interface NAME=if_name`

**Policy Agent**

Control the Policy Agent functions from the operator’s console using the MODIFY command:

```
MODIFY procname,
```
Resolver address space
Request the resolver address space to display or refresh its setup information:

```plaintext
MODIFY procname.,
  Display
  REFRESH
    SETUP=xxx
    XXX(YYY)
    '/XXX'
  FLUSH, ALL
```

REXEC server
Change the parameters on the Remote Execution server:

```plaintext
MODIFY procname.,
  EXIT=exitmod,
  TSOPROC=proc

MSGCLASS=c,
  PURGE=Yes, No
  TSCLASS=c

TRACE=
  LOG
  NOLOG
  SEND
  NOSEND
  CLIENT=client
  ALLCLIENTS
  RESET
```

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
- 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:

```
MODIFY procname, HALT
```

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

```
MODIFY procname,
  CANCEL
  DROP IP=dest_ip, LU=dest_lu, ALL
  HALT
  ACTIVE
  LIST IP=dest_ip, LU=dest_lu, ALL
  RESTART INIT IP=dest_ip, LU=dest_lu, ALL
  TRACE ON IP=dest_ip, OFF ALL, DETAIL
```

SNMP agent
Modify some SNMP agent initialization parameters:

```
MODIFY snmp_agent_jobname, INTERVAL=n TRACE, LEVEL=n QUERY
```
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, MAX=5, DETAIL, MAX=n, MAX=*
```

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

```
MODIFY procname,
    DEBUG, Level=debuglevel,
    DISPLAY DEBUG,
    MEMBERS DETAIL MAX=*,
    MEMBERS DETAIL PORT=portnum MAX=recs,
    MEMBERS DETAIL TCPname=tcpname,
    ENABLE Target options,
    QUIESCE Target options
```

Target options:

```
PORT=portnum PROTOCOL=TCP,
IPADDR=ipaddr,
TCPname=tcpname
```

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

```
Start procname,
    PARMS='(CTRACE(xxxxxxxx))'
    REUSASID=YES
```

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, IPv6_address
- **PORTNum=** port_number

**IPv4_address:**

- **SUBNet=** IPv4_address
- **/num_mask_bits**

**IPv6_address:**

- **/prefixLength**

**VARY TCPIP DROP**

Drop a single connection:

```
VARY TCPIP, procname, DROP, CMD=DROP, CONNection=connid
```

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

```
VARY TCPIP, procname, DROP, CMD=DROP, PORT=portnum, JOBNAME=jobname, ASID=asid
```

---

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*z/OS V2R2.0 Communications Server: Quick Reference*
**VARY TCPIP EXPORTPROF**

Export a TCP/IP stack profile for use with the Configuration Assistant for z/OS Communications Server:

\[\text{Vary TCPIP, procname, EXPOrtprof, datasetname, profile_stack}\]

**VARY TCPIP OBEYFILE**

Change the TCP/IP configuration:

\[\text{Vary TCPIP, procname, Obeyfile, datasetname}\]

**VARY TCPIP OSAENTA**

Set up OSAENTA tracing:

\[\text{Vary TCPIP, procname, OSAENTA}\]

**Command:**

\[\text{-PORTNAME=osa_port_name}\]

**Trace Parameters:**

- FULL
- ABBREV = abbrev_length
- CLEARfilter
- DISCARD=EXCEPTION
- DISCARD=ALL
- DISCARD=NONE
- DISCARD=discard_code
Protocol Type:

- PROTOCOL = *
- PROTOCOL = TCP
- PROTOCOL = UDP
- PROTOCOL = ICMP
- PROTOCOL = ICMPV6
- PROTOCOL = protocol_number

IP Address:

- IPADD = *
- IPADD = ipv4_address /32
- IPADD = ipv4_address /num_mask_bits
- IPADD = ipv4_address /128
- IPADD = ipv6_address /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:

```
,VLANID=*
,VLANID=vlan_id
,VLANID=ALL
```

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. See the z/OS Communications Server: IP Diagnosis Guide for details.

VARY TCPIP PKTTRACE

Set up packet tracing:

```
Vary TCPIP , procname , PKTtrace
```

Command:

```
(1) (2)
,ON
,OFF
,CLEAR
,Packet Length
, Protocol Type
, Packet Dest Address
, Packet Source Port
, Packet Dest Port
, Packet Port Number
, Packet Discard Code
```

Packet Length:

```
,FULL
,ABBREV=200
,ABBREV=abbrev_length
```
Protocol Type:

Packet Dest Address:

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. See the 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,PROCNAME, PURGECACHE, INTERFACE
```

VARY TCPIP SMCAT
Use the VARY TCPIP,SMCAT command to control the SMC Applicability Tool (SMCAT).

```
VARY TCPIP,PROCNAME, SMCAT, DATASETNAME
```

VARY TCPIP START
Start a TCP/IP device or interface:

```
VARY TCPIP,PROCNAME, START, DEVICE_NAME, INTERFACE_NAME
```

VARY TCPIP STOP
Stop a TCP/IP device or interface:

```
VARY TCPIP,PROCNAME, STOP, DEVICE_NAME, INTERFACE_NAME
```

VARY TCPIP SYNTAXCHECK
Check the syntax of TCP/IP configuration statements:

```
VARY TCPIP,PROCNAME, SYNTAXCHECK, DATASETNAME
```

VARY TCPIP SYSPLEX
Change the TCP/IP stack's sysplex configuration:

```
VARY TCPIP,PROCNAME
```
VARY TCPIP TELNET

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

```
      - VARY TCPIP,tnproc ,Telnet ,ABENDTRAP,modname
```

Disable Telnet traces:

```
      - VARY TCPIP,tnproc ,DEBug,OFF, Telnet
```

Activate a Telnet LU:

```
      - VARY TCPIP,tnproc ,ACT,luname, Telnet
```

Deactivate a Telnet LU:

```
      - VARY TCPIP,tnproc ,INACT,luname, Telnet
```

Quiesce a Telnet port:

```
      - VARY TCPIP,tnproc ,QUIesce, Telnet ,PORT=ALL
```

z/OS V2R2.0 Communications Server: Quick Reference
Resume a Telnet port:

```plaintext
Vary TCPIP-,tnproc-,Telnet-,RESUME
```

Stop a Telnet port:

```plaintext
Vary TCPIP-,tnproc-,Telnet-,STOP
```

Activate a LUNS LU:

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

Deactivate a LUNS LU:

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

Quiesce a LUNS:

```plaintext
Vary TCPIP-,tnproc-,LUNS-,QUIesce
```

Resume a LUNS:

```plaintext
Vary TCPIP-,tnproc-,LUNS-,RESUME
```

Start a LUNS:

```plaintext
Vary TCPIP-,tnproc-,LUNS-,STArt
```

**TSO commands**

**DIG command**

Query name servers

```plaintext
DIG @server domain_name qtype qclass -c comment
```
### +queryoption:

- noaaonly
- aaonly
- addit
- noaddit
- answer
- noanswer
- author
- noauthor
- noc1
- c1
- cmd
- nocmd
- nod2
- d2
- debug
- nodebug
- defname
- nodefname
- domain
- name
- Header
- noHeader
- header
- noheader
- noignore
- ignore
- noko
- ko
- pfand
- number
- pfdef
- pfmin
- pfor
- number
- pfset
- number
- noprimary
- primary
- noqr
- qr
- ques
- noques
- recurse
- norecurse
- reply
- noreply
- retry
- limit
- nosort
- sort
- stats
- nostats
- timeout
- time_out_value
- ttld
- nottlid
- novc
- vc

### -digoption:
FTP command

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

\[\text{ACCT} \rightarrow \text{account\_information} \]\n
**APPEND subcommand**
Append a local data set

\[\text{APPend} \rightarrow \text{local\_data\_set} \rightarrow \text{destination\_file} \]\n
**ASCII subcommand**
Change the data transfer type to ASCII

\[\text{ASCII} \rightarrow \text{destination\_file} \]\n
**AUth subcommand**
Negotiate a security mechanism for the session

\[\text{AUth} \rightarrow \text{security\_mechanism} \]\n
**BIG5 subcommand**
Change the data transfer type to BIG5:

\[\text{BIG5} \rightarrow \text{parameter} \\{ \text{Ascii} \rightarrow \text{NOSo} \rightarrow \text{NOType} \, \text{Sosi} \rightarrow \text{Ebcdis} \rightarrow \text{Space} \} \]

**BINARY subcommand**
Change the data transfer type to Image

\[\text{BINARY} \rightarrow \text{destination\_file} \]\n
**BLOCK subcommand**
Set the block data transfer mode

\[\text{BLOCK} \rightarrow \text{destination\_file} \]\n
**CCC subcommand**
Change control connection protection to clear

\[\text{CCC} \rightarrow \text{clear} \\} \]
**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 [protection-level]
```
DEBUG subcommand
Set internal debug options:

```
¬ DEBug
  ¬ ?
  ¬ ACC
  ¬ ALL
  ¬ BAS
  ¬ CMD
  ¬ FLO
  ¬ FSC(n)
  ¬ INT
  ¬ NONE
  ¬ PAR
  ¬ SEC
  ¬ SOC(n)
  ¬ SQL
  ¬ TIMestamps
  ¬ UTL
  ¬ Xyy
```

DELETE subcommand
Delete files:

```
¬ DELeTe—foreign_file
```

DELIMIT subcommand
Display the file name delimiter:

```
¬ DELImit
```

DIR subcommand
Obtain a list of directory entries:

```
¬ DIR—name (DISK)
```

DUMP subcommand
Sets the internal extended trace options:

```
¬ DUMP
  ¬ ?
  ¬ n
  ¬ ALL
  ¬ FSC
  ¬ NONE
  ¬ SOC
  ¬ SQL
  ¬ Xyy
```

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**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:

IBMKANJI subcommand
Change the data transfer type to IBMKANJI:

JIS78KJ subcommand
Change the data transfer type to JIS78KJ:

JIS83KJ subcommand
Change the data transfer type to JIS83KJ:

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

LANGUAGE subcommand
Request server replies in another language, or reset language to the default:
**LCD subcommand**
Change the local working directory

```
$lcd qualifier
```

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

```
$mkdir directory
(like remote_directory)
```

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

```
$locsite option
```

**options:**

---

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LOCSTAT subcommand
Display local status information:

```
LOCStat option
```
options:
LPWD subcommand
Display the current working-level qualifier:

```plaintext
LPwd
```

LS subcommand
Obtain a list of file names:

```plaintext
LS [name] [-Disk]
```

MDELETE subcommand
Delete multiple files:

```plaintext
MDelete [foreign_file]
```

MGET subcommand
Copy multiple files:

```plaintext
MGet [foreign_file] [-REPLACE]
```

MKDIR subcommand
Create a directory on the remote host:

```plaintext
Mkdir [directory] [-like local_directory]
```
**MKFIFO subcommand**
Create a named pipe on the remote host:

```
MKFifo pathname
```

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

```
MOde
```

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

```
MPut local_data_set
```

**MVSGET subcommand**
Copy remote data set into local data set with remote data set attributes.

```
MVSGet remote_mvs_dataset local_mvs_dataset \{(REAllocate\}
```

**MVSPUT subcommand**
Copy local data set into remote data set with local data set attributes.

```
MVSPut local_mvs_dataset remote_mvs_dataset \{(REAllocate\}
```

**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
PRIVATE
SAFE
```

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
```

SEDSITE subcommand
Toggle the sending of site information:

