

z/OS Communications Server



Quick Reference

Version 1 Release 7

z/OS Communications Server



Quick Reference

Version 1 Release 7

Note:

Before using this information and the product it supports, be sure to read the general information under “Notices” on page 207.

Sixth Edition (September 2005)

This edition applies to Version 1 Release 7 of z/OS (5694-A01) and Version 1 Release 7 of z/OS.e (5655-G52) and to all subsequent releases and modifications until otherwise indicated in new editions.

IBM welcomes your comments. You may send your comments to the following address.

International Business Machines Corporation
Attn: z/OS Communications Server Information Development
Department AKCA, Building 501
P.O. Box 12195, 3039 Cornwallis Road
Research Triangle Park, North Carolina 27709-2195

You can send us comments electronically by using one of the following methods:

Fax (USA and Canada):

1+919-254-4028

Send the fax to “Attn: z/OS Communications Server Information Development”

Internet e-mail:

comsvrcf@us.ibm.com

World Wide Web:

<http://www.ibm.com/servers/eserver/zseries/zos/webqs.html>

If you would like a reply, be sure to include your name, address, telephone number, or FAX number. Make sure to include the following in your comment or note:

- Title and order number of this document
- Page number or topic related to your comment

When you send information to IBM, you grant IBM a nonexclusive right to use or distribute the information in any way it believes appropriate without incurring any obligation to you.

© Copyright International Business Machines Corporation 1984, 2005. All rights reserved.

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Contents

Tables	ix
------------------	----

About this document	xi
-------------------------------	----

Part 1. IP commands	1
--------------------------------------	----------

Chapter 1. IP MVS operator commands	3
--	----------

DISPLAY TCPIP	3
DISPLAY TCPIP HELP	3
DISPLAY TCPIP NETSTAT	4
DISPLAY TCPIP OMPROUTE	6
DISPLAY TCPIP STOR	8
DISPLAY TCPIP SYSPLEX	9
DISPLAY TCPIP TELNET	9
MODIFY TCPIP command	11
FTP server	11
IKE server	12
NCPROUTE server	13
OMPROUTE	13
Policy Agent	15
Resolver address space	16
REXEC server	16
Network SLAPM2 subagent	16
SLA subagent	16
SNALINK LU0 server	16
SNALINK LU6.2 server	17
SNMP agent	17
TRAPFWD	17
VMCF and TNF	18
X.25 NPSI server	18
z/OS Load Balancing Advisor	18
z/OS Load Balancing Agent	18
START TCPIP	19
STOP TCPIP	19
VARY TCPIP ABENDTRAP	19
VARY TCPIP DATTRACE	20
VARY TCPIP DROP	20
VARY TCPIP OBEYFILE	20
VARY TCPIP PKTTRACE	21
VARY TCPIP PURGECACHE	22
VARY TCPIP START	22
VARY TCPIP STOP	22
VARY TCPIP SYSPLEX	22
VARY TCPIP TELNET	23

Chapter 2. TSO Commands	25
--	-----------

DIG Command	25
FTP Command	27
! Subcommand	27
ACCOUNT Subcommand	28
APPEND Subcommand	28
ASCII Subcommand	28
BIG5 Subcommand	28
BINARY Subcommand	28

BLOCK Subcommand	28
CD Subcommand	28
CDUP Subcommand	29
CLOSE Subcommand	29
COMPRESS Subcommand	29
DEBUG Subcommand	29
DELETE Subcommand	29
DELIMIT Subcommand	29
DIR Subcommand	29
EBCDIC Subcommand.	29
EUCKANJI Subcommand.	30
FILE Subcommand	30
GET Subcommand	30
GLOB Subcommand	30
HANGEUL Subcommand	30
HELP and ? Subcommands	31
IBMKANJI Subcommand	31
JIS78KJ Subcommand	31
JIS83KJ Subcommand	31
KSC5601 Subcommand	31
LCD Subcommand	31
LMKDIR Subcommand	32
LOCSITE Subcommand	32
LOCSTAT Subcommand	34
LPWD Subcommand	34
LS Subcommand	35
MDELETE Subcommand	35
MGET Subcommand	35
MKDIR Subcommand	35
MODE Subcommand	35
MPUT Subcommand	35
NOOP Subcommand	35
OPEN Subcommand	36
PASS Subcommand.	36
PROMPT Subcommand	36
PROXY Subcommand	36
PUT Subcommand	36
PWD Subcommand.	36
QUIT Subcommand	36
QUOTE Subcommand	37
RECORD Subcommand	37
RENAME Subcommand	37
RESTART Subcommand	37
RMDIR Subcommand	37
SCHINESE Subcommand.	37
SENDPORT Subcommand	37
SENDSITE Subcommand	38
SITE Subcommand	38
SJISKANJI Subcommand	42
STATUS Subcommand.	42
STREAM Subcommand	42
STRUCTURE Subcommand	42
SUNIQUE Subcommand	42
SYSTEM Subcommand	42
TCHINESE Subcommand.	42
TSO Subcommand	43
TYPE Subcommand	43
UCS2 Subcommand	43
USER Subcommand	43
GDDMXD Command	44
Identifying the Target Display Option	44

ANFontn Option	44
CMap Option.	44
Compr Option	44
Enter Option	44
GColornn Option	45
Geometry Option	45
GMCPnn Option	45
HostRast Option.	45
NewLine Option.	45
XSync Option.	45
ZWL Option	45
HOMETEST Command	46
KDESTROY Command	46
KINIT Command	46
KLIST Command	46
KPASSWORD Command	46
LPQ Command	46
LPR Command	47
LPRM Command	49
LPRSET Command	49
MAKESITE Command.	50
NDBCLNT Command	50
NETSTAT Command	50
NSLOOKUP Command	54
PING Command.	56
REXEC Command	57
RPCINFO Command	57
RSH Command	57
SMSG SMTP Command	58
SMTNOTE Command	58
TELNET Command	58
AO Option	59
AYT Option	59
BRK Option	59
HELP Option.	59
IP Option	59
PA1 Option	59
QUIT Option	59
SYNCH Option	59
¢ and ` Option	60
Terminal and Conversion Type Option	60
TESTSITE Command	60
TRACERTE Command	60
Chapter 3. z/OS UNIX Commands	63
dig Command	63
dnsdomainname Command	64
dnssec-keygen Command.	65
dnssec-makekeyset Command	65
dnssec-signkey Command	65
dnssec-signzone Command	66
dnsmigrate Command.	66
ftp Command	66
host Command	67
hostname Command	67
ipsec Command	67
mailstats Command	70
named Command	71
nsupdate Command	72
netstat Command	73
onslookup/nslookup Command	77

ping Command	79
orexec/rexec Command	80
orpcinfo/rpcinfo Command	80
osnmp/snmp Command	80
otracert/traceroute Command	82
pasearch Command	83
popper Command	84
pwchange Command	84
pwtokey Command	84
rndc Command	85
rndc-confgen Command	85
sendmail Command	85
sntpd Command	85
trmdstat	85

Chapter 4. Other IP commands, options, and subcommands 87

Part 2. VTAM commands 89

Chapter 5. Display commands. 91

D ADJCLUST.	91
D ADJCP	91
D ADJSSCPS	91
D APING	92
D APINGDTP	93
D APINGTP	93
D APPLS	93
D APPNTOSA	94
D AUTOLOG.	94
D BFRUSE.	94
D BNCOSMAP	95
D CDRMS.	95
D CDRSCS	95
D CLSTRS.	96
D CNOS	97
D CONVID	97
D COS	97
D CPCP	98
D CSDUMP	98
D CSM	98
D CSMUSE	99
D DIRECTRY.	99
D DISK.	99
D DLURS	99
D EE	100
D EEDIAG	101
D EXIT	102
D GRAFFIN.	103
D GROUPS	103
D ID	103
D INOPCODE	105
D INOPDUMP	105
D LINES	105
D LMTBL	106
D LUGROUPS	106
D MAJNODES	108
D MODELS	108
D NCPSTOR	108
D NETSRVR.	108
D PATHS.	109

D PATHTAB	109
D PENDING	109
D ROUTE	109
D RSCLIST	110
D RTPS	111
D SAMAP	112
D SATOAPPN	112
D SESSIONS	112
D SNSFILTR	113
D SRCHINFO	113
D STATIONS	116
D STATS	116
D STORUSE	117
D TABLE	118
D TERMS	119
D TGPS	119
D TNSTAT	120
D TOPO	120
D TRACES	121
D TRL	123
D TSOUSER	124
D USERVAR	124
D VTAMOPTS	124
D VTAMSTOR	125