```
SEDSite
```
SITE subcommand
Send site specific information to a host:

Site options

options:

- ASAtrans
- AUTOMount
- AUTORecall
- BLKsize = size
- Blocks
- BLOCKSize = size
- Bufno = number
- CHKptint = 0
- CHMod ooo filename symbolic filename
- CONDdisp = Catlg Delete
- CTRLConn 7BIT iconv_ascii FTP_STANDARD_TABLE *
- CYlinders
- DATAClass = data_class
- DATAKEEPAFLIVE = seconds
- DATASETmode
<table>
<thead>
<tr>
<th>Command</th>
<th>Options</th>
</tr>
</thead>
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<td>DBSUB</td>
<td><code>data_set_name</code></td>
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<td>DCbdsn</td>
<td><code>destination</code></td>
</tr>
<tr>
<td>DEBug</td>
<td><code>destination</code></td>
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<td>DEST</td>
<td><code>destination</code></td>
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<td><code>size</code></td>
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<td>DSNDATA</td>
<td><code>SYSTEM</code></td>
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<td>DSWAITTIME</td>
<td><code>minutes</code></td>
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<td>DSWAITTIMEREPLY</td>
<td><code>seconds</code></td>
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<tr>
<td>DUmp</td>
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<td>EATTR</td>
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<td><code>SBCS</code></td>
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<td>FIFIODATA</td>
<td><code>seconds</code></td>
</tr>
<tr>
<td>FIFOOPTDATA</td>
<td><code>seconds</code></td>
</tr>
</tbody>
</table>
Chapter 1. IP commands
SJISKANJI subcommand
Change the data transfer type to SJISKANJI:

STATUS subcommand
Retrieve status information from a remote host:

options:
<table>
<thead>
<tr>
<th>ASAtrans</th>
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<tr>
<td>AUTOMount</td>
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<td>BLKsize</td>
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<td>Blocks</td>
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<td>BLOCKSIZE</td>
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<td>BUFno</td>
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<td>CHKptint</td>
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<td>CONDdisp</td>
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<td>DATAclass</td>
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<td>DATAKEEPALIVE</td>
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<tr>
<td>DATASETmode</td>
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<td>DB2</td>
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<td>DBSUB</td>
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<td>DCbsdns</td>
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<td>DEST</td>
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<td>Directory</td>
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<td>DIRECTORYMode</td>
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<td>DSNTYPE</td>
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<td>DSNWHITTIME</td>
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<td>ENCoding</td>
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<td>FIFOINTIME</td>
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<td>FILEtype</td>
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<td>INActivetime</td>
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<td>JENTRYLimit</td>
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<td>JESGETBYDSN</td>
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<td>JESJOBName</td>
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<td>JESLrecl</td>
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<td>JESOwner</td>
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<td>JESSRecfm</td>
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<td>JESSStatus</td>
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<td>LISTLEVEL</td>
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<td>LISTSUBdir</td>
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<td>LRec</td>
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<td>MBDATACONN</td>
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<td>MBEQUIRELASTEDOL</td>
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<td>MGmclass</td>
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<td>MGralevol</td>
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<td>POSTYPE</td>
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<td>QUotesoverride</td>
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<td>READTAPEFormat</td>
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<td>STOrclass</td>
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<td>TLRSCLEVEL</td>
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<td>TRacks</td>
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<tr>
<td>TRAILingblanks</td>
</tr>
<tr>
<td>TRUNCate</td>
</tr>
</tbody>
</table>
STREAM subcommand
Set the stream data transfer mode:

STRUCTURE subcommand
Set the file structure:

SUNIQUE subcommand
Toggle the storage method:

SYSTEM subcommand
Display the operating system name:

TCHINESE subcommand
Change the data transfer type to TCHINESE:

TSO subcommand
Use TSO commands:
**TYPE subcommand**
Set the data transfer type:

```
/SM590000/SM590000
```  

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

```
/SM590000/SM590000
```  

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

```
/SM590000/SM590000
```  

Where Password is:

```
/new_password/new_password
```  

**GDDMXD command**
Invoke the GDDMXD CLIST command:

```
/SM590000/SM590000
```  

The following sections describe the syntax for GDDMXD command options.
Identifying the target display option

\texttt{internet_address : target_server . target_screen}

\textbf{ANFontn option}
Specify the X Window System font used for characters in the alphanumeric presentation space:

\texttt{gddmx*ANFont\textunderscore n : fontname}

\textbf{CMap option}
Specify whether the default color map is loaded or bypassed:

\texttt{gddmx*CMap}

\textbf{Compr option}
Control the technique used to compress bit-mapped data:

\texttt{gddmx*Compr}

\textbf{Enter option}
Override the default key mapping for enter:

\texttt{gddmx*Enter : keysym\_name}

\textbf{GColornn option}
Specify a color name:

\texttt{gddmx*GColor\_nn : c}

\textbf{Geometry option}
Specify the size and location of the initial GDDMXD graphics presentation space:

\texttt{gddmx*Geometry : \textit{width x height} + \textit{x\_offset} + \textit{y\_offset}}

\textbf{GMCPnn option}
Override GDDM® multicolor patterns with workstation color names:

\texttt{gddmx*GMCP\_nn : c}
**HostRast option**  
Perform Raster image processing at the System/370 host:

```
gdmx*HOSTRAST: Y
```

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

```
gdmx*NewLine: keysym_name
```

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

```
gdmx*XSync: Y
```

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

```
gdmx*ZWL: 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 -l -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:

```
LPQ -job_id [Opt Parms 1: Opt Parms 2:]
```

- **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]
```

- **Optional parameters:**

---

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### More optional parameters:

- `AT host`
- `BIG5`
- `N0BInary`
- `BINary`
- `Burst`
- `NOBurst`
- `CC`
- `N0Cc`
- `Cffirst`
- `Class class`
- `-1`
- `Copies copies`
- `EOF1f`
- `NOEOF1f`
- `Eucanji`
- `Filter filter`
- `HAngeul`
- `HEader`
- `NOHeader`
- `IBmkanji`
- `Indent number`
- `JIS78kj ASCII JISROMAN`
- `JIS83kj ASCII JISROMAN`
- `JNum number`
- `Job jobname`
- `Ksc5601`
- `LAndscape`
- `LANONOcz`
- `LATEconn`
- `LNcz 55`
- `Linecount count`
- `NOLincount`
- `Mail`
- `Name name`
- `Postscript`
- `NOPostscript`
- `Printer name`
### 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: ]
```

**Optional Parameters:**

```
( [Query] [TRace] [Type] [Version]
```
**MAKE SITE command**

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

```
MAKE SITE
   HLQ=hlq, MGMTclass=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
```

Report Option:
Command:

```
DRop n
```

Target:

```
TCP tcpname
```
Output:

- `FORMat`  
  - `LONG`  
  - `SHORT`

- `REPort`  
  - `DSN-dsnname`  
  - `HLQ-hlname`

- `STACK`  
  - `TITLes`

Filter:

- `(8)`
  - `APPLD-appldata`
    - `APPLname-applname`
    - `CLIENT-clientname` (16)
      - `CONNType-NOTTLSPolicy`
        - `TTLSPolicy`
          - `CURRENT-groupid`
          - `STALE` (10)
    - `DNSAddr-dnsipaddr`
      - `HOSTName-hostname` (13)
      - `INTFName-intfname`
        - `IPAddr-ipaddr`
          - `ipaddr/prefixLen`
          - `ipaddr/subnetmask` (11)
        - `IPPort-ipaddr+portnum`
      - `LUName-luname` (17)
    - `NOTN3270` (5)
    - `POLicyn-policyname` (6)
    - `PORT-portnum` (9)
    - `SMCID-smcid`

Notes:

1. The minimum abbreviation for each parameter is shown in uppercase letters.
2 The CLlent filter is valid with ALL, ALLConn, BYTEinfo, CONn, CLlients, 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, CLlients, 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 SMCID filter is valid only with ALL, ALLConn, CONn, and DEvlinks.

10 The CONNType filter is valid only with ALLConn and CONn.

11 The INTFName filter is valid only with DEvlinks and HOme.

12 The valid protocol values are TCP and UDP.

13 The DNSAddr filter is valid only with RESCache.

14 The POLicyn filter is valid only with SLAP.

15 The valid protocol values are IP, ICMP, TCP, and UDP.

16 The APPLname filter is valid only with TELnet.

17 The LUName filter is valid only with TELnet.

**NSLOOKUP command**

Query a name server in command mode:

```
NSLOOKUP domain_name -server_name
```

Issue queries to name servers in interactive mode:

```
NSLOOKUP -server_name -server_address
```

SubCommand
PING command

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

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

```
REXEC [options] command
```

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

**RPCINFO command**

Display server information:

```
RPCINFO [options] command
```

- `-p host`:
- `-u host prognum versnum`:
- `-n portnum`:
- `-t host prognum versnum`:
- `-b prognum versnum`

**RSH command**

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

```
RSH [options] command
```

- `-?`:
- `-b tab`:
- `-d`:
- `-l user/password`:
- `-s 514`:
- `-foreign_host command`

**SMMSG SMTP command**

Command for the general user:

```
SMMSG smtp_jobname [options] command
```

- `-HE1p NUMQueue QUEues STATS`

Command for the privileged user:
SMTPNOTE command
Send electronic mail to one or more recipients on NJE or TCP networks:

TELNET command
The following sections describe the syntax for TELNET command options:

AO option
Terminate output display:

AYT option
Query the connection:

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

¢ and ` options
Send ASCII control characters to a host in line mode:

```
¢ control_character```

Terminal and conversion type option

```
VT282
VT100
TTY
SJISKANJI
JIS78KJ
JIS83KJ
BIG5
EUCKANJI
DECKANJI
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:

```bash
testsite
```

**TRACERTE command**

Debug network problems:

```bash
trace	n?host_name(packetSize)
```

**Options:**

- `Addrtype ipv4 ipv6`
- `DEBUG`
- `Intf interface`
- `Limdisp` 30
- `MAX hop`
- `NOName`
- `NORoute`
- `PORT num 33434`
- `Srcip srcAddr`
- `TCP tcpname`
- `Tos tos 3`
- `TRY attempts 3`
- `Verbose 5`
- `WAIT seconds 5`

**z/OS UNIX commands**

**dig command**

Gather information from the Domain Name System servers:
Command Line Mode

```
 dig query -h
```

Multiple Query Mode

```
 dig +global_queryopt query -h
```

query:

```
@server name type class -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:

```
    - c
    - g
    - r
    - p stackname
    - d
    - h
    - ?
```

**Notes:**

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

```
FTP
   -a NEVER
   -e
   -f ftp_data
   -g
   -i
   -n
   -p tcpip
   -r NEVER
   -t dsn
   -v
   -w nn
   -x
   -s srcip
```

**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  
- **-F** Defensive Filter Option  
- **-m** Manual Tunnel Option  
- **-k** IKE Tunnel Option  
- **-y** Dynamic Tunnel Option  
- **-i** Interface Option  
- **-t** IP Traffic Test Option  
- **-o** NATT Port Translation Option  
- **-w** IKEv2 Network Security Option  
- **-x** Network Security Server Option

```
- ?
```

**Global Option:**

```
- d debuglevel
```

**Stackname Option:**

```
- p stackname  
- z nsclientname
```
Target Option:

- p stackname
- G

IP Filter Option:

display
- r detail
- c current
Filter Sel

default
reload

display
- r short
detail
wide
- c current
policy
profile

Filter Selection:

-a Ynn
-Mnn
-n IpFilterRuleName
-N DefensiveFilterName
-g IpFilterGroupName

Defensive Filter Option:

display
- r detail
- c current
Filter Sel

add Defensive Filter Spec
update Defensive Filter Update Spec
delete -N all
-N DefensiveFilterName
-N DefensiveFilterName
-N DefensiveFilterName

Defensive Filter Specification:

srcip all destip all
srcip ipaddress
 destip ipaddress
ipaddress/prefixLength
ipaddress/prefixLength
all
all
Manual Tunnel Option:

- **display**
- **activate**
- **deactivate**

Man Tunnel Selection:

- **-a** "Man"
- **-n** "IpManVpnActionName"

IKE Tunnel Option:

- **display**
- **deactivate**
- **refresh**

IKE Tunnel Selection:

- **-a** "Knn"
- **-n** "KeyExchangeRuleName"

IKE Tunnel Selection2:

- **-a** "Knn"

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
-ipid
-ah
-esp
-ospf
```

NATT Port Translation Option:
IKED Network Security Option:

Network Security Server Option:

mailstats command

Printing statistics:

netstat command

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

Note: The synonym name for the netstat command in the z/OS UNIX shell is netstat. The onetstat command syntax is the same as that for the onetstat command.
Chapter 1. IP commands

Command:

- **D** *n*

Target:

- **p**  *tcpname*

Output:

- **M**  *LONG*
  *SHORT*
Filter:

```
-B ipaddr+portnum
-E clientname
-G appldata
-H hostname
-I ipaddr
-K intfname
-L luname
-N applname
-P portnum
-Q dnsipaddr
-T
-U smcid
-X NOTTLSPolicy

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. -U filter is valid only with -A, -a, -c and -d.
9. -X filter is valid only with -a, and -c.
```
-K filter is valid only with -d and -h.
-Y filter is valid only with -j.
The valid protocol values are TCP, and UDP.
-Q filter is valid only with -q.
The valid protocol values are ICMP, IP, TCP, and UDP.
-N filter is valid only with -t.
-L filter is valid only with -t.