Chapter 6. Halt commands. 127

HALT (Z)	127
Z CANCEL	127
Z QUICK	127

Chapter 7. Modify commands 129

F ALSLIST	129
F APINGDTP	129
F APINGTP	129
F BFRUSE	130
F CDRM	130
F CHKPT	130
F CNOS	130
F COMPRESS	132
F CSALIMIT	132
F CSDUMP	132
F CSM	133
F DEFAULTS	133
F DEFINE	133
F DIRECTRY	134
F DR	135
F DUMP	135
F ENCR	137
F EXIT	137
F GR	138
F IMR	138
F INOPCODE	139
F INOPDUMP	139
F IOPD	139
F IOPURGE	139
F LINEDEF	140
F LL2	140
F LOAD	140
F MSGMOD	142
F NCP	142

F NEGPOLL	142
F NOTNSTAT	142
F NOTRACE	142
F POLL	148
F PPOLOG	148
F PROFILES	148
F RESOURCE	148
F RTP	150
F SECURITY	150
F SESSION	151
F SUPP	151
F TABLE	151
F TGP	152
F TNSTAT	152
F TOPO	152
F TRACE	154
F USERVAR	160
F VTAMOPTS	160

Chapter 8. Starting VTAM 169
START 169

Chapter 9. Vary commands 171

V ACQ	171
V ACT	172
V ANS	176
V AUTOLOG	176
V CFS	176
V DIAL	177
V DRDS	177
V HANGUP	177
V INACT	177
V INOP	180
V LOGON	181
V NOLOGON	181
V PATH	181
V REL	181
V TERM	182

Chapter 10. Start options 183

Chapter 11. Other VTAM codes and commands 201

Part 3. Appendixes 203

Appendix. Accessibility 205

Using assistive technologies	205
Keyboard navigation of the user interface	205
z/OS information	205

Notices 207

Trademarks	215
----------------------	-----

Tables

1. IP commands, options, and subcommands 87
2. Other VTAM codes and commands 201

About this document

This quick reference summarizes information found in:

- *z/OS Communications Server: IP Configuration Guide*
- *z/OS Communications Server: IP System Administrator's Commands*
- *z/OS Communications Server: SNA Operation*

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.

This document supports z/OS.e.

Part 1. IP commands

In this section, commands are listed alphabetically. For more information on these commands, refer to *z/OS Communications Server: IP Configuration Guide* and *z/OS Communications Server: IP System Administrator's Commands*.

IP commands

Chapter 1. IP MVS operator commands

DISPLAY TCPIP

Display the status of the current TCP/IP images:

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

►► `DISPLAY` `TCPIP` ◄◄
└─┬─┘
 D

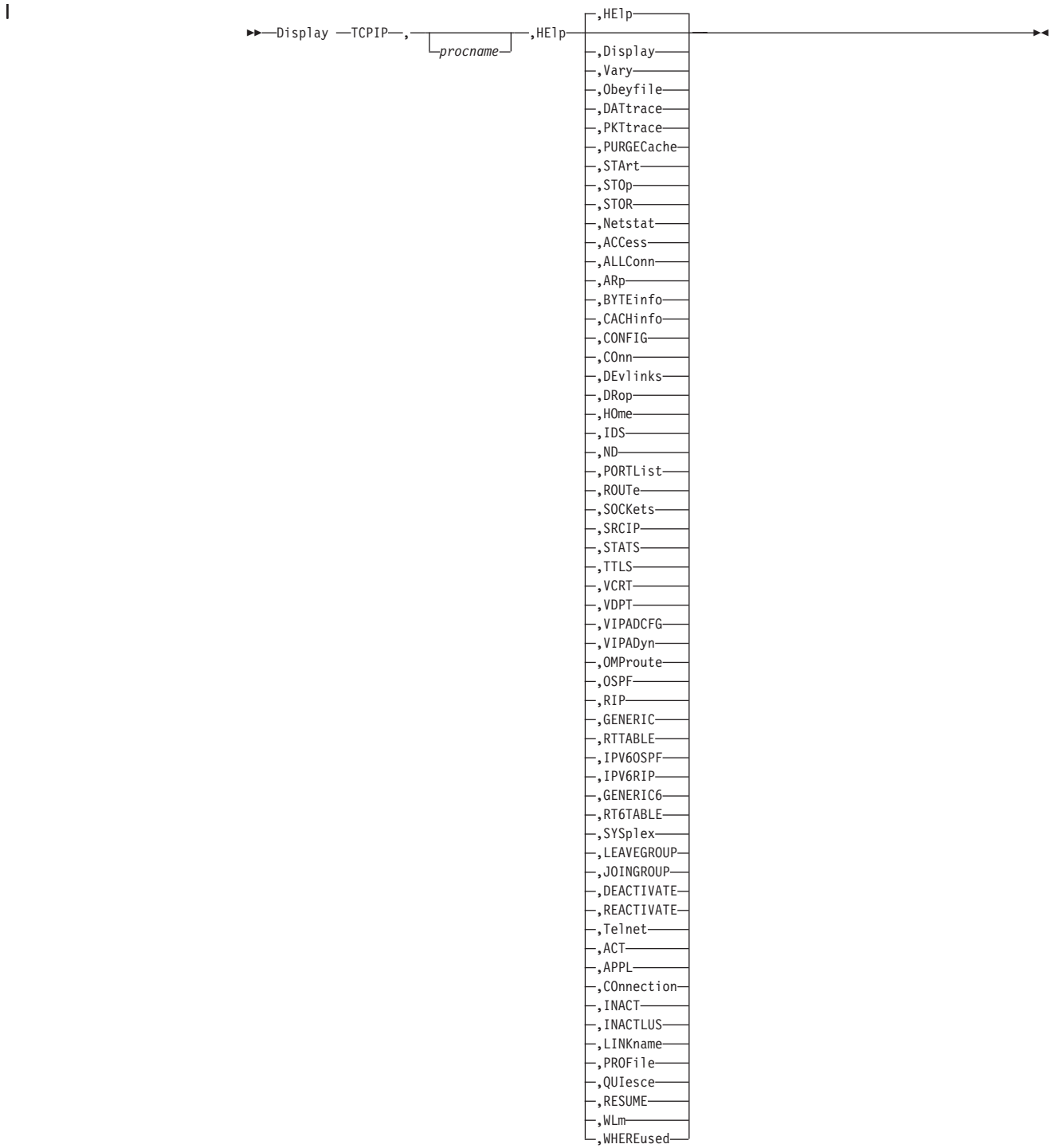
This is the format of DISPLAY command used to display information about TCP/IP applications.

►► `DISPLAY` `TCPIP,` `procname` `,APPL=applid,CMD=CLIENT` ◄◄
└─┬─┘ └──────────┘

DISPLAY TCPIP HELP

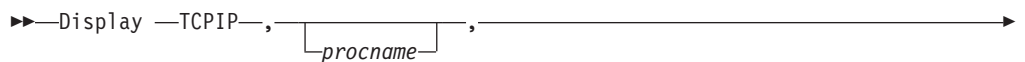
Display the syntax of MVS operator commands for TCP/IP:

IP MVS operator commands

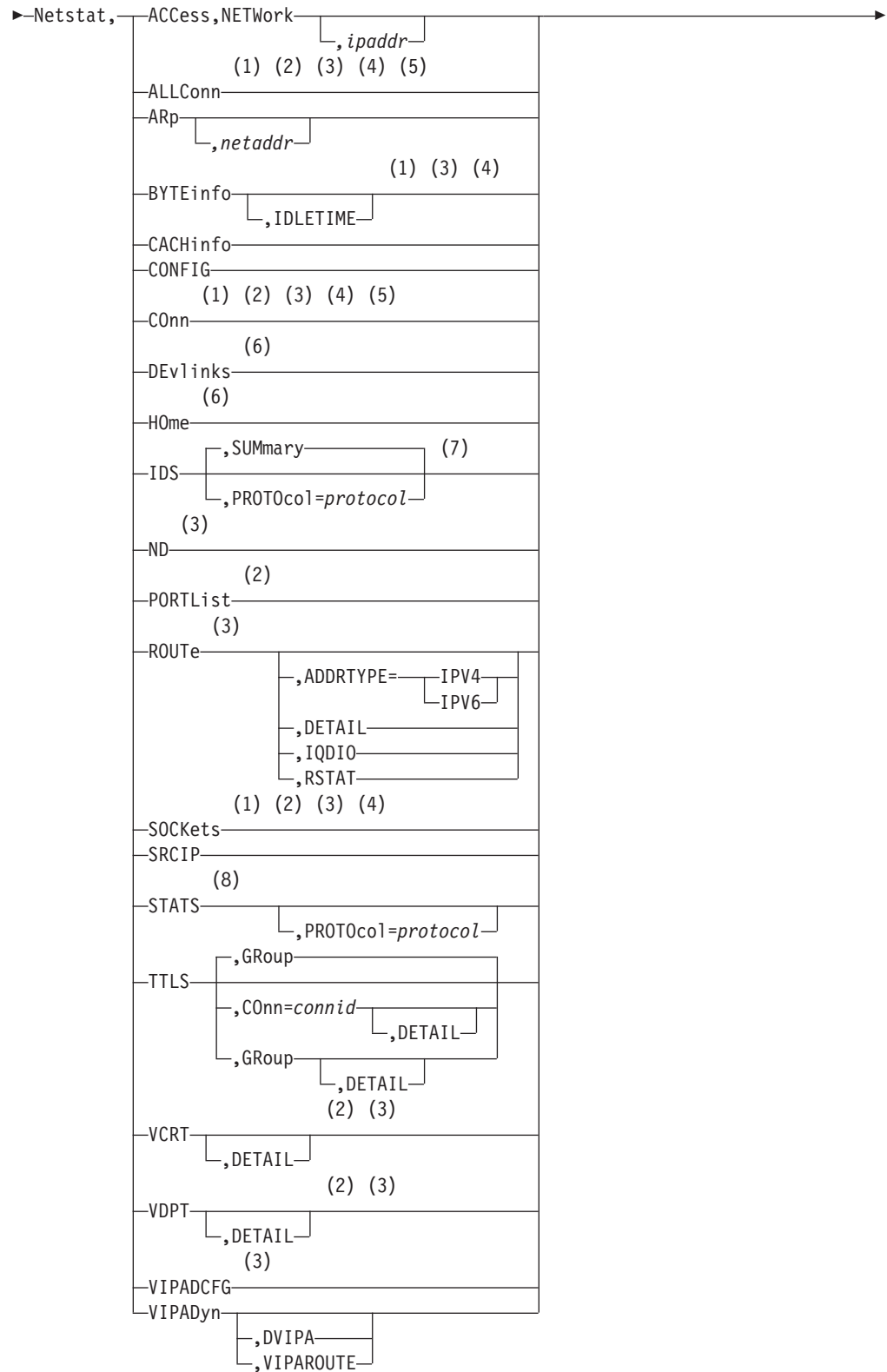


DISPLAY TCPIP NETSTAT

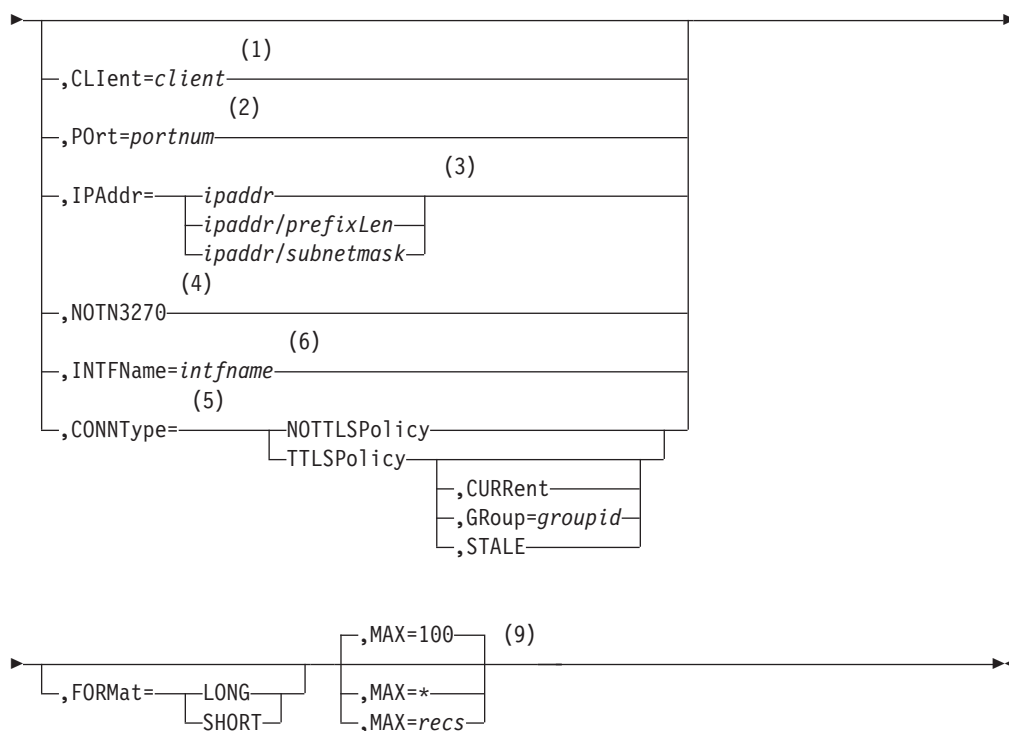
Request NETSTAT information:



I



IP MVS operator commands



Notes:

- 1 The CLient is valid with ALLConn, BYTEinfo, COnn, and SOCKets.
- 2 The POrt is valid only with ALLConn, COnn, PORTList, SOCKets, VCRT, and VDPT.
- 3 The IPAddr select string is valid only with ALLConn, BYTEinfo, COnn, ND, ROUTe, SOCKets, VCRT, VDPT, and VIPADCFG.
- 4 The NOTN3270 is valid only with ALLConn, BYTEinfo, COnn, and SOCKets.
- 5 The CONNType is valid only with ALLConn and COnn.
- 6 The INTFName is valid only with DEvlinks and HOme.
- 7 The valid protocol values are TCP and UDP.
- 8 The valid protocol values are IP, ICMP, TCP, and UDP.
- 9 MAX limits the number of records displayed to the MVS operator's console.

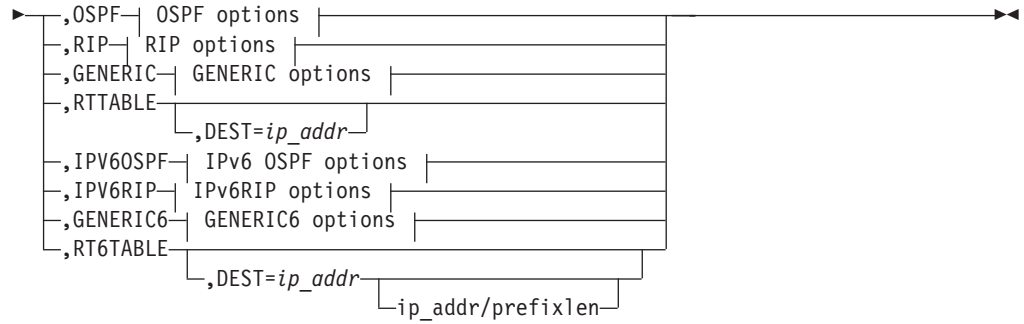
Note: The minimum abbreviation for each parameter is shown in uppercase letters.

DISPLAY TCPIP OMROUTE

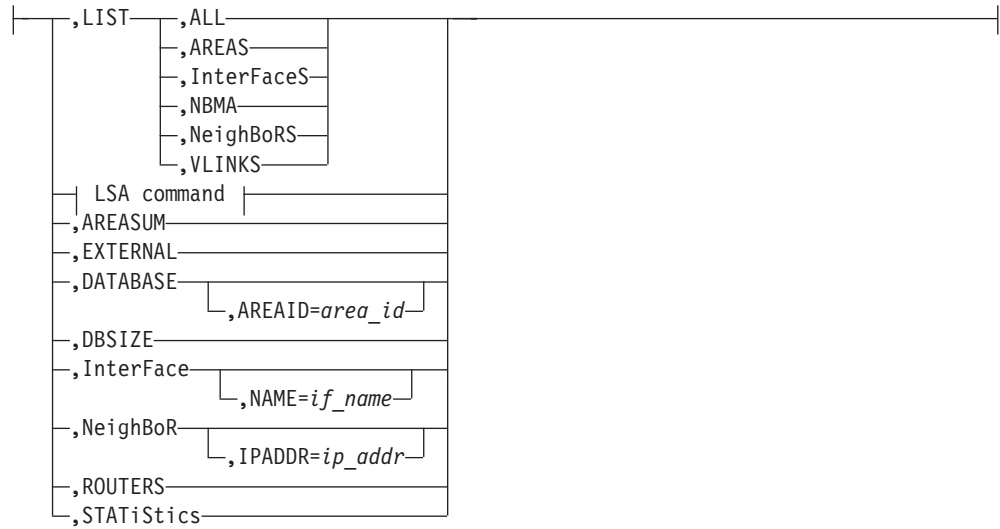
Display OMROUTE configuration and state information:



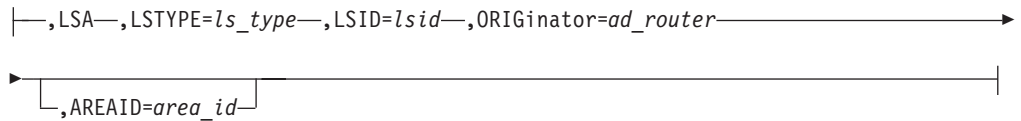
I



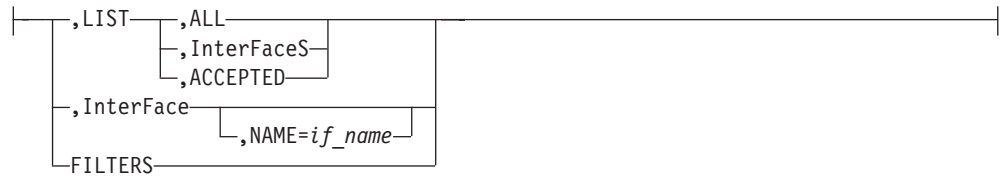
OSPF options:



LSA command:



RIP options:

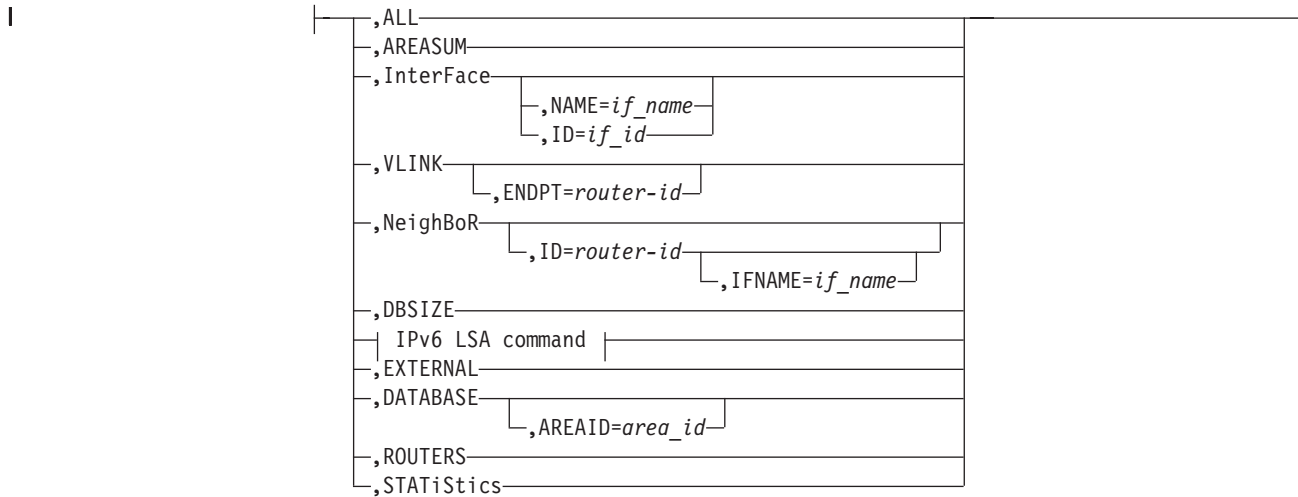


GENERIC options:

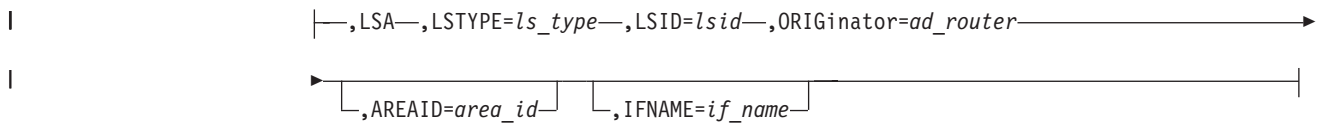


IP MVS operator commands

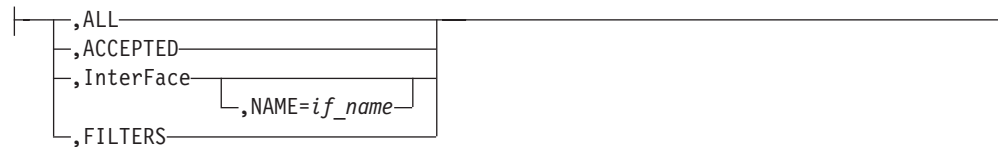
IPv6 OSPF options:



IPv6 LSA command:



IPv6RIP options:



GENERIC6 options:



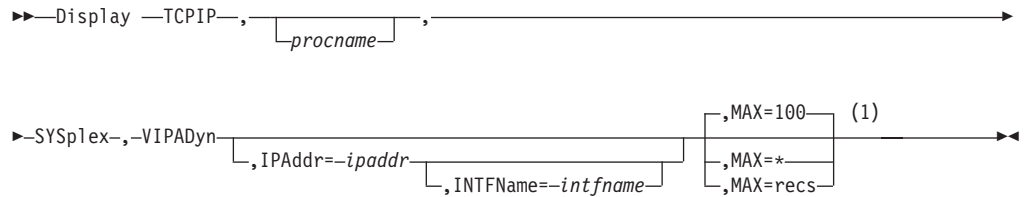
DISPLAY TCPIP STOR

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



DISPLAY TCPIP SYSPLEX

Request SYSPLEX information:

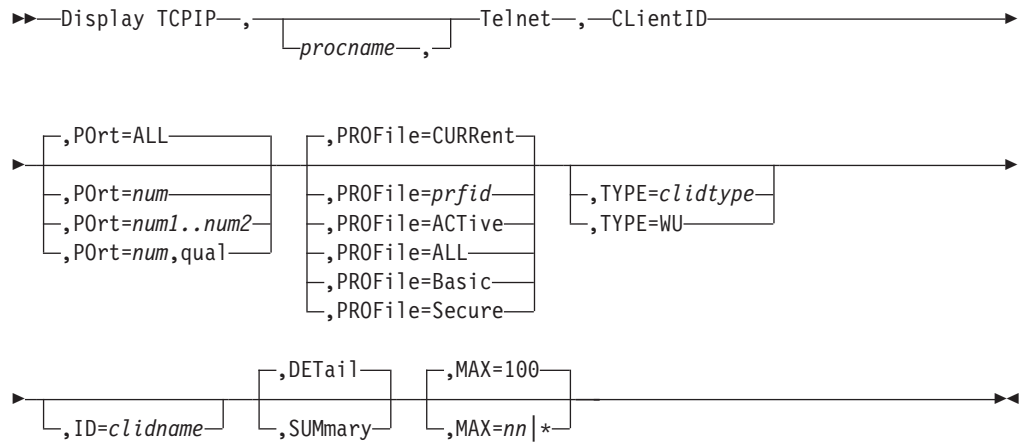


Notes:

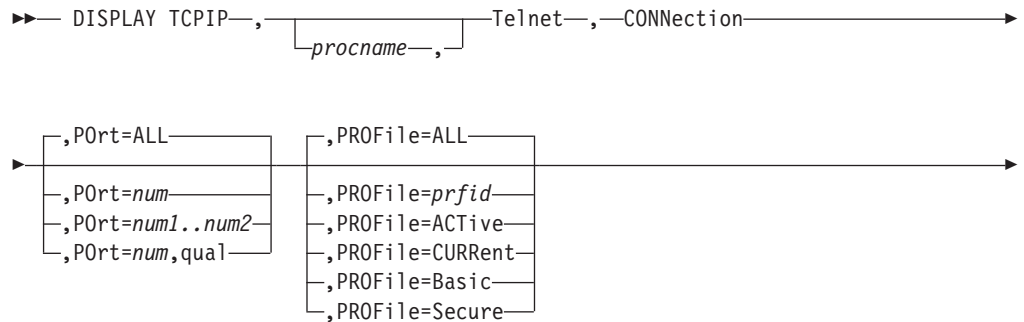
- 1 MAX limits the number of records displayed to the MVS operator's console.