**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.

```
nssctl Primary Option Debug Option
```

**Primary Option:**

```
-d Filter Option
```

**Filter Option:**

```
-c nsclientname
-D ipsec
```

**Debug Option:**

```
-Z debuglevel
```

**nsupdate Command**

Dynamically update a name server:

**Command mode:**

```
nupdate -d -v -y keyname:secret -k keyfile -D keyfile -V v9
```

**Subcommand mode:**
**Start nsupdate subcommand mode**

```plaintext
nsupdate—Enter
```

**Subsequent subcommand entry (valid with version 9 of nsupdate)**

```plaintext
quit
prereq
-nxdomain
-yxdomain
-nxrrset
-ysrrset
server
-send
-show
-update
-zone
```

**onslookup and nslookup command**

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

Querying a name server in command mode:

```plaintext
onslookup—Enter
```

Issue multiple queries to name servers in interactive mode:

```plaintext
onslookup—Enter
```

**Options:**

- `-Option`
- `-server_name`
- `-server_address`
- `-name`
- `-address`
ping command

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

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

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

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

orpcinfo and rpcinfo commands
Display server information:

```
RPCINFO [-p] [-u host prognum versnum] [-t host prognum versnum]
```

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

snmp command

Note: The synonym for the `osnmp` command in the z/OS UNIX shell is `snmp`. The `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
  -c public
  -c community_name
  -t 3
  -t timeout value
  -v
  -a
  get
  getnext
  -m 10
  -m max repetitions
  -n 0
  -n non-repeaters
  getbulk
```

```
mib_variable
```

Set the MIB variables:

```
snmp
  -d 0
  -d debug_level
  -h localhost
  -h target host
  -r 2
  -r retry number
  -c public
  -c community_name
  -t 3
  -t timeout value
  -v
  -a
  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
  -c public
  -c community_name
  -t 3
  -t timeout value
  -v
  -a
```
Displaying `osnmp` help:

```
$ snmp -?
```

Receive a trap:

```
$ snmp -d 0 -p 162
```

Finding a MIB variable name:

```
$ snmp -d 0
```

**traceroute command**

Debug network problems:

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

```
$ traceroute -?
```

**Options:**
pasearch command

Query information from the Policy Agent (Pagent):

Option:
popper command

```
popper [-e] [directory name]
```

pwchange command

Generate hexadecimal encryption key to update password for SNMP use:

```
pwchange -e -d 0 -d n -p HMAC-MD5 -p protocol -u auth -u key_usage -s
```

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

```
pwtokey old_password new_password IPAddress hostname engineID
```
sendmail command

```
sendmail
    user_name [command_line_switch]
```

trmdstat command

```
trmdstat
    Report Option [Report Content] Filter Global log_filename
```

**Report Option:**

- `-I`
- `-A`
- `-C`
- `-F`
- `-G`
- `-I`
- `-N`
- `-Q`
- `-T`
- `-U`
- `-?`

**Report Content:**

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

**Filter:**
Global:

- \( \texttt{-i initial_time} \)
- \( \texttt{-f final_time} \)
- \( \texttt{-p 1-65535} \)
- \( \texttt{-h ip_address} \)
- \( \texttt{-j stack_name} \)
- \( \texttt{-k ip_address} \)
- \( \texttt{-s ip_address} \)
- \( \texttt{-t ip_address} \)
- \( \texttt{-c correlator} \)
- \( \texttt{-n interface_name} \)

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.

Other IP commands, options, and subcommands

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Chapter 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.

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
```

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
```

D ADJSSCPS command
Display user-defined and dynamic adjacent SSCP tables:

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

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

```
DISPLAY NET, ADJSSCPs, CDRSC=cdrsc_name
```

```
MAX=DSPLYDEF_start_option_value
```

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

```
DISPLAY NET, ADJSSCPs, ADJLIST=list_name
```

```
MAX=DSPLYDEF_start_option_value
```

Display all lists of adjacent CDRMs:

```
DISPLAY NET, ADJSSCPs, ADJLIST=* 
```

```
MAX=DSPLYDEF_start_option_value
```

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

DISPLAY NET, APINGDTP

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:

DISPLAY NET, APINGTP

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

```
D APPNTOSA
```

**D AUTOLOG command**

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

```
D AUTOLOG
```

**D BFRUSE command**

Display information about VTAM buffer use and storage usage summary information for VTAM modules:
D BNCOSMAP command
Display native and nonnative COS mappings defined for a border node:

```
DISPLAY NET, BNCOSMAP NETID=netid
```

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

```
DISPLAY NET, CDRMS ID=name
```

(1)
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:

```
DISPLAY NET CDRSCS (1)
```

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
```

**D CONVID command**

Provide information about active conversations with the specified application program:

```plaintext
 DISPLAY NET, CONVID, ID=appl_name
```
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, ID=pu_name, NETID=netid
```

Display the APPN Class of service 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, ID=*,
```

```
LIST=ALL
```

```
LIST=NN
```

```
LIST=PENDING
```

```
LIST=INACT
```

```
MAX=DSPLYDEF_start_option_value
```

```
MAX=number_of_CPCP_sessions
```

```
SCOPE=ALL
```

```
SCOPE=ACT
```

```
SCOPE=ALL
```

```
SCOPE=PENDING
```

```
SCOPE=INACT
```
Notes:

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

2. Because an end node will never have CP-CP sessions with another end node, LIST=EN is not valid if this command is issued from an end node. In this case, the LIST operand is not necessary because the output for LIST=ALL and LIST=NN will be identical.

D CSDUMP command

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

```
D  CSDUMP
```

D CSM command

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

```
D  CSM
```

Display the status of the CSM Monitoring:

```
D  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.

```
D  CSMUSE
```

D DIRECTRY command

Display information about a resource:
Display a resource name in any network:

```
DISPLAY NET, DIRECTRY, ID=*, name
```

**D DISK command**

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

```
DISPLAY NET, DISK, ID=ncp_name
```

**D DLURS command**

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

```
DISPLAY NET, DLURS
```

**D EE command**

Display general Enterprise Extender information:

```
DISPLAY NET, EE, LIST=SUMMARY
```

Display Enterprise Extender connection information by LINE or PU name:

```
DISPLAY NET, EE, ID=name
```

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

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

```plaintext
DISPLAY NET, EE

local_ipaddr, HOSTNAME=(remote_hostname)

remote_ipaddr, HOSTNAME=(remote_hostname)
```

Display Enterprise Extender connection information by remote CPNAME:

```plaintext
DISPLAY NET, EE, CPNAME=name

LIST=SUMMARY

number_of_EE_connections
```

**D EEDIAG command**

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

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

CLEAR=ALL

LIST=SUMMARY
```

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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
```

```
MAX = lesser_of_20_or_DSPLYDEF_start_option_value
```

```
number_of_EE_connections
```

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

Clear Enterprise Extender diagnostic counters:

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

```
REXMIT
```

```
SRQRETRY
```

Display Enterprise Extender connectivity test information:

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

```
LIST = SUMMARY
```

```
LIST = SUMMARY
```

```
DETAIL
```

```
MAX = lesser_of_20_or_DSPLYDEF_start_option_value
```

```
number_of_EE_connections
```

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

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

\[ \text{ID=} \text{name} \]

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

Limit the DISPLAY EEDIAG command scope to EE connections that are identified by an IP address (IPADDR):

\[ \text{IPADDR=} \text{local_ipaddr}, \text{HOSTNAME=} \text{remote_hostname} \]

Limit the DISPLAY EEDIAG command scope to EE connections that are identified by a host name (HOSTNAME):

\[ \text{HOSTNAME=} \text{local_hostname}, \text{IPADDR=} \text{remote_ipaddr} \]

\[ \text{HOSTNAME=} \text{remote_hostname}, \text{IPADDR=} \text{local_ipaddr} \]

\[ \text{HOSTNAME=} \text{remote_hostname}, \text{IPADDR=} \text{remote_ipaddr} \]

\[ \text{HOSTNAME=} \text{remote_hostname}, \text{IPADDR=} \text{local_ipaddr} \]

\[ \text{HOSTNAME=} \text{remote_hostname}, \text{IPADDR=} \text{remote_ipaddr} \]

D EXIT command

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

\[ \text{ID=} \text{*} \]

\[ \text{exit_name} \]
**D GRAFFIN command**

Display affinity information for generic resources:

```
DISPLAY NET, GRAFFIN
   ,LU=name
   ,GNAME=name
   ,MAX=DSPLYDEF_start_option_value
   ,max_affinities=number_of_resources
```

**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
   ,MAX=DSPLYDEF_start_option_value
   ,max_affinities=number_of_resources
```

**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
```

Display a resource name in any network:

```
DISPLAY NET, ID = .name
```
Display a resource name using an IP address:

```
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:

```
DISPLAY NET, INOPCODE, MODULE=modulename
```

```
, MAX=DSPLYDEF_start_option_value
```

```
, MAX=number_of_modules
```

**D INOPDUMP command**

Determine the global status for INOPDUMP:

```
DISPLAY NET, INOPDUMP
```

**D LINES command**

Display the status of lines and channel links in the domain:

```
DISPLAY NET, LINES
```

```
, ID=name
```

```
(1)
```

```
, ID=name
```

```
(2)
```
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  NET -- LMTBL -- ID = appl_name --, TYPE = LUNAME
```

**Display logon mode names in LU-mode table:**

```
  DISPLAY  NET -- LMTBL -- ID = appl_name --, LUNAME = lu_name
```

**D LUGROUPS command**

**Display all LUGROUP major nodes:**
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 a model LU:

```
DISPLAY NET, LUGROUPS, ID=model_lu_name
```

```
, GROUP=model_lu_group
```

```
, SCOPE=ONLY
```

```
, MAX=DSPLYDEF_start_option_value
```

```
ALL, MAX=*
```

```
number_of_resources
```
D MAJNODES command

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

```plaintext
DISPLAY NET, MAJNODES
```

D MODELS command

Display model major nodes, model PUs, and model LUs:

```plaintext
DISPLAY NET, MODELS
```

Display the best, active model application definition for a given application name:

```plaintext
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:

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

D NETSRVR command

Display information about network node servers:

```plaintext
DISPLAY NET, NETSRVR
```
**D PATHS command**
Display dial-out path information about a switched physical unit:

```plaintext
DISPLAY NET, PATHS, ID=switched_pu_name
```

**D PATHTAB command**
Display the status of explicit routes and their associated virtual routes for this host:

```plaintext
DISPLAY NET, PATHTAB
   ,ADJSUB=subarea_number
   ,DESTSUB=subarea_number
   ,MAX=DSPLYDEF_start_option_value
   ,MAX=number_of_resources
```

**D PENDING command**
Display information about resources in the domain that are in a “pending” state:

```plaintext
DISPLAY NET, PENDING
   ,ID=name
   ,MAX=DSPLYDEF_start_option_value
   ,MAX=number_of_resources
```

**D ROUTE command**
Displaying the status of routes:

```plaintext
DISPLAY NET, ROUTE, DESTSUB=subarea_number
   ,ER=ALL
   ,COSNAME=name
   ,NETID=netid
   ,ER=ALL
   ,ER=er_number
   ,VR=vr_number
   ,TEST=NO
   ,TEST=YES
   ,ORIGIN=subarea_pu_name
   ,ORIGIN=ALL
```
Displaying blocked virtual routes:

`DISPLAY -NET-, ROUTE-, BLOCKED -NETID=netid`

Notes:

1. When the BLOCKED operand is specified, the NETID of the host where the command was entered is assumed, and specification of another NETID is not permitted.

Displaying held virtual routes:

`DISPLAY -NET-, ROUTE-, HELD`

**D RSCLIST command**

Display information about resources whose names match a particular pattern:

`DISPLAY -NET-, RSCLIST-, ID=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:

```
>> DISPLAY -- NET,--RTPS,--ALSNAME=name,--APPNCOS=name
               ,--CONGEST=ALL
               ,--CPNAME=name,--CONGEST=YES,--FIRSTCP=name
               ,--FIRSTTG=number
               ,--ID=name
               ,--TEST=NO
               ,--TCID=tcid
               ,--TEST=YES
               ,--MAX=DSPLYDEF_start_option_value
               ,--MAX=*
               ,--QDEPTH=ALL
               ,--QDEPTH=qdepth
               ,--STALL=ALL
               ,--STALL=YES
               ,--STALL=NO
               ,--QDEPTH=all
               ,--QDEPTH=qdepth
               ,--STALL=ALL
               ,--STALL=YES
               ,--STALL=NO
               ,--SWITCH=ALL
               ,--SWITCH=NONE
               ,--SWITCH=YES
               ,--SWITCH=NO
               ,--SWITCH=ALL
```

Display RTP pipes that meet or exceed a specified retransmission threshold:

```
>> DISPLAY -- NET,--RTPS,--REXMIT=retransmission_rate_percentage
               ,--CLEAR=NONE
               ,--CLEAR=ALL
               ,--CPNAME=name
               ,--LIST=DETAIL
               ,--MAX=DSPLYDEF_start_option_value
               ,--MAX=*
               ,--QDEPTH=ALL
               ,--QDEPTH=qdepth
               ,--STALL=ALL
               ,--STALL=YES
               ,--STALL=NO
               ,--SWITCH=ALL
               ,--SWITCH=NONE
               ,--SWITCH=YES
               ,--SWITCH=NO
               ,--SWITCH=ALL
```

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Clear the RTP pipes diagnostic counters:

```
/display net, rtps, clear=all
```

**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:**

```
all
```

**MAX operand:**

```
max
```
Display a specific session:

```
\[\text{DISPLAY} \quad \text{-NET-}, \quad \text{-SESSIONS-}, \quad \text{-SID-} = \text{session_id}\]
```

(3)

```
\[, \text{-PATHINFO-} = \text{YES}\]
```

(4)

```
\[, \text{-PATHINFO-} = \text{NO}\]
```

D SNSFILTR command

Display the current active SAW sense filter:

```
\[\text{DISPLAY} \quad \text{-NET-}, \quad \text{-SNSFILTR}\]
```

D SRCHINFO command

Display summary information about outstanding subarea and APPN searches:

```
\[\text{DISPLAY} \quad \text{-NET-}, \quad \text{-SRCHINFO}\]
```

(3)

```
\[, \text{-TYPE-} = \text{SUBAREA}\]
```

(2)

```
\[, \text{-TYPE-} = \text{APPN}\]
```

(1)

```
\[, \text{-TYPE-} = \text{ALL}\]
```

```
\[, \text{-TYPE-} = \text{ALL}\]
```

```
\[, \text{FROMCP-} = \text{cp_name}\]
```

```
\[, \text{TOCP-} = \text{cp_name}\]
```

(4)

```
\[, \text{FROMSSCP-} = \text{sscp_name}\]
```

```
\[, \text{TOSSCP-} = \text{sscp_name}\]
```

```
\[, \text{-MAX-} = \text{DSPLYDEF_start_option_value}\]
```

```
\[, \text{-MAX-} = \text{number_of_searches}\]
```

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 detailed information about outstanding subarea and APPN searches:

```
DISPLAY NET, SRCHINFO
```

Notes:

1 TYPE=ALL is the default when the HOSTSA and NODETYPE start options are specified.

2 TYPE=APPN is the default when the NODETYPE start option is specified without the HOSTSA start option.
3 TYPE=SUBAREA is the default when the HOSTSA start option is specified without the NODETYPE start option.

4 These operands are valid with TYPE=APPN or TYPE=ALL.

Display search information about a specific search request:

```
谴--DISPLAY--NET--SRCHINFO--SID--session_identifier--
```

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:

```
谴--DISPLAY--NET--STATIONS
```

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

**D STATS command**

**Display resource statistics:**

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

```
  MAX=DSPLYDEF_start_option_value
```

```
  MAX=*
  NUM=number_of_resources
```

**Display data compression statistics:**

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

**Display coupling facility structure statistics:**

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

```
  STRNAME=STRGR_start_option_value
```

```
  STRNAME=structure_name
```

```
  SWSA_structure_name
  Sysplexports_structure_name
```

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:**

- DVIPA=dvipa_address
- LIST=list_number
- LIST=ALL
- FROM=1
- FROM=starting_list_number

**Scope Options**

- SCOPE=ONLY
- SCOPE=ALL

**Max Options**

- MAX=DSPLYDEF_start_option_value
- MAX=*
- NUM=number_of_lines

**D STORUSE command**

**Display storage usage for applications:**

- DISPLAY NET STORUSE APPL=*

- MAX=DSPLYDEF_start_option_value
- MAX=*
- NUM=number_of_resources

**Display storage usage for application jobs:**

- DISPLAY NET STORUSE JOBNAME=*

- MAX=DSPLYDEF_start_option_value
- MAX=*
- NUM=number_of_resources
Display storage usage for data spaces:

```
DISPLAY NET, STORUSE, DSPNAME="", MAX = DSPLYDEF_start_option_value
(data_space_name)

number_of_resources
```

Display storage usage for storage pools:

```
DISPLAY NET, STORUSE

POOL = "", POOL = "", SUMMARY
(storage_pool_name)

LIST = ALL, MAX = DSPLYDEF_start_option_value

POOLTYPE = ALL

CSA
HVCOMM
PRIVATE
```

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
```

Notes:

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

D TGPS command

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

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

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:

Display a specific node:

Display adjacent nodes:

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

Display all nodes with a specific locsize:

```
DISPLAY NET, TOPO, LIST=EN, LOC SIZE=locate_size
```

Display TDU statistics information:

```
DISPLAY NET, TOPO, LIST=TDUINFO, SCOPE=ACTIVITY, NUM=10
```

Display a specific TG or TGs:

```
DISPLAY NET, TOPO, ORIG=cp_name, DEST=cp_name, TGN=tg_number, APPNCOS=cos_name
```

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

```
DISPLAY NET, TOPO, LIST=UNRCHTIM, MAX=DSPLYDEF_start_option_value, MAX=number_of_unreachable_partner_paths
```
Notes:
1 Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.

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

```
 DISPLAY NET, TOPO, LIST=TDUDIAG
```

```
 NUM=10, CLEAR=NO
```

```
 NUM=number_of_entries, CLEAR=YES
```

```
 FORMAT=SHORT
```

```
 FORMAT=SHORT, LONG
```

**Display TDU diagnostic information for a node:**

```
 DISPLAY NET, TOPO, LIST=TDUDIAG, ID=cp_name
```

```
 NUM=10, CLEAR=NO
```

```
 NUM=number_of_TDU_updates, CLEAR=YES
```

**Display TDU diagnostic information for a TG:**

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

```
 DEST=cp_name, TGN=tg_number
```

```
 NUM=10, CLEAR=NO
```

```
 NUM=number_of_TDU_updates, 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
```

Notes:

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

Display the status of communication network management traces:

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

Display the status of the user Exit buffer trace:

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

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=NETCTRL, ID=3710 pu name
```

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

```
DISPLAY NET, TRACES, TYPE=ROUTE
```

Notes:

1 TYPE=ROUTE is allowed only in a network node.
Display the status of an SMS (buffer use) trace:

```
DISPLAY NET, TRACES, TYPE=SMS, ID=VTAMBUF
```

Display the status of a resource state trace:

```
DISPLAY NET, TRACES, TYPE=STATE
```

Display the status of a TSO user trace:

```
DISPLAY NET, TRACES, TYPE=TSO
```

```
(1)
```

Notes:

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

Display the status of the VTAM internal trace:

```
DISPLAY NET, TRACES, TYPE=VTAM
```

Display the status of all active traces:

```
DISPLAY NET, TRACES, TYPE=ALL
```

**D TRL command**

Display the entries in the TRL major nodes:

```
DISPLAY NET, TRL, CONTROL=ALL
```

```
```

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, xcfcp=cp_name
```

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

```
display net, trl, trlmn=name, (name)
```

```
, max=dsplydef_start_option_value
, max=*
number_of_resources
, devstats=no
, devstats=yes
```

**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
```

```
, max=dsplydef_start_option_value
, max=*
number_of_resources
```

Display a specific USERVAR:

```
display net, uservar, id=uservar_name
```
D VTAMOPTS command

Display selected start options:

```
DISPLAY NET,VTAMOPTS
```

Display a group of related start options:

```
DISPLAY NET,VTAMOPTS
```

D VTAMSTOR command

Display storage contents associated with a storage address:

```
DISPLAY NET,VTAMSTOR,ADDRESS=storage_address
```
Display storage contents associated with a module:

\[\text{DISPLAY} \quad \text{NET} \quad \text{VTAMSTOR} \quad \text{MODULE} \quad \text{module_name}\]

Display storage contents associated with a network address:

\[\text{DISPLAY} \quad \text{NET} \quad \text{VTAMSTOR}\]

\[\text{NETADDR} \quad \text{element_address} \quad \text{subarea_address} \quad \text{NETID} \quad \text{network_id}\]

Display storage contents associated with a resource name:

\[\text{DISPLAY} \quad \text{NET} \quad \text{VTAMSTOR} \quad \text{RESOURCE} \quad \text{resource_name}\]

\[\text{TYPE} \quad \text{RESOURCE} \quad \text{CDRM} \quad \text{CP} \quad \text{LUALIAS} \quad \text{RESOURCE} \quad \text{SHADOW} \quad \text{SSCP} \quad \text{USERVAR} \quad \text{XCFCP}\]

Operator halt commands

**HALT (Z) command**

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

\[\text{HALT} \quad \text{NET} \quad \text{CDLINK} \quad \text{ACT}\]

**Z CANCEL command**

Request a halt of VTAM via abend:

\[\text{HALT} \quad \text{NET} \quad \text{CANCEL} \quad \text{DUMP} \quad \text{NO}\]

\[\text{DUMP} \quad \text{YES}\]
Z QUICK command

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

```
\[ \text{HALT NET, QUICK} \]
```

Operator modify commands

F ALSLIST command

Add an entry to an adjacent link station list:

```
\[ \text{MODIFY procname, ALSLIST, ACTION=ADD, ID=*,cdrsc_major_node=cdrsc_name, NEWALS=adjacent_link_station_name} \]
```

Delete an entry from an adjacent link station list:

```
\[ \text{MODIFY procname, ALSLIST, ACTION=DELETE, ID=*,cdrsc_major_node=cdrsc_name, OLDALS=adjacent_link_station_name} \]
```

Replace an entry in an adjacent link station list:

```
\[ \text{MODIFY procname, ALSLIST, ACTION=REPLACE, ID=*,cdrsc_major_node=cdrsc_name, NEWALS=adjacent_link_station_name, OLDALS=adjacent_link_station_name} \]
```

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

```
\[ \text{MODIFY procname, ALSLIST, ACTION=CREATE, ID=cdrsc_name, NEWALS=adjacent_link_station_name} \]
```

F APINGDTP command

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

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
```

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

```
MODIFY procname, CDRM = new_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
```
Set session limits to zero for all logon modes:

```
MODIFY procname, CNOS, ID=appl_name
```

```
LIMITS=(0,0,0), LUNAME=lu_name, NBRMODE=ALL
```

```
DRAINL=NO, DRAINR=NO
RESP=LOCAL
```

```
SNGSESLU=NO
```

Set session limits to nonzero:

```
MODIFY procname, CNOS, ID=appl_name
```

```
LIMITS=(session_limit, minwinl, minwinr), LOGMODE=logon_mode_name, LUNAME=lu_name
```

```
DRAINL=NO, DRAINR=NO
RESP=LOCAL
```

```
SNGSESLU=NO
```

```
NBRMODE=ONE
```

```
CONVSECL=NONE
```

```
CONV
ALREADYV
PERSISTV
AVPV
```
F COMPRESS command

Change the compression levels set by the APPL definition statement:

\[ \text{MODIFY} \quad \text{procname}, \text{COMPRESS}, \text{ID} = \text{appl_name} \]

\[ \text{CMPAPPLI} = \text{input_limit}, \text{CMPAPPLO} = \text{output_limit} \]

Change the compression level set by start option:

\[ \text{MODIFY} \quad \text{procname}, \text{COMPRESS}, \text{CMPVTAM} = \text{overall_limit} \]

F CSALIMIT command

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

\[ \text{MODIFY} \quad \text{procname}, \text{CSALIMIT} = \text{value} \]

\(\text{value} \)
**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:

**Set the CSDUMP trigger:**

```
MODIFY procname, CSDUMP, SENSE=sense_code
```

```
MODIFY procname, CSDUMP, MESSAGE=message_id_number
```

```
MODIFY procname, CSDUMP, TCPNAME=TCPIP_jobname
```

```
MODIFY procname, CSDUMP, MATCHLIM=matchlim_value
```

**Notes:**

1. MSGVALUE is valid only when the MESSAGE operand is used and specifies either message IST2391I, IST2406I or IST2419I.

**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 procname, CSM, MONITOR=
```

```DYNAMIC
```
**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 procname, CSM, ECSA=maxecsa, FIXED=maxfix, HVCOMM=maxhvcomm
```

Modify CSM Monitoring as follows:

```
MODIFY procname, CSM, MONITOR=NO
```

**F DEFAULTS command**

Modify the DLOGMOD value for a resource:

```
MODIFY procname, DEFAULTS, ID=resource_name, DLOGMOD=logon_mode_name
```

Change the delay timer for disconnection of a switched PU:

```
MODIFY procname, DEFAULTS, ID=resource_name, DISCNTIM=time_period
```

**F DEFINE command**

Set session limits to zero:

```
MODIFY procname, DEFINE, ID=appl_name, DLIMITS=(0,0,0), LOGMODE=logon_mode_name, LUNAME=lu_name, AUTOSES=number_of_winner_sessions, DELETE=NALLOW, DDRAINL=ALLOW, DRESPL=ALLOW
```
Set session limits to nonzero:

```
MODIFY procname,DEFINE,ID=appl_name,
OLIMITS=(dsestime, dminwinl, dminwinr),
LOGMODE=logon_mode_name, LUNAME=lu_name,
AUTOSES=number_of_winner_sessions,
DRESPL=ALLOW
```

Use existing session limits:

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

Delete an unusable LU-mode entry:

```
MODIFY procname,DEFINE,ID=appl_name, LUNAME=lu_name,
DELETE=UNUSE
```

F DIRECTRY command

Change the ownership of APPN resources in the directory database:

```
MODIFY procname, DIRECTRY, FUNCTION=UPDATE,
, ID= cdrsc_major_node_name, resource_name
```
Delete a resource from the directory database:

```
MODIFY procname, DIRECTRY, FUNCTION=DELETE
```

```
-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:

```
MODIFY procname, DR, TYPE=DELETE
```

```
-ID=lu_name
-FROM=pu_name

-ID=pu_name
-FROM=line_name
```

Move a physical unit:

```
MODIFY procname, DR, TYPE=MOVE, ID=pu_name
```

```
-FROM=line_name
-TO=line_name

-ACTIVATE=NO

-ADDRESS=link_station_address
```

F DUMP command

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

```
MODIFY procname, DUMP, ID=link_station_name
```

```
-DUMPDS= name

-ACTION=COMP

-OPTION= STATIC
```

```
-RMPO=NO

-TYPE=NCP
```

Static dump of NCP to host:
Static dump of NCP to hard disk:

```
MODIFY procname, DUMP, ID=ncp_name, ACTION=COMP
```

Dynamic dump of NCP to host:

```
MODIFY procname, DUMP, ID=ncp_name, OPTION=DYNA
```

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

Transfer CSP or MOSS dump from hard disk to host:

```
MODIFY procname, DUMP, ID=ncp_name, TYPE=CSP
```

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

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

```
MODIFY procname, DUMP, ID=ncp_name, ACTION=TRANSFER
```
Notes:
1 If the NCP has been acquired before activation, DUMPDS is required.

Purge dump from hard disk:

```
MODIFY procname, DUMP, ID=ncp_name, ACTION=PURGE
```

F ENCR command

Change the cryptography specifications for logical units:

```
MODIFY procname, ENCR=COND, OPT=REQD, ID=lu_name
```

F EXIT command

Activate or replace an exit routine:

```
MODIFY procname, EXIT, OPTION=ACT, REPL
```

F ENCR command

Change the cryptography specifications for logical units:

```
MODIFY procname, ENCR=COND, OPT=REQD, ID=lu_name
```

F EXIT command

Activate or replace an exit routine:

```
MODIFY procname, EXIT, OPTION=ACT, REPL
```
Activate a multiple instance of ISTEXCPM:

```sh
> MODIFY procname,EXIT,OPTION=ACT
> ID=ISTEXCPM.instance_name
> PARMS=character_string
```

Replace a multiple instance of ISTEXCPM:

```sh
> MODIFY procname,EXIT,OPTION=REPL
> ID=ISTEXCPM.instance_name
> MODULE=module_name
> PARMS=character_string
```

Deactivate an exit routine:

```sh
> MODIFY procname,EXIT,OPTION=INACT
> ID=ISTEXCDM
> PARMS=character_string
> ISTEXCVR
> ICTCMND
> ISTEXCAA
> ISTEXCCS
> ISTEXCGR
> ISTEXCPM
> ISTEXCS
> ISTEXCUV
```

Deactivate a multiple instance of ISTEXCPM:

```sh
> MODIFY procname,EXIT,OPTION=INACT
> ID=ISTEXCPM.instance_name
> PARMS=character_string
```
F GR command

Delete a generic resource:

```
MODIFY -procname-, GR, GNAME=netid.generic_resource
-OPTION=DELETE
```

F IMR command

Start intensive mode recording:

```
MODIFY -procname-, IMR, ID=link_station_name
-OPTION=ACT
-RECLIM=10
-RECLIM=number_of_errors
```

Stop intensive mode recording:

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

F INOPCODE command

Controls the dump attribute of VTAM INOPCODEs:

```
MODIFY -procname-, INOPCODE=(ALL, ALL, DUMPENABLE)
MODIFY -procname-, INOPCODE=(ALL, ALL, DUMPDISABLE)
MODIFY -procname-, INOPCODE=(modulename, inopcode, DUMPDEFAULT)
```

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
MODIFY -procname-, INOPDUMP=ON
```
**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 SPARE
```

**F LL2 command**

- **Start a continuous link level 2 test:**
  
  ```
  MODIFY procname, LL2, ID=name, OPTION=CONT
  DATA=data, NFRAMES=1
  ```

- **Start a brief link level 2 test:**
  
  ```
  MODIFY procname, LL2, ID=name, DATA=data
  NFRAMES=1, NFRAMES=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
```

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,NOTIFY=time_period

LOADMOD=load_module_name
```

Purge a load module from the hard disk:

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

LOADMOD=load_module_name
```

Cancel an ADD or REPLACE operation in progress:

```
MODIFY procname,LOAD,ID=ncp_name,ACTION=CANCEL
```
Schedule or cancel an automatic IPL for an NCP load module in a 3745:

```
MODIFY procname, LOAD, ID=ncp_name, ACTION=SETTIME
  NOTIFY=60
  IPLTIME=date, time
  NOTIFY=NO
  time_period
  CANCEL
```

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
```

**F MSGMOD command**

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

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

F NOTRACE command

Stop a buffer contents trace:

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

Stop a communication network management trace:

```
MODIFY procname, NOTRACE, TYPE=CNM, ID=PDPIUBUF
```

Stop a user Exit buffer trace:

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

```
MODIFY procname, NOTRACE, TYPE=EXIT, ID=ISTEXCCS
```
Stop a generalized PIU trace:

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

Stop an input/output trace:

```
MODIFY procname, NOTRACE, TYPE=IO, ID=node_name
```
Stop a module trace:

```
MODIFY procname, NOTRACE, TYPE=MODULE
```

Stop an NCP line trace:

```
MODIFY procname, NOTRACE, TYPE=LINE, ID=line_name
```

Stop a 3710 Network Controller line trace:

```
MODIFY procname, NOTRACE, TYPE=NETCTLR, ID=pu_name
```

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

```
MODIFY procname, NOTRACE, TYPE=QDIOSYNC
```

Stop the APPN route selection trace in a network node:

```
MODIFY procname, NOTRACE, TYPE=ROUTE
```
Notes:

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

Stop a scanner interface trace:

```bash
MODIFY procname, NOTRACE, TYPE=SIT, ID=line_name
```

Stop an SMS (buffer use) trace:

```bash
MODIFY procname, NOTRACE, TYPE=SMS, ID=VTAMBUF
```

Stop a resource state trace:

```bash
MODIFY procname, NOTRACE, TYPE=STATE
```

Operands used with ID:

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

Operands used with ID:

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

OPTION Operand:
Stop a transmission group trace:

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

Stop a TSO user ID trace:

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

Stop a VTAM internal trace:

```
MODIFY procname, NOTRACE, TYPE=VTAM
```

`MODE` can be `INT` or `EXT`.
Notes:

1. If you do not specify the mode, both internal and external recording are stopped. However, when operating with VTCTRL=BASE 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 DLUOPTS, 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 (grouopt), all of which include SSCP as an individual option equivalent. The group options are APIOPTS, APPCOPTS, CPCPOPTS, CSMOPTS, DLUOPTS, EEOPTS, HPDTOPTS, HPROPTS, LCLOPTS, QDIOOPTS, STDLOPTS, 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 (grouopt) 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.

10. For internal recording (MODE=INT), VTAM manages and displays the setting of the API, CIO, MSG,NRM, PIU and SSCP VIT options based on the level of VIT control being used. See z/OS Communications Server: SNA Diagnosis Vol 2, FFST Dumps and the VIT for details.

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:

```bash
MODIFY procname, 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):

```
MODIFY procname, PPOLOG = YES
```

**F PROFILES command**

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

```
MODIFY procname, PROFILES = ID=appl_name
```

**F RESOURCE command**

Modify the DLOGMOD value for a resource:

```
MODIFY procname, RESOURCE = ID=resource_name
```

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

```
MODIFY procname, RESOURCE = ID=resource_name
```

Delete the ADJLIST value for a cross-domain resource:

```
MODIFY procname, RESOURCE = ID=resource_name
```

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

```
MODIFY procname, RESOURCE = ID=resource_name
```

Change the delay timer for disconnection of a switched PU:

```
MODIFY procname, RESOURCE = ID=resource_name
```

Change the number of search requests for a resource:

```
MODIFY --procname--, RESOURCE--, ID=resource_name
SRCOUNT=number_of_search_requests
```

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

```
MODIFY --procname--, RESOURCE--, ID=resource_name
SRTIMER=number_of_seconds
```

Reset the search reduction entry for a resource:

```
MODIFY --procname--, RESOURCE--, ID=resource_name
SRCLEAR=YES
```

Modify the registration value for a resource:

```
MODIFY --procname--, RESOURCE--, ID=resource_name
REGISTER=CDSERVR NETSRVR NO
```

Modify the ASRCVML value for an application program:

```
MODIFY --procname--, RESOURCE--, ID=resource_name
ASRCVM=amount_of_storage
```

Modify the MODSRCH value for a model application program:

```
MODIFY --procname--, RESOURCE--, ID=resource_name
MODSRCH=FIRST LAST NEVER
```

Modify the VTAMTOPO value for a reporting status:

```
MODIFY --procname--, RESOURCE--, ID=resource_name
VTAMTOPO=REPORT NOREPORT NOLLINES NOSWPUS INCLUDE IGNORE
```
**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:

\[
\text{MODIFY} \quad \text{procname}, \text{RTP}, \text{ID}='\text{rtp pu name}'
\]

**F SECURITY command**
Increase the cryptography specification for an LU:

\[
\text{MODIFY} \quad \text{procname}, \text{SECURITY}, \text{ID}='\text{lu name}', \text{ENCRTYPE}='\text{ENCR = COND OPT REQD}'
\]

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

Modify which cryptographic key name is used for an LU:

\[
\text{MODIFY} \quad \text{procname}, \text{SECURITY}, \text{ID}='\text{lu name}', \text{CKEY}='\text{ALTERNATE PRIMARY}'
\]

Initiate SLU authentication for an LU:

\[
\text{MODIFY} \quad \text{procname}, \text{SECURITY}, \text{ID}='\text{lu name}', \text{CERTIFY}='\text{YES}'
\]

Increase the message authentication specification for an LU:

\[
\text{MODIFY} \quad \text{procname}, \text{SECURITY}, \text{ID}='\text{lu name}', \text{MAC}='\text{MAC = COND REQD}'
\]

\[
\text{MACTYPE}='\text{CRC DES MACLNTH=2 4 6 8}'
\]
**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

MODIFY procname, NEWTAB=new_table_name, OLDTAB=old_table_name

MODIFY procname, TYPE=ASLTAB
```

Change resource association with a CoS table or load a new CoS table and associate it with a resource:

```
MODIFY procname, TABLE=OPTION=ASSOCIATE

TYPE=COSTAB, NETID=netid, ORIGIN=ncp_name

NEWTAB=new_table_name
```

Delete resource associations:

```
MODIFY procname, TABLE=OPTION=DELETE
```
Load a table to replace an existing table (other than a filter table):

```sql
MODIFY procname, TABLE, OPTION = LOAD,
NEWTAB = new_table_name,
OLDTAB = old_table_name
```

Load a filter table to replace an existing filter table:

```sql
MODIFY procname, TABLE, OPTION = LOAD, TYPE = FILTER,
NEWTAB = new_table_name,
OLDTAB = old_table_name
```

Load an updated directory definition file:

```sql
MODIFY procname, TABLE, OPTION = LOAD, TYPE = CMIPDDF
```

**F TGP command**

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

```sql
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.

```sql
MODIFY procname, TNSTAT, ACTION = ACTIVATE,
ACTION = UPDATE,
CNSL = NO, CNSL = YES,
TIME = number_of_minutes
```
F TOPO command

Delete a node at a network node:

```
MODIFY procname, TOPO, ID=cp_name, FUNCTION=DELETE, SCOPE=LOCAL
```

Delete a transmission group:

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

Modify the status of a node for route calculation at a network node:

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

Modify the status a transmission group for route calculation:

```
MODIFY procname, TOPO, FUNCTION=NORMAL, QUIESCE
```
Clear Enterprise Extender connection network unreachable partner information on a network node:

```
MODIFY procname, TOPO, FUNCTION=CLRUNRCH
```

**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:

```
MODIFY procname, TOPO, FUNCTION=CLRTREES
```

**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:

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

**Rule:**
Start or modify a communication network management trace:

```plaintext
MODIFY procname, TRACE, TYPE=CNM, ID=PDPIUBUF
```

Start or modify a user Exit buffer trace:

```plaintext
MODIFY procname, TRACE, TYPE=EXIT, ID=ISTEXCAA
```

```plaintext
OPTION=ALL
(option)
BEGIN
ADJSSCP
ALIAS
ALS
BEGIN
END
GWPATH
INITAUTH
REPL
SECAUTH
VRSEL
XRF
```

```plaintext
MODIFY procname, TRACE, TYPE=EXIT, ID=ISTEXCCS
```

```plaintext
OPTION=ALL
(option)
BEGIN
CONNSTAT
DYNA_XID
PRED_XID
END
```

```plaintext
MODIFY procname, TRACE, TYPE=EXIT, ID=ISTEXCOM
```
Start or modify a generalized PIU trace:

```
$MODIFY procname, TRACE, TYPE=GPT, ID=node_name, ALSNAME=adjacent_link_station_name
```

Start or modify an input/output trace:

```
$MODIFY procname, TRACE, TYPE=IO, ID=node_name, SAVE=YES
```

Start or modify an input/output trace for a TRLE with the DATAPATH operand coded:

```
$MODIFY procname, TRACE, TYPE=IO, ID=trle_name
```
Start or modify a module trace:

```
MODIFY procname, TRACE, TYPE=MODULE,
```

Start or modify an NCP line trace:

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

Start or modify a 3710 Network Controller line trace:

```
MODIFY procname, TRACE, TYPE=NETCTLR, ID=pu_name,
```

Start or modify OSA-Express2 diagnostic data synchronization for an OSA-Express2 adapter:
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. When the initial value has been set, it remains until the value is changed with BFRNUM specified on another MODIFY TRACE command.

Start or modify a scanner interface trace:

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

COUNT = ALL
```

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

, MODE = EXT, BFRNUM = 2

, MODE = INT, BFRNUM = number

, SIZE = size

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(1) SUBTRACE=ARBP, OPTION = HPR
   ALL
   hprgrpopt
   (...HPR, ...)
   (...hprgrpopt, ...)

(2) SUBTRACE=DIO, OPTION = CIA
   ALL
   ciagrpopt
   (...CIA, ...)
   (...ciagrpopt, ...)

(3) SUBTRACE=TGVC, OPTION = SSCP
   TREE
   ALL
   groupopt
   (...SSCP, ...)
   (...groupopt, ...)

(4) OPTION = ALL
   API
   APIOPTS
   APPC
   APPCOPTS
   CFS
   CIA
   CIO
   CMIP
   CPCPOPTS
   CSM
   CSMOPTS
   DLUROPTS
   EEOPTS
   ESC
   HPDTOPTS
   HPR
   HPROPTS
   LCS
   LCSOPTS
   LOCK
   MSG
   NRM
   PIU
   PSS
   QDIOPTS
   SMS
   SSCP
   STDPTS
   TCP
   TCPOPTS
   VCNS
   XBUF
   XCF
   XCFOPTS
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 \((\text{hprgrpopt})\) that include HPR as an individual option equivalent. The applicable group options are DLUROPTS, EEOPTS, HPDTOPTS, HPROPTS, QDIOOPTS, and XCFOPTS.

2. When SUBTRACE=ARBP is coded and you code multiple trace options in parentheses, you must code either HPR or one of the group options \((\text{hprgrpopt})\) that include HPR as an individual option equivalent inside the parentheses.

3. When you specify SUBTRACE=DIIO and you code a single OPTION value, the OPTION value must be CIA, ALL, or one of the group options \((\text{ciagrpopt})\) that include CIA as an individual option equivalent. The applicable group options are EEOPTS, HPDTOPTS, HPROPTS, QDIOOPTS, TCPOPTS and XCFOPTS.

4. When SUBTRACE=DIIO is coded and you code multiple trace options in parentheses, you must code either CIA or one of the group options \((\text{ciagrpopt})\) 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 \((\text{groupopt})\), 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.

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 \((\text{groupopt})\) inside the parentheses.

7. If you are operating in VIT Control FULL mode and you specify any of the group options \((\text{groupopt})\), the STDOPTS group option is also started. See z/OS Communications Server: SNA Diagnosis Vol 2, FFST Dumps and the VIT for more information on VIT control options.

F USRVAR command

Create a new USRVAR:

```bash
MODIFY procname, USERVAR ID=uservar_name, OPTION=UPDATE, VALUE=appl_name
```

```bash
MODIFY procname, USERVAR ID=uservar_name
```

```bash
MODIFY procname, USERVAR ID=uservar_name, TYPE=DYNAMIC, APPC=NO, UVEXIT=NO
```

```bash
MODIFY procname, USERVAR ID=uservar_name, TYPE=STATIC
```

```bash
MODIFY procname, USERVAR ID=uservar_name, TYPE=VOLATILE
```

```bash
MODIFY procname, USERVAR ID=uservar_name, APPC=YES, UVEXIT=NO
```

```bash
MODIFY procname, USERVAR ID=uservar_name, APPC=NO, UVEXIT=YES
```
Update an existing USERVAR and change the TYPE:

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

Update an existing USERVAR, leaving the TYPE unchanged:

```
MODIFY procname, USERVAR, ID=uservar_name
   , OPTION=UPDATE
   , VALUE=appl_name
   , APPC=NO, UVEXIT=NO
   , APPC=YES, UVEXIT=NO
   , APPC=NO, UVEXIT=YES
```

Delete a USERVAR:

```
MODIFY procname, USERVAR, ID=uservar_name
   , OPTION=DELETE
   , VALUE=appl_name
```

F VTAMOPTS command

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

```
MODIFY procname, VTAMOPTS
   , AFFDELAY=number_of_seconds
   , AIMON=NONE
   , IQDIO
   , ISM
   , QDIO
   , ROCE
   , ALSREQ=YES
   , ALSREQ=NO
   , API64R=YES
   , API64R=NO
   , APPN=class-of-service_name
```

(1) 

(2)
Chapter 2. VTAM commands
TOUDIAG = resource_threshold

TOUDIAG = (unreachable_time)

always
never

UNRCRTIM = unreachable_time

UNRCRTIM = (partner_limit)

UNRCRTIM = (unreachable_time, partner_limit)

UPDDELAY = maximum_time

VARYWILD = FULLWILD

VARYWILD = NEVER

VARYWILD = (partner_limit)

VARYWILD = (unreachable_time, partner_limit)

VFYRED = YES

VFYRED = NEVER

VFYRED = (partner_limit)

VFYRED = (unreachable_time, partner_limit)

VFYREDTI = OFF

VFYREDTI = reduction_timer

VITCTRL = BASE

VITCTRL = FULL

VITCTRL = (partner_limit)

VITCTRL = (unreachable_time, partner_limit)

VOSDEACT = YES

VOSDEACT = NO

VRTG = YES

VRTG = NO

VRTGCPC = YES

VRTGCPC = NO

Notes:
1. API64R can be modified only when running in z/Architecture® mode.
2. APPNCOS can be modified only if NODETYPE was specified during VTAM START processing.
3. BNDYN can be modified only if BN=YES was specified during VTAM START processing.
4. BNORD can be modified only if BN=YES was specified during VTAM START processing.
5. CDSREFER can be modified only if NODETYPE=NN and CDSERVR=NO were specified during VTAM START processing.
6. CMPMIPS is meaningful only if the value for CMPVTAM is greater than 1.
7. CONNTYPE can be modified only if NODETYPE was specified during VTAM START processing.
8. CPCP can be modified only if NODETYPE was specified during VTAM START processing.
9. DIRSIZE can be modified only if NODETYPE=NN was specified during VTAM START processing.
10. DIRTIME can be modified only if NODETYPE=NN was specified during VTAM START processing.
11. Because of the volume of messages that can be generated, it is not recommended that this option be enabled during normal operation. Instead, it is recommended that this option be enabled (using the MODIFY VTAMOPTS command) on all necessary hosts only when trying to diagnose specific problems. After the problem has been diagnosed or documentation has been collected, this option should be disabled once again (using the MODIFY VTAMOPTS command).
12. EEHPRANR is meaningful only when the NODETYPE=NN start option is also used.
13. The EEVERIFY start option is meaningful only if VTAM provides RTP-level
HPR support. The EEVERIFY start option can be modified only if the NODETYPE start option is specified and the RTP value is specified on the HPR start option.

14 The ENCRYPTN start option cannot be modified if ENCRYPTN=NO was specified during VTAM START processing.

15 The ENSEMBLE setting is used to either permit or deny connectivity to the intraensemble data network and the intranode management network. The ensemble setting permits or denies connectivity by either allowing or denying activation of OX and OSM interfaces. Modifying the ENSEMBLE start option does not cause z/OS Communications Server to take action on active OX or OSM interfaces.

16 HOSTNAME can be modified only if NODETYPE was specified during VTAM START processing. Displays of VTAM start options will show the new value immediately; however, the new value will not be used until all Enterprise Extender lines, whose GROUP definition statements do not have HOSTNAME explicitly coded, are inactive. Any subsequent line activation from the Enterprise Extender XCA major node, whose GROUP definition statements do not have HOSTNAME explicitly coded, will make use of the new HOSTNAME start option value. The IPADDR start option, if it is in effect at the time when the MODIFY VTAMOPTS HOSTNAME=hostname is specified, will be reset (that is, set to a value of 0.0.0.0) as part of the MODIFY processing. The value NONE can be used to clear the setting of the HOSTNAME start option. HOSTNAME and IPADDR cannot be modified using one MODIFY VTAMOPTS command. If both start options are specified on the same MODIFY command, they will both be ignored and message IST1917I will be generated.

17 This option is meaningful only if VTAM provides RTP-level HPR support.

18 If the current value of the HPRSESLM start option is DISABLED, then the HPRSESLM value can be changed only by stopping and restarting VTAM.

19 When specifying an InOpCode for the second parameter, always specify three digits by including any leading zeros.

20 If an InOpCode is specified for the second parameter, the first parameter cannot be ALL.

21 INOPCODE has no effect unless INOPDUMP is active for the resource when an inoperative condition is detected. See the section called MODIFY INOPCODE command in z/OS Communications Server: SNA Operation for more details.

22 When altering the INOPDUMP VTAM start option, the resulting INOPDUMP status is propagated to all TRLEs in the TRL major node if the command is globally set, or it is propagated to a subset of resources that are identified by one or more INOPDUMP control groups. The INOPDUMP setting becomes the default status for any subsequently activated TRLEs.

23 IPADDR can be modified only if NODETYPE was specified during VTAM START processing. The new value will not be used until all lines, defined with or defaulting to the old value of the IPADDR start option, in the XCA major node used for Enterprise Extender are inactive. However, displays of VTAM start options will show the new value immediately. Any subsequent line activation from the Enterprise Extender XCA major node, whose GROUP definition statement does not specify the IPADDR operand, will make use of the new IPADDR start option value. The HOSTNAME start option, if it is in effect at the time when the MODIFY VTAMOPTS IPADDR=ip_address is
specified, will be reset (that is, set to a value of NONE) as part of the MODIFY processing. The value of 0.0.0.0, or an IPv6 address of all zeros, usually written as ::, can be used to clear the setting of the IPADDR start option. HOSTNAME and IPADDR cannot be modified using one MODIFY VTAMOPTS command. If both start options are specified on the same MODIFY command, they will both be ignored and message IST1917I will be generated.

24 The IQDCHPID option controls which IQD CHPID (and related subchannel devices) VTAM selects to dynamically build the iQDIO (IUTIQDIO) MPC group. The IUTIQDIO MPC group is used for TCP/IP dynamic XCF communications within System z®. Although this option can be modified (and the modification will immediately be displayed) while the IUTIQDIO MPC group is currently active, any modifications have the effects shown in the section called IQD CHPID modifications in z/OS Communications Server: SNA Operation.

25 Because of the volume of messages that can be generated, it is not recommended that this option be enabled during normal operation. Instead, it is recommended that this option be enabled (using the MODIFY VTAMOPTS command) on all necessary hosts only when trying to diagnose specific problems. After the problem has been diagnosed or documentation has been collected, this option should be disabled once again (using the MODIFY VTAMOPTS command).

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

27 The option does not take effect for MPC groups that are in the process of being activated when the command is issued until those MPC groups are deactivated and reactivated.

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

29 NNSPREF can be modified only if NODETYPE=EN was specified during VTAM START processing.

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

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

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

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

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

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

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

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

38 SRCOUNT is meaningful only when SRCHRED=ON.

39 SRTIMER is meaningful only when SRCHRED=ON.
40 SSEARCH can be modified only if NODETYPE=NN was specified during VTAM START processing.

41 TCPNAME can be modified only if NODETYPE was specified during VTAM START processing. The new value will not be used until all lines in the XCA major node used for Enterprise Extender are inactive. However, displays of VTAM start options will show the new value immediately. Any subsequent line activation from the Enterprise Extender XCA major node will make use of the new TCPNAME value.

42 TDUDIAG is meaningful only if the NODETYPE=NN start option is also available.

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

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

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

46 VRTGCPCP can be modified only if NODETYPE and HOSTSA are specified.

Starting VTAM

START command

Starting VTAM in an MVS environment:

```
$START—procnme,,---(Options)
```

For the syntax of the start options that you can specify on this command, see “Start options” on page 191.

Operator VARY commands

V ACQ command

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

```
$VARY—NET—ACQ—ID=ncp_name,OWNER=host_name
```

Operands used with ACT:

```
,PUSUB,ACT
```

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

```
$VARY—NET—ACQ—ID=ncp_name
```

```
,PUSUB
```
Acquire inactive NCP, and optionally its subordinate resources, and activate them:

```
VARY NET, ACQ, ID=ncp_name, ACT
```

**Operands used with ACT**:
- `PUSUB`
- `LOADMOD=load_module_name`

Acquire nonswitched PU and its LUs:

```
VARY NET, ACQ, ID=pu_name
```

**Operands used with ACT**:
- `LOGON=appl_name`
- `LOGMODE=logon_mode_name`
- `SCOPE=COMP`, `SCOPE=ALL`, `SCOPE=COMP ONLY`

**V ACT command**

Activate an NCP major node:

```
VARY NET, ACT, ID=ncp_name
```

**Operands used with ACT**:
- `DUMPSTA=link_station_name`
- `LOGON=appl_name`
- `LOGMODE=logon_mode_name`
- `LOAD=U`, `LOADFROM=HOST`, `DUMPLOAD=NO`, `SAVEMOD=NO`
- `LOAD=YES`, NCP Load Operands
Notes:
1. You can specify up to 3 dynamic path update member names on the NEWPATH operand.
2. You can specify up to 13 link station names on the RNAME operand.

**LOADFROM Operand:**

**LOADSTA Operand:**

**NCP Load Operands:**

Activate a switched major node:
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
```

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
```

1 The HPR operand is valid for HPR-capable resources only.

2 The U operand is valid for a local SNA PU only.

Notes:

1. The HPR operand is valid for HPR-capable resources only.

2. The U operand is valid for a local SNA PU only.

Activate a dynamic XCF local SNA PU:
Activate a control point (CDRSC minor node or application program minor node):

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

Activate an SSCP (CDRM minor node):

```
VARY NET, ACT, ID=name, HPR=NO, VRTGCPCP=YES
```

Notes:

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

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

Warm start a major node:

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

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

```
VARY NET, ACT, ID=major_node_name
```
Check the syntax of a definition file (major node):

\[
\text{VARY NET, ACT, ID=\text{major\_node\_name}, SCOPE=SYNTAX, LOADMOD=\text{load\_module\_name}}
\]

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

**Dynamically reconfigure resources in a major node:**

\[
\text{VARY NET, ACT, ID=\text{major\_node\_name}, SCOPE=\{COMP, ALL\}, UPDATE=\{IMPLICIT, ADD, ALL\}}
\]

**Dynamically reconfigure TRLEs in a TRL major node:**

\[
\text{VARY NET, ACT, ID=\text{trl\_major\_node\_name}, UPDATE=\{ADD, IMPLICIT\}}
\]

**Notes:**

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

**Activate a group under an Enterprise Extender XCA major node:**

\[
\text{VARY NET, ACT, ID=\text{group\_name}, SCOPE=\{COMP, ALL\}}
\]

**Activate other resources:**

\[
\text{VARY NET, ACT, ID=\text{name}, DWACT=\{NO, YES\}}
\]
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:

```
VARY NET , ANS = OFF , ID = line_name , ACT
```

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

```
VARY NET , AUTOLOG , ID = * , ID = controlling_appl
```

V CFS command
Connect or disconnect from a VTAM coupling facility structure:

```
VARY NET , CFS , ACTION = CONNECT , DISCONNECT
```
```
VARY NET , STRNAME = ALL , structure_name
```
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, CPCP=YES
```

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, CDLINK=ACT
```

Deactivate an NCP line:

```
VARY NET, INACT, ID=line_name, TYPE=FORCE
```

Deactivate a CDRM major node:

```
VARY NET, INACT, ID=node_name, SAVESESS
```
Deactivate a CDRM minor node:

```
VARY NET, INACT, ID=node_name, IDTYPE=SSCP
```

Deactivate a CDRSC minor node:

```
VARY NET, INACT, ID=node_name
```

Deactivate the dynamic XCF local SNA major node:

```
VARY NET, INACT, ID=ISTLSXCF
```

Deactivate a dynamic XCF local SNA PU:

```
VARY NET, INACT, ID=name, IDTYPE=XCFCP
```

Deactivate a dynamic switched PU:

```
VARY NET, INACT, ID=pu_name
```
Deactivate a dependent LU requester (DLUR):

\[
\text{VARY NET, INACT, ID=dlur_name, FINAL=NO, TYPE=FORCE, GIVEBACK=IMMED, UNCOND=NO, Final=NO, Type=Force, Giveback=Immediate, Uncond=No, Final=No, Type=Force, Giveback=Immediate, Uncond=No}
\]

**Notes:**
1. Depending on the value of the VARYWLD start option, wildcard values can be used for this operand.
2. Depending on the value of the GVBKDLY start option, GIVEBACK commands generated for DLURs using wildcard values might be paced by VTAM.

Deactivate a PU supported by a DLUR:

\[
\text{VARY NET, INACT, ID=pu_name, TYPE=FORCE, GIVEBACK=IMMED, REACT=UNCOND, Final=NO, Type=Force, Giveback=Immediate, React=Uncond, Final=NO, Type=Force, Giveback=Immediate, React=Uncond}
\]

Deactivate RTP PUs:

\[
\text{VARY NET, INACT, ID=rtp_pu_name, FINAL=NO, TYPE=FORCE, Final=NO, Type=Force}
\]

Deactivate other PUs:

\[
\text{VARY NET, INACT, ID=pu_name, FINAL=NO, TYPE=FORCE, IMMED=UNCOND, Final=NO, Type=Force, Immediate=Unconditional}
\]
Deactivate a model application and all the APPLs created from it:

```plaintext
VARY NET, INACT, ID=model_appl_name
```

Deactivate a group under an Enterprise Extender XCA major node:

```plaintext
VARY NET, INACT, ID=group_name
```

Deactivate other resources:

```plaintext
VARY NET, INACT, ID=name
```

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

```plaintext
VARY NET, INACT, ID=model_cdrsc_name
```

Deactivate a clone CDRSC:

```plaintext
VARY NET, INACT, ID=clone_cdrsc_name
```
V INOP command
Terminate a manual dial operation if the VTAM operator is unable to complete the call:

```
VARY NET, INOP, ID=line_name, END=NO
```

V LOGON command
Create or change an automatic logon specification:

```
VARY NET, LOGON=appl_name, ID=slu_name
```

V NOLOGON command
Delete an existing automatic logon specification:

```
VARY NET, NOLOGON=*, CDRCSC=cdrsc_name, PLU=plu_name, USR=value
```

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:

```
VARY NET, PATH=NOUSE, ID=switched_major_node_name
VARY NET, PATH=USE, ID=switched_pu_name
```

V REL command
Release a previously acquired NCP:

```
VARY NET, REL, ID=ncp_name, OWNER=host_name
```

```
, CDLINK=ACT
, CDLINK=INACT
, TYPE=IMMED
```
Release a PU:

```
VARY NET, REL, ID=pu_name, OWNER=host_name
```

```
FINAL=NO
```

```
FINAL=YES
```

```
TYPE=IMMED
```

---

**V TERM command**

**VARY TERM command using name or name pair:**

```
VARY NET, TERM, LU1=lu_name, LU2=lu_name
```

```
PLU=plu_name, SLU=slu_name
```

```
TYPE=UNCOND
```

```
SCOPE=ACT
```

```
SCOPE=ALL
```

```
SCOPE=APPN
```

```
NOTIFY=YES
```

```
NOTIFY=NO
```

---

**VARY TERM command using session ID:**

```
VARY NET, TERM, SID=session_id
```

```
TYPE=UNCOND
```

```
TYPE=COND
```

```
TYPE=FORCE
```

```
SCOPE=ACT
```

```
SCOPE=ALL
```

```
SCOPE=Q
```

```
SCOPE=APPN
```

```
NOTIFY=YES
```

```
NOTIFY=NO
```

---

**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:

\[-\text{NETID} = \text{network_id} \]
\[-\text{SSCPID} = \text{sscp_id} \]
\[-\text{SSCPNAME} = \text{name} \]

\[-\text{AFFDELAY} = 600 \]
\[-\text{AFFDELAY} = \text{number_of_seconds} \]

\[-\text{AIMON} = \text{NONE} \]
\[-\text{ALSREQ} = \text{YES} \]

\[-\text{API64R} = \text{YES} \]
\[-\text{APPNCOS} = \text{class-of-service_name} \]

\[-\text{ASIRFMSG} = \text{OLUSSCP} \]
\[-\text{ASYDE} = \text{KEEP} \]
\[-\text{AUTHLEN} = \text{YES} \]

\[-\text{AUTORTRY} = \text{AUTOCAP} \]
\[-\text{AUTOTI} = \text{time_period} \]
\[-\text{BN} = \text{NO} \]

\[-\text{BNDYN} = \text{LIMITED} \]
\[-\text{BNORD} = \text{PRIORITY} \]

\[-\text{BSCMRS} = \{\text{STATS, INOPS}\} \]

(1) \([-\text{API64R} = \text{YES} \]
(2) \([-\text{AUTOTI} = \text{time_period} \]
(3) \([-\text{BNDYN} = \text{LIMITED} \]
(4) \([-\text{BNORD} = \text{PRIORITY} \]
BSCTMOUT = 286

BSCTMOUT = units_of_time

poolname = ( )

Buffer Pool Values

CACHETI = 8

CACHETI = number_of_minutes

CDRDYN = YES

CDRDYN = NO

CDRSCTI = 8M

CDRSCTI = timeout_value

COSRVR = NO

COSRVR = YES

CDSREFER = 1

CDSREFER = number_of_CDSs

CINDXSIZ = 8176

CINDXSIZ = table_size

CMPPMIPS = 100

CMPPMIPS = compression_ratio

CMPPMIPS = compression_level

CMNMTAB = ISTMGC00

CMNMTAB = cnm_table_name

CNRTMSG = SUPPRESS

CNRTMSG = NO

COLD

WARM

CONFIG = 00

CONFIG = file_id

CONNTYPE = APPN

LEN

CPCDRC = NO

CPCDRC = YES

LEASED

SWITCHED

CSA24 = 0

CSA24 = value

CSDUMP CSDUMP Message Trigger

CSDUMP Sense Code Trigger

DATEFORM = MDY

DATEFORM = DMY

DIALRTRY = YES

DIALRTRY = NO

DIRSIZE = 0

DIRSIZE = number_of_resources

DIRTIME = 8D

DIRTIME = time_period

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<table>
<thead>
<tr>
<th>Variable</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>HOSTNAME</td>
<td>fully_qualified_hostname</td>
</tr>
<tr>
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z/OS V2R2.0 Communications Server: Quick Reference
Notes:

1. APPNCOS is meaningful only if the NODETYPE start option is also used.
2. BN is meaningful only if the NODETYPE=NN start option is also used.
3. BNDYN is meaningful only if the BN=YES start option is also used.
4. BNORD is meaningful only if the BN=YES start option is also used.
5. CDSERVR is meaningful only if the NODETYPE=NN start option is also used.
6. CDSREFER is meaningful only if the NODETYPE=NN and CDSERVR=NO start options are also used.
7. The CMPMIPS start option is meaningful only if the value for CMPVTAM is greater than 1.
8. CONNTYPE is meaningful only if the NODETYPE start option is also used.
9. CPCP is meaningful only if the NODETYPE start option is also used.
10. Specify the CSDUMP start option twice to set both message and sense code triggers.
11. DIRSIZE is meaningful only if the NODETYPE=NN start option is also used.
12. DIRTIME is meaningful only if the NODETYPE=NN start option is also used.
13. DLURSAW is meaningful only if the NODETYPE=NN start option is also used.
14 Because of the volume of messages that can be generated, it is not recommended that this option be enabled during normal operation. Instead, it is recommended that this option be enabled (using the MODIFY VTAMOPTS command) on all necessary hosts only when trying to diagnose specific problems. After the problem has been diagnosed or documentation has been collected, this option should be disabled once again (using the MODIFY VTAMOPTS command).

15 If the DSPLYMAX start option value is less than 100, that value is the default for DSPLYDEF.

16 DYNADJCP is meaningful only if the NODETYPE start option is also used.

17 Two character prefix.

18 EEHPRANR is meaningful only when the NODETYPE=NN start option is also used.

19 The EEVERIFY start option is meaningful only if VTAM provides RTP-level HPR support. The NODETYPE start option must be coded and the RTP value must be specified on the HPR start option.

20 ENCRYPTN=CCA needs to be coded when Triple Des Encryption is required.

21 The ENSEMBLE setting is used to either permit or deny connectivity to the intraensemble data network and the intranode management network. It does this by either allowing or denying activation of OSX and OSM interfaces.

22 HOSTNAME is meaningful only if the NODETYPE start option is also used. If neither HOSTNAME nor IPADDR is specified on any of the GROUP definition statements within the Enterprise Extender XCA major node, then either the HOSTNAME, TCPNAME, or IPADDR start options must be specified in order to activate an Enterprise Extender link. The HOSTNAME start option specifies the default hostname to be used for name-to-address resolution as part of activating an Enterprise Extender connection, and must resolve at this node to a static VIPA address associated with a TCP/IP stack at this node. If IPADDR is specified along with HOSTNAME on the START command, the IPADDR value is ignored.

23 HOSTSA specifies the subarea number of this VTAM. If HOSTSA is not coded, then a default subarea number of 1 is used.

24 HPR is meaningful only if NODETYPE is also used.

25 HPRCLKRT=ADAPTIVE is meaningful only in Enterprise Extender configurations that have a defined capacity of 1 Gb (gigabit) or higher access speeds.

26 This option is meaningful only if VTAM provides RTP-level HPR support.

27 HPRSESLM=DISABLED is meaningful only on interchange nodes.

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

29 When specifying an InOpCode for the second parameter, always specify three digits by including any leading zeros.

30 If an InOpCode is specified for the second parameter, the first parameter cannot be ALL.

31 INOPCODE has no effect unless INOPDUMP is active for the resource when an inoperative condition is detected. See the MODIFY INOPCODE command in z/OS Communications Server: SNA Operation for more details.

32 Multiple INOPCODE parameters can be specified by the START command,
and will be processed left to right as they are entered. This is different from specifying the INOPCODE parameter on either the MODIFY INOPCODE command or the MODIFY VTAMOPTS command, where only one INOPCODE parameter is allowed for each entry of these commands.

33 INOPDUMP status is propagated to resources that are defined within a TRLE when the entry is activated.

34 IPADDR is meaningful only if the NODETYPE start option is also used. If neither IPADDR nor HOSTNAME is specified on any of the GROUP definition statements within the Enterprise Extender XCA major node, then either the HOSTNAME, TCPNAME, or IPADDR start option must be specified in order to activate an Enterprise Extender link. The IPADDR start option specifies the default IPv4 or IPv6 static VIPA address to be used when activating an Enterprise Extender connection. If HOSTNAME is specified along with IPADDR on the START command, the IPADDR value is ignored.
Chapter 2. VTAM commands
Notes:

1. The IQDCHPID option controls which IQD CHPID (and related subchannel devices) VTAM selects to dynamically build the IQDIO (IUTIQDIO) MPC group. The IUTIQDIO MPC group is used for TCP/IP dynamic XCF communications within System z. Although this option can be modified (and the modification will immediately be displayed) while the IUTIQDIO MPC group is currently active, any modifications have the effects shown in the section called IQD CHPID modifications in z/OS Communications Server: SNA Operation.

2. This option affects only IQDIO devices that use a MFS of 64k. The smaller frame sizes will always use 126 SBALs. You can override this option on a per-device basis using the READSTORAGE parameter on the LINK or INTERFACE statement in the TCP/IP profile. See z/OS Communications Server: IP Configuration Reference for more details.

3. LIST can be entered by a VTAM operator only. If LIST is coded in an ATCSTRxx file, it is considered to be an error and is ignored.

4. Because of the volume of messages that can be generated, it is not recommended that this option be enabled during normal operation. Instead, it is recommended that this option be enabled (using the MODIFY VTAMOPTS command) on all necessary hosts only when trying to diagnose specific
problems. After the problem has been diagnosed or documentation has been collected, this option should be disabled once again (using the MODIFY VTAMOPTS command).

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

6 MAXLOCAT is meaningful only if NODETYPE is specified.

7 MULTPATH is meaningful only if the NODETYPE start option is also specified.

8 NNNSPREF can be specified only if NODETYPE=EN is specified during VTAM START processing.

9 NODETYPE enables APPN function. The combination of HOSTSA, NODETYPE, and SACONNS determines the configuration (subarea node, interchange node, migration data host, network node, or end node).

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

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

12 A VTAM operator cannot enter the PROMPT or NOPROMPT start option; it can be coded only in ATCSTR00. The value coded in ATCSTR00 is ignored if start options are entered on the START command or if VTAM finds an error in a start list. Upon finding an error in a start list, VTAM prompts the operator so that the operator can specify the option correctly.

13 QDIOSTG defaults to MAX for 64-bit (z/Architecture) machines and MIN for non 64-bit machines. You can override this option on a per-device basis using the READSTORAGE parameter on the LINK or INTERFACE statement in the TCP/IP profile. See z/OS Communications Server: IP Configuration Reference for more details.

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

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

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

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

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

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

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

21 The SSCPDYN start option applies only for interconnected networks (that is, GWSSCP=YES is used).

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

23 TCPNAME is meaningful only if the NODETYPE start option is also used. If neither IPADDR nor HOSTNAME is specified on any of the GROUP definition statements within the Enterprise Extender XCA major node, then either the HOSTNAME, TCPNAME, or IPADDR start options must be specified in order to activate an Enterprise Extender link.
TDUDIAG is meaningful only if the NODETYPE=NN start option is also available.

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.

```
TRACE---TYPE----VTAM--- VIT Operands
NOTRACE---TYPE----VTAM
TRANSAT----(0,1,2,3,4,5,6,7)
TRANSAT----value

UNRCPTIM----(0,10)
UNRCPTIM----unreachable_time

UPDDelay---60
UPDDelay---max_time
USSTAB----table_name
```
Buffer Pool Values:

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

BUF Trace Operands:

\[\text{ID} = \text{node name}, \text{AMOUNT} = \text{PARTIAL}\]
CSDUMP message trigger:

```
CSDUMP message trigger:
```

CSDUMP sense code trigger:

```
CSDUMP sense code trigger:
```

IO Trace Operands:

```
IO Trace Operands:
```

LINE Trace Operands:

```
LINE Trace Operands:
```

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MODULE Trace Operands:

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QDIOSYNC trace operands:

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<td>OPTION=ALLINOUT</td>
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<td>SAVE=YES</td>
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SIT Trace Operands:

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<tr>
<td>COUNT=ALL (15)</td>
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<tr>
<td>number_of_bytes</td>
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STATE Trace Operands:

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<th>ID=node_name</th>
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</thead>
<tbody>
<tr>
<td>OPTION Operand</td>
</tr>
</tbody>
</table>

Operands used with ID:

| IDTYPE=RESOURCE |
| IDTYPE=CP |
| IDTYPE=SSCP |
| IDTYPE=RESOURCE |
OPTION Operand:

Notes:

1. NOTRACE,TYPE=VTAM is accepted but ignored. Tracing is started with the default trace table size and the default options. The NOTRACE,TYPE=VTAM start option processing is affected by the level of VIT control being used (as specified by the VITCTRL start option). See z/OS Communications Server: SNA Diagnosis Vol 2, FFST Dumps and the VIT for details.

2. 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.

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

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

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

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

7. VITCTRL start option will only affect the TRACE or NOTRACE start option if it is specified prior to the TRACE or NOTRACE TYPE=VTAM (MODE=INT) start option.

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

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

10. 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 valid 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).

11. When the same parameter is entered multiple times on a CSDUMP message trigger, only the last occurrence is accepted.

12. MSGVALUE is valid only when the MESSAGE operand is used and specifies either message IST2391I, IST2406I or IST2419I.

13. 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.

14 When the same parameter is entered multiple times on a CSDUMP sense trigger, only the last occurrence is accepted.

15 COUNT applies only to the IBM 3720 and 3745 Communication Controllers.

**VIT Operands:**

![Diagram of VIT Operands]
Notes:

1. The default options apply only to MODE=INT.

2. PSS is a default VIT option, but PSS can be turned off.

3. When you specify SUBTRACE=ARBP and you code a single OPTION value, the OPTION value must be HPR, ALL, or one of the group options (hprgrpopt) that include HPR as an individual option equivalent. The applicable group options are DLUROPTS, EEOPTS, HPDTOPTS, HPROPTS, QDIOOPTS, and XCFOPTS.

4. When SUBTRACE=ARBP is coded and you code multiple trace options in...
parentheses, you must code either HPR or one of the group options (hprgrpopt) that include HPR as an individual option equivalent inside the parentheses.

5 When you specify SUBTRACE=DIO and you code a single OPTION value, the OPTION value must be CIA, ALL, or one of the group options (ciagrpopt) that include CIA as an individual option equivalent. The applicable group options are EEOPTS, HPDTOPTS, HPROPTS, QDIOOPTS, TCPOPTS, and XCFOPTS.

6 When SUBTRACE=DIO is coded and you code multiple trace options in parentheses, you must code either CIA or one of the group options (ciagrpopt) that include CIA as an individual option equivalent inside the parentheses.

7 When you code SUBTRACE=TGVC or SUBTRACE=TREE and you code a single OPTION value, the OPTION value must be either SSCP, ALL, or one of the group options (groupopt), all of which include SSCP as an individual option equivalent. The group options are APIOPTS, APPCOPTS, CPCPOPTS, CSMOPTS, DLUROPTS, EEOPTS, HPDTOPTS, HPROPTS, LCSOPTS, QDIOOPTS, STDOPTS, TCPOPTS, and XCFOPTS.

8 When you code SUBTRACE=TGVC or SUBTRACE=TREE and you code multiple trace options in parentheses, you must code either SSCP or one of the group options (groupopt) inside the parentheses.

### Other VTAM codes and commands

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<tr>
<th>Command type</th>
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<td>Dump analysis tool commands</td>
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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 can view the information through the z/OS Internet Library website or IBM Knowledge Center. If you continue to experience problems, send an email to mhvcfs@us.ibm.com or write to:

IBM Corporation
Attention: MHVRCFS Reader Comments
Department H6MA, Building 707
2455 South Road
Poughkeepsie, NY 12601-5400
USA

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully. The major accessibility features in z/OS enable users to:

- Use assistive technologies such as screen readers and screen magnifier software
- Operate specific or equivalent features using only the keyboard
- Customize display attributes such as color, contrast, and font size

Using assistive technologies

Assistive technology products, such as screen readers, function with the user interfaces found in z/OS. Consult the assistive technology documentation for specific information when using such products to access z/OS interfaces.

Keyboard navigation of the user interface

Users can access z/OS user interfaces using TSO/E or ISPF. See z/OS TSO/E Primer, z/OS TSO/E User's Guide, and z/OS ISPF User's Guide Vol I for information about accessing TSO/E and ISPF interfaces. These guides describe how to use TSO/E and ISPF, including the use of keyboard shortcuts or function keys (PF keys). Each guide includes the default settings for the PF keys and explains how to modify their functions.

z/OS information

One exception is command syntax that is published in railroad track format, which is accessible using screen readers with IBM Knowledge Center, as described in “Dotted decimal syntax diagrams.”

Dotted decimal syntax diagrams

Syntax diagrams are provided in dotted decimal format for users accessing IBM Knowledge Center using a screen reader. In dotted decimal format, each syntax element is written on a separate line. If two or more syntax elements are always present together (or always absent together), they can appear on the same line, because they can be considered as a single compound syntax element.
Each line starts with a dotted decimal number; for example, 3 or 3.1 or 3.1.1. To hear these numbers correctly, make sure that your screen reader is set to read out punctuation. All the syntax elements that have the same dotted decimal number (for example, all the syntax elements that have the number 3.1) are mutually exclusive alternatives. If you hear the lines 3.1 USERID and 3.1 SYSTEMID, you know that your syntax can include either USERID or SYSTEMID, but not both.

The dotted decimal numbering level denotes the level of nesting. For example, if a syntax element with dotted decimal number 3 is followed by a series of syntax elements with dotted decimal number 3.1, all the syntax elements numbered 3.1 are subordinate to the syntax element numbered 3.

Certain words and symbols are used next to the dotted decimal numbers to add information about the syntax elements. Occasionally, these words and symbols might occur at the beginning of the element itself. For ease of identification, if the word or symbol is a part of the syntax element, it is preceded by the backslash (\) character. The * symbol can be used next to a dotted decimal number to indicate that the syntax element repeats. For example, syntax element *FILE with dotted decimal number 3 is given the format 3 \* FILE. Format 3* FILE indicates that syntax element FILE repeats. Format 3* \* FILE indicates that syntax element * FILE repeats.

Characters such as commas, which are used to separate a string of syntax elements, are shown in the syntax just before the items they separate. These characters can appear on the same line as each item, or on a separate line with the same dotted decimal number as the relevant items. The line can also show another symbol giving information about the syntax elements. For example, the lines 5.1*, 5.1 LASTRUN, and 5.1 DELETE mean that if you use more than one of the LASTRUN and DELETE syntax elements, the elements must be separated by a comma. If no separator is given, assume that you use a blank to separate each syntax element.

If a syntax element is preceded by the % symbol, this indicates a reference that is defined elsewhere. The string following the % symbol is the name of a syntax fragment rather than a literal. For example, the line 2.1 %OP1 means that you should see separate syntax fragment OP1.

The following words and symbols are used next to the dotted decimal numbers:

- A question mark (?) means an optional syntax element. A dotted decimal number followed by the ? symbol indicates that all the syntax elements with a corresponding dotted decimal number, and any subordinate syntax elements, are optional. If there is only one syntax element with a dotted decimal number, the ? symbol is displayed on the same line as the syntax element, (for example 5? NOTIFY). If there is more than one syntax element with a dotted decimal number, the ? symbol is displayed on a line by itself, followed by the syntax elements that are optional. For example, if you hear the lines 5 ?, 5 NOTIFY, and 5 UPDATE, you know that syntax elements NOTIFY and UPDATE are optional; that is, you can choose one or none of them. The ? symbol is equivalent to a bypass line in a railroad diagram.

- An exclamation mark (!) means a default syntax element. A dotted decimal number followed by the ! symbol and a syntax element indicate that the syntax element is the default option for all syntax elements that share the same dotted decimal number. Only one of the syntax elements that share the same dotted decimal number can specify a ! symbol. For example, if you hear the lines 2? FILE, 2.1! (KEEP), and 2.1 (DELETE), you know that (KEEP) is the default option
for the FILE keyword. In this example, if you include the FILE keyword but do not specify an option, default option KEEP will be applied. A default option also applies to the next higher dotted decimal number. In this example, if the FILE keyword is omitted, default FILE(KEEP) is used. However, if you hear the lines 2? FILE, 2.1, 2.1.1! (KEEP), and 2.1.1 (DELETE), the default option KEEP applies only to the next higher dotted decimal number, 2.1 (which does not have an associated keyword), and does not apply to 2? FILE. Nothing is used if the keyword FILE is omitted.

• An asterisk (*) means a syntax element that can be repeated 0 or more times. A dotted decimal number followed by the * symbol indicates that this syntax element can be used zero or more times; that is, it is optional and can be repeated. For example, if you hear the line 5.1* data area, you know that you can include one data area, more than one data area, or no data area. If you hear the lines 3*, 3 HOST, and 3 STATE, you know that you can include HOST, STATE, both together, or nothing.

Notes:

1. If a dotted decimal number has an asterisk (*) next to it and there is only one item with that dotted decimal number, you can repeat that same item more than once.

2. If a dotted decimal number has an asterisk next to it and several items have that dotted decimal number, you can use more than one item from the list, but you cannot use the items more than once each. In the previous example, you could write HOST STATE, but you could not write HOST HOST.

3. The * symbol is equivalent to a loop-back line in a railroad syntax diagram.

• + means a syntax element that must be included one or more times. A dotted decimal number followed by the + symbol indicates that this syntax element must be included one or more times; that is, it must be included at least once and can be repeated. For example, if you hear the line 6.1+ data area, you must include at least one data area. If you hear the lines 2+, 2 HOST, and 2 STATE, you know that you must include HOST, STATE, or both. Similar to the * symbol, the + symbol can only repeat a particular item if it is the only item with that dotted decimal number. The + symbol, like the * symbol, is equivalent to a loop-back line in a railroad syntax diagram.
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