DISPLAY TCPIP TELNET

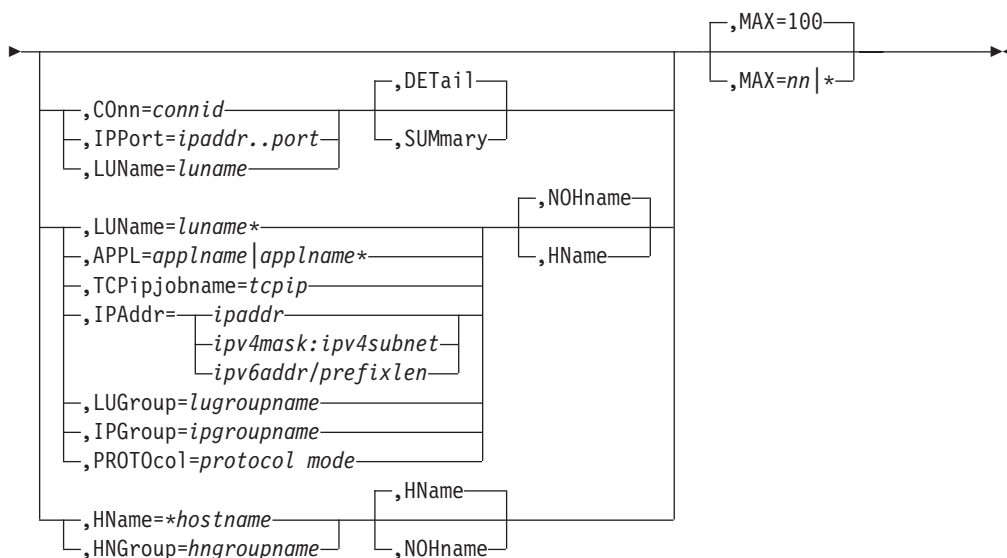
CLIENTID display command:



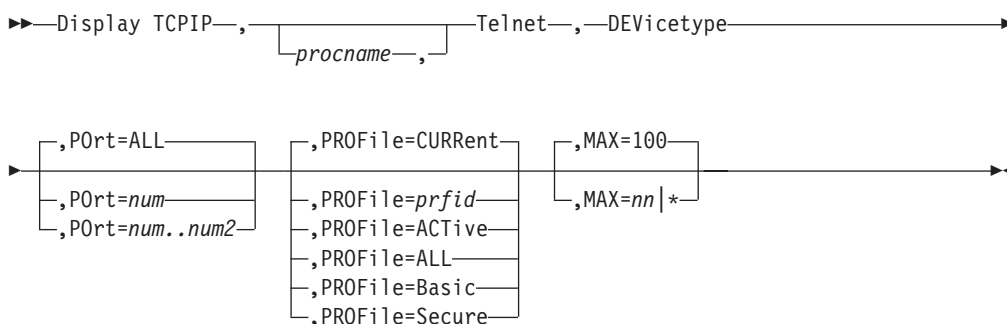
CONNECTION display command:



IP MVS operator commands



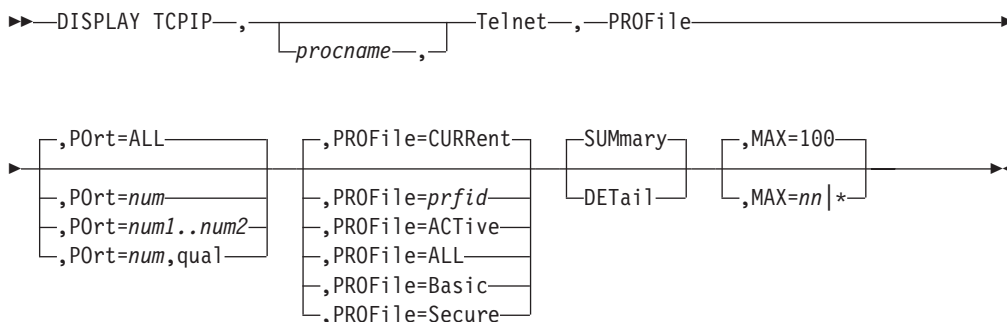
DEVICETYPE display command:



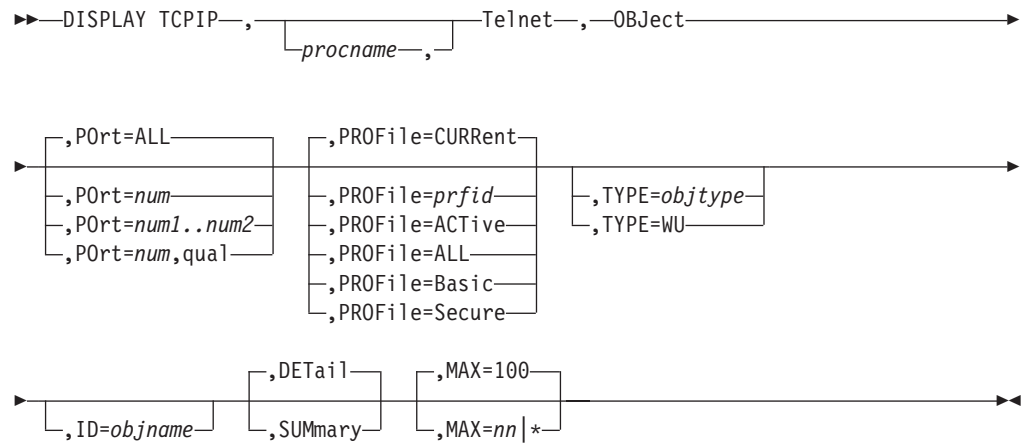
INACTLUS display command:



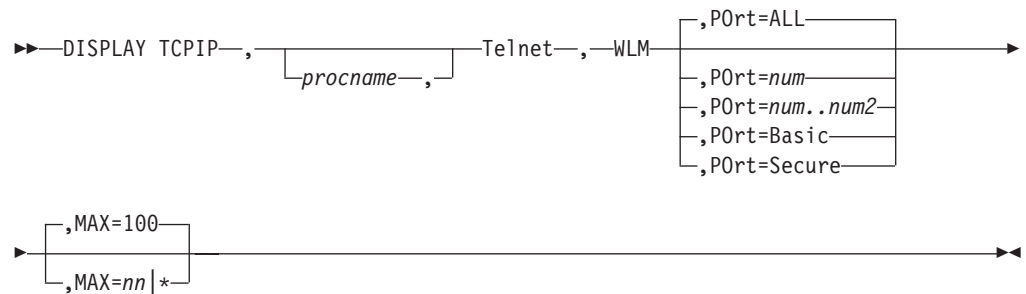
PROFILE display command:



OBJECT display command:

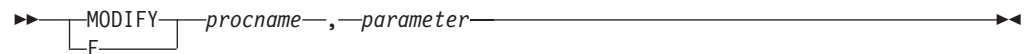


WLM display command:



MODIFY TCPIP command

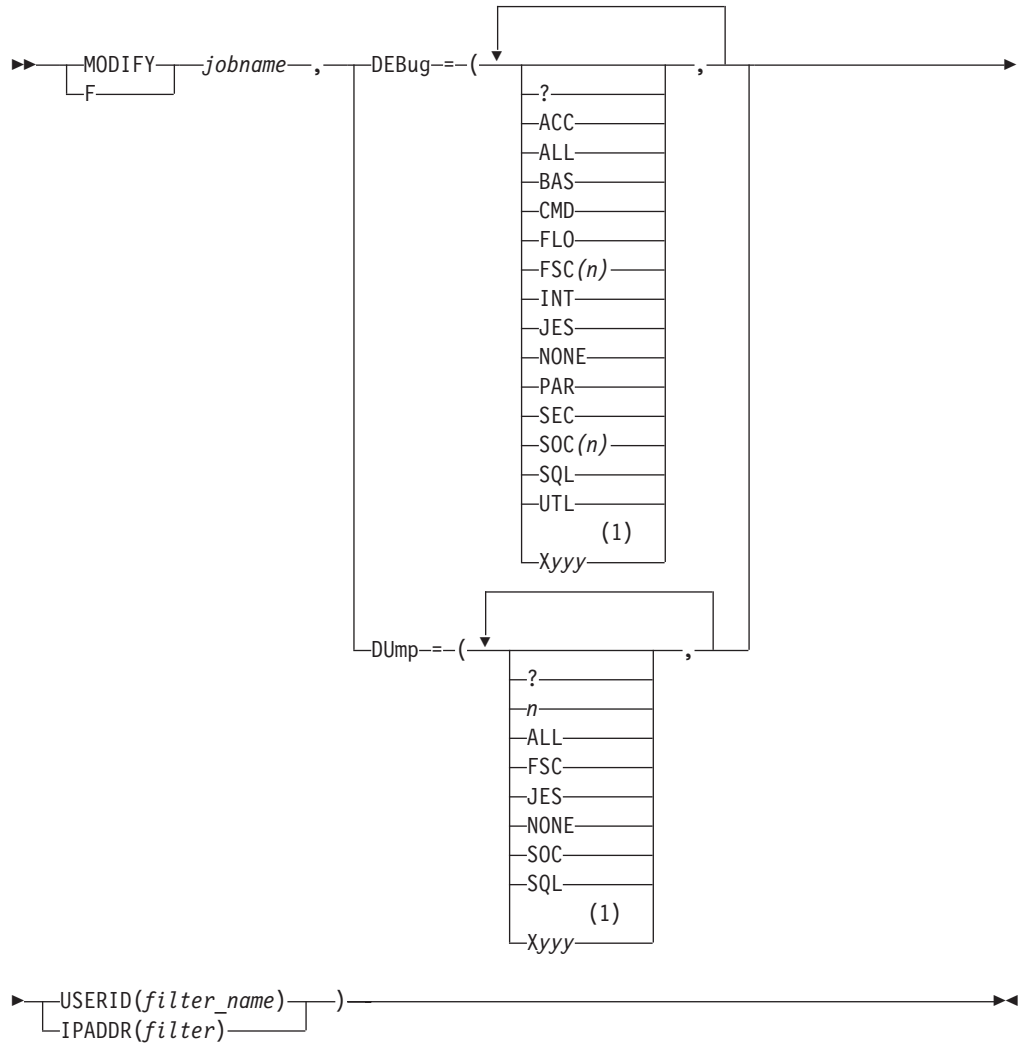
Dynamically change characteristics of an active task:



FTP server

Start and stop tracing after initialization is complete:

IP MVS operator commands



Notes:

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

IKE server

Control IKE server functions:

| **MODIFY** *procname, DISPLAY* |

| **F** |

| **MODIFY** *procname, REFRESH* |

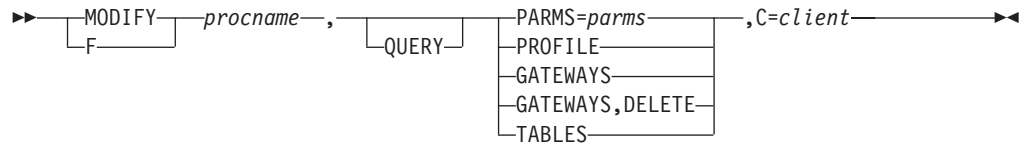
| **F** |

| , FILE='filename' |

| , FILE=/'filename' |

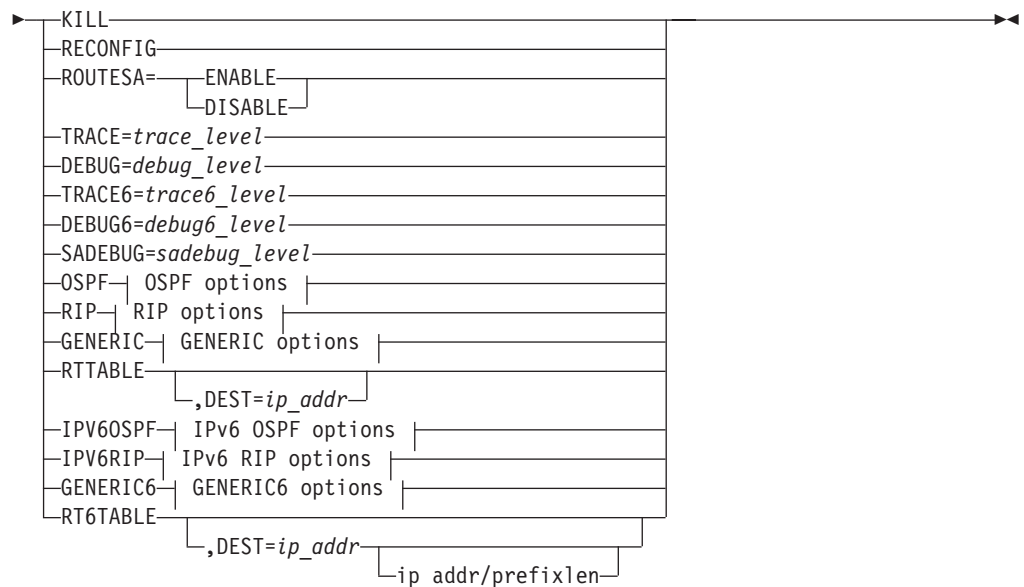
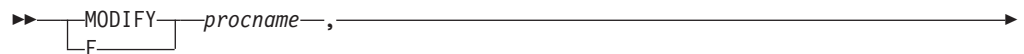
NCPROUTE server

Pass parameters to the NCPROUTE address space:



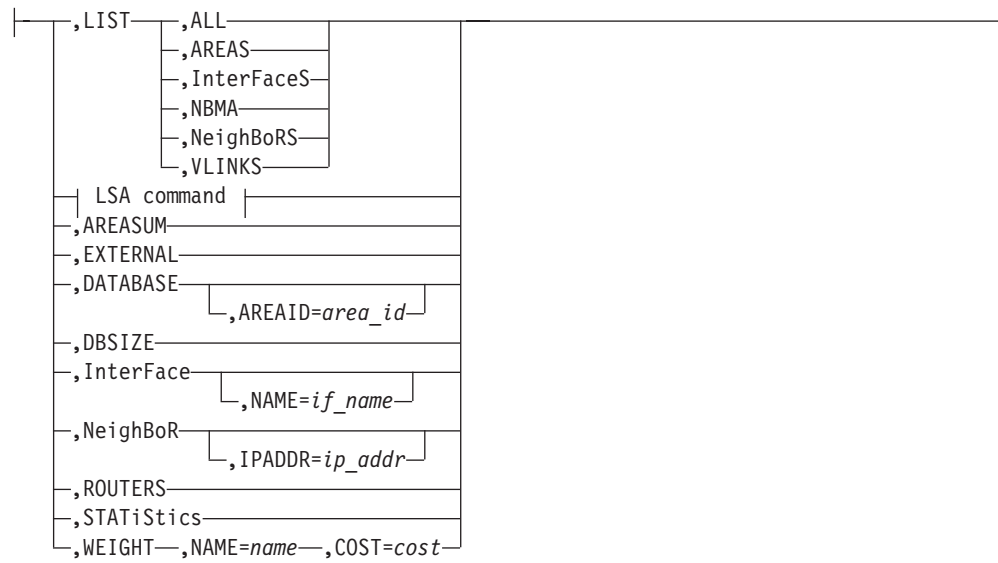
OMPROUTE

Control OMPROUTE from the operator's console:

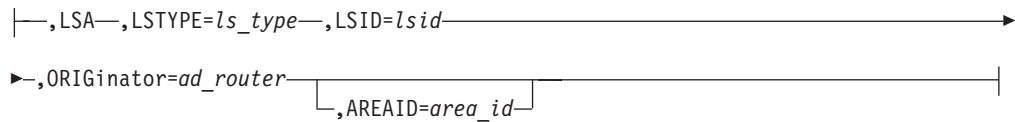


IP MVS operator commands

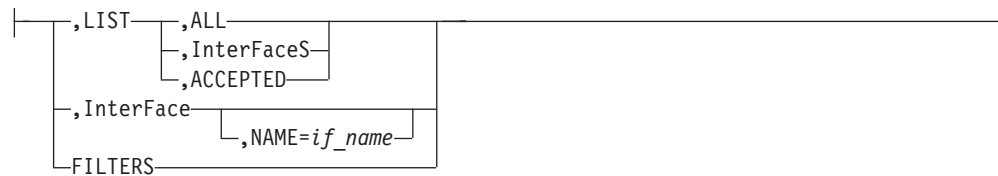
OSPF options:



LSA command:



RIP options:

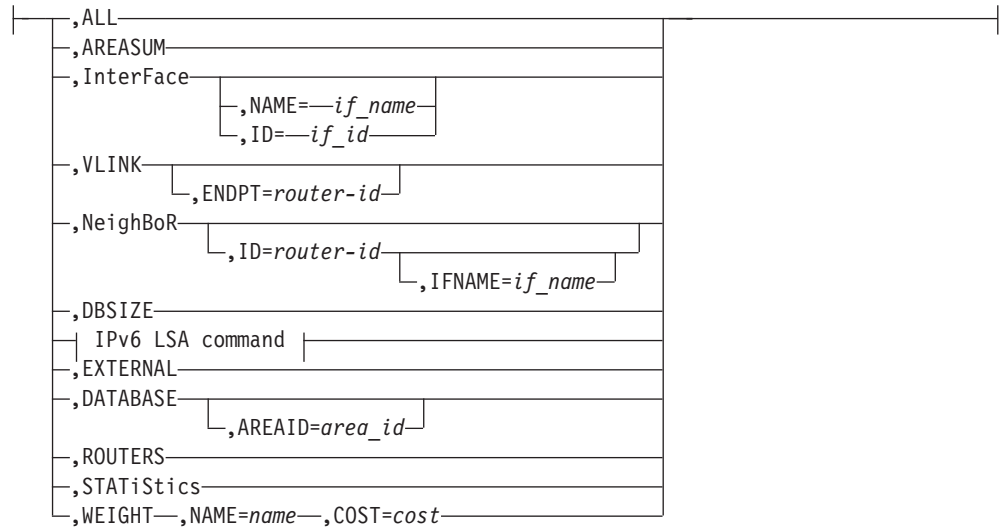


GENERIC options:



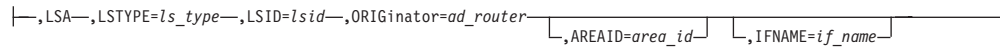
IPv6 OSPF options:

|

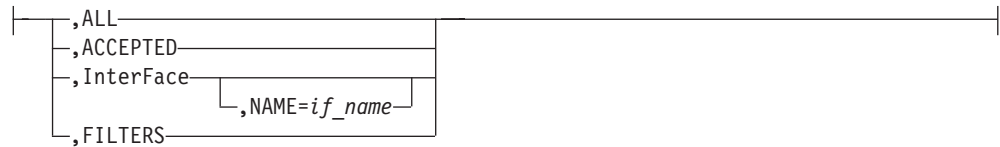


IPv6 LSA command:

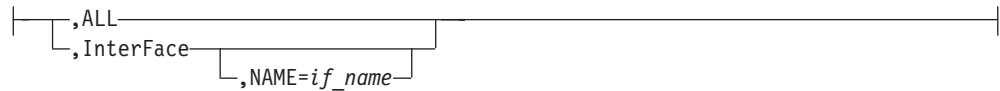
|



IPv6 RIP options:



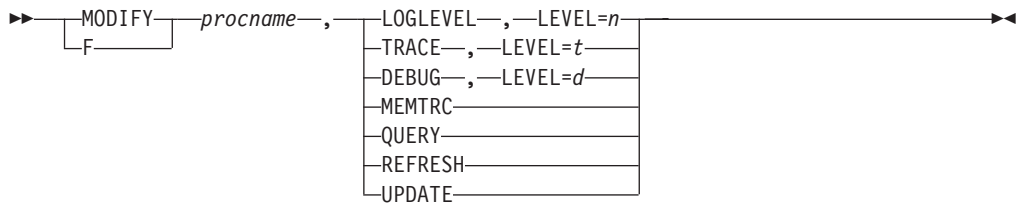
GENERIC6 options:



Policy Agent

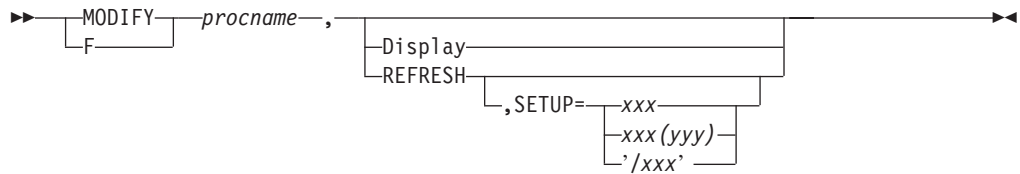
Control the Policy Agent functions from the operator's console using the MODIFY command:

|



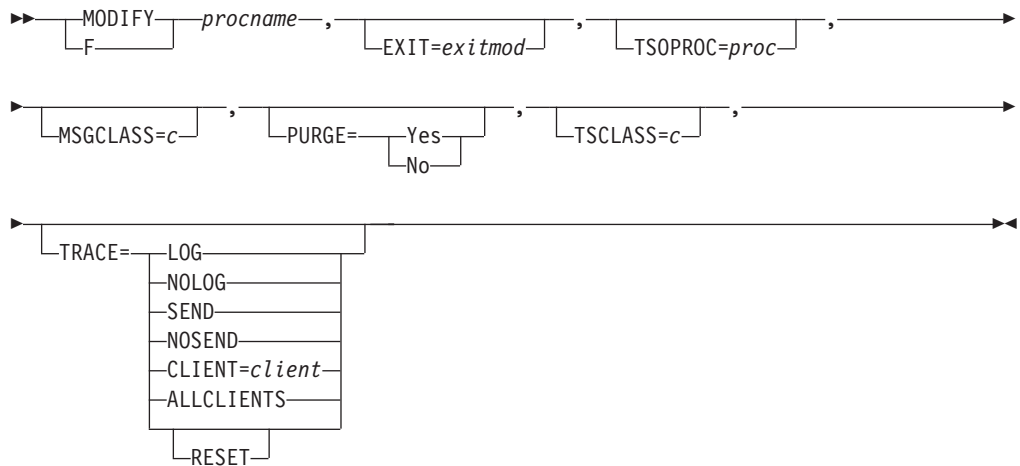
Resolver address space

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



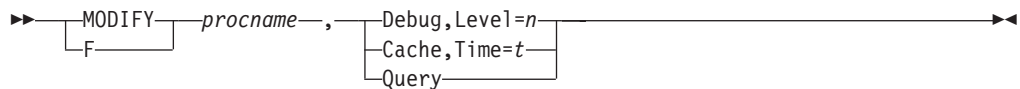
REXEC server

Change the parameters on the Remote Execution server:



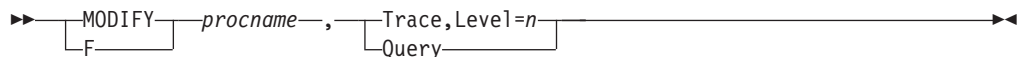
Network SLAPM2 subagent

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



SLA subagent

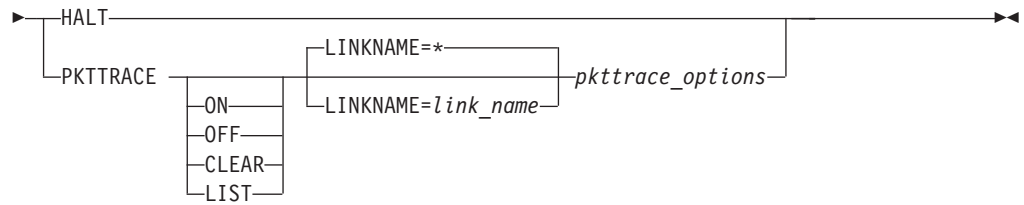
Control the SLA subagent functions:



SNALINK LU0 server

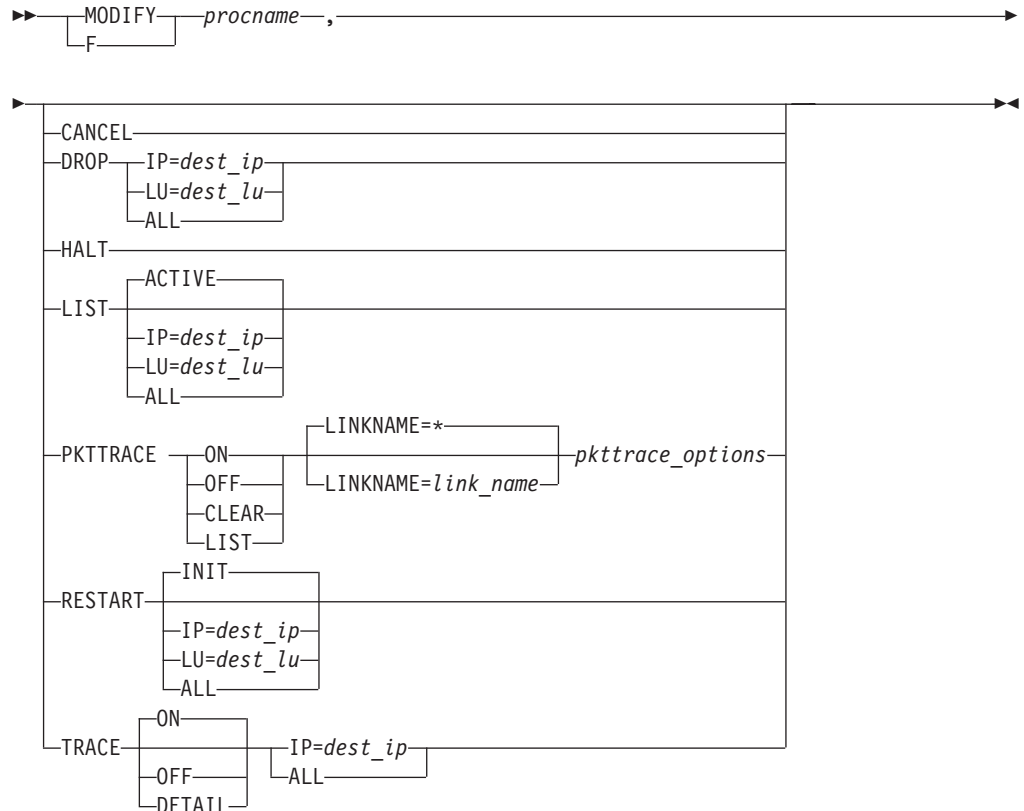
Halt the SNALINK LU0 interface:





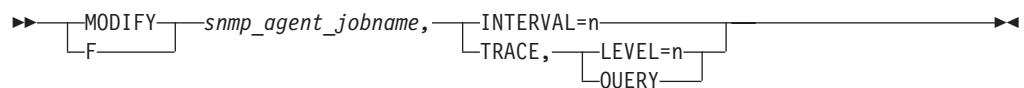
SNALINK LU6.2 server

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



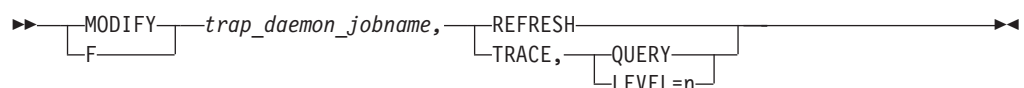
SNMP agent

Modify some SNMP agent initialization parameters:



TRAPFWD

Modify the trap forwarder daemon:



IP MVS operator commands

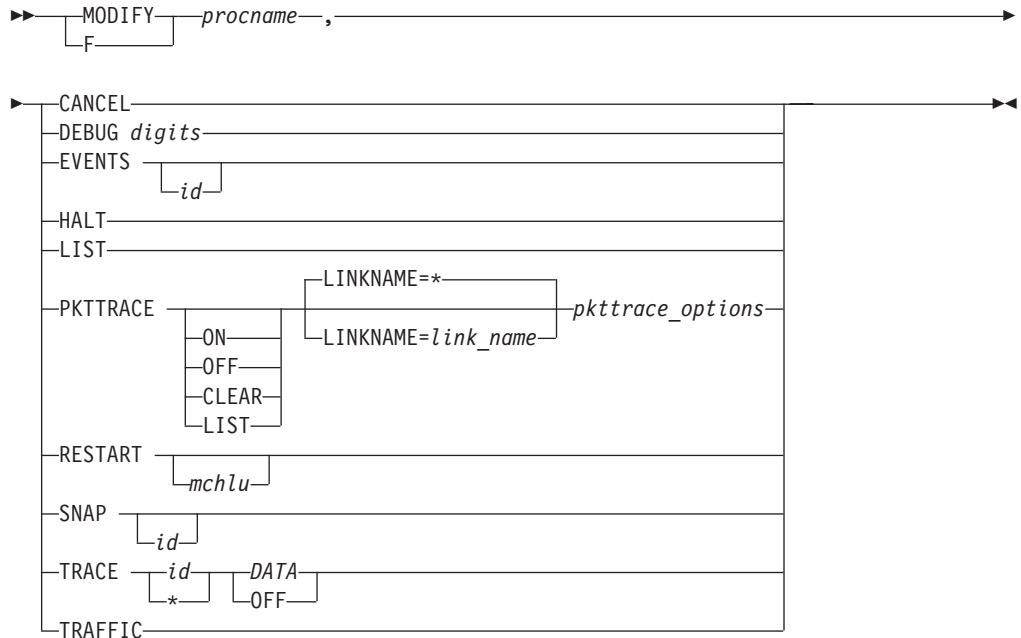
VMCF and TNF

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



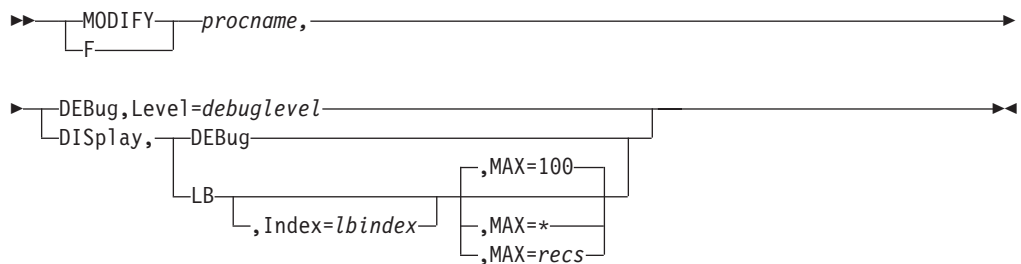
X.25 NPSI server

Pass parameters to the X.25 NPSI server:



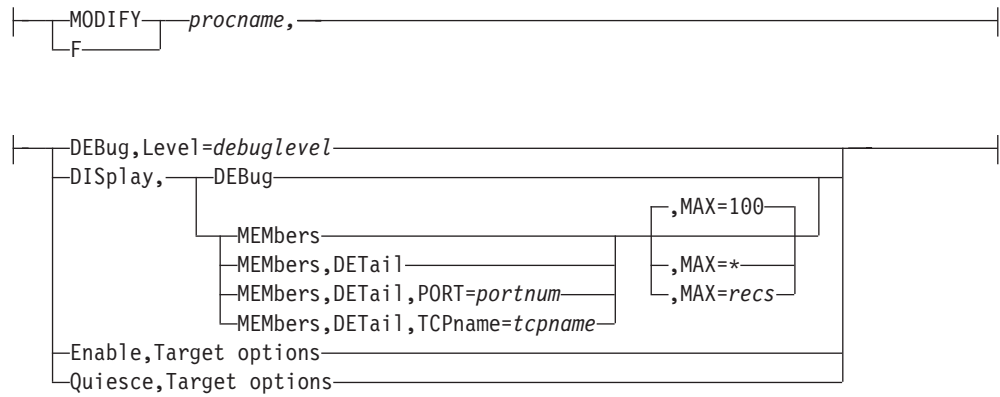
z/OS Load Balancing Advisor

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

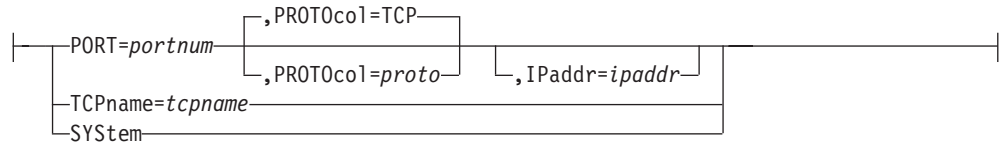


z/OS Load Balancing Agent

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

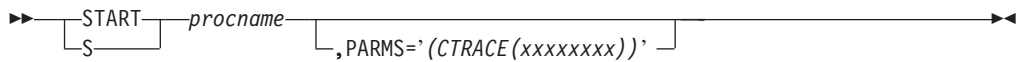


Target options:



START TCPIP

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



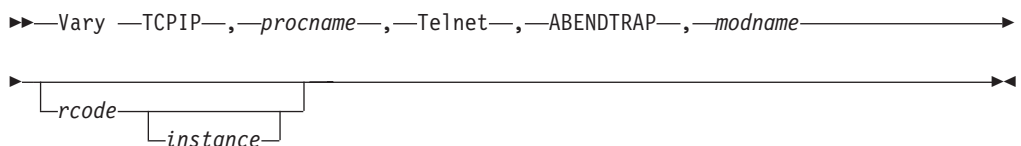
STOP TCPIP

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



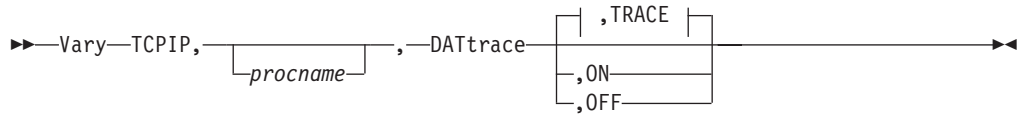
VARY TCPIP ABENDTRAP

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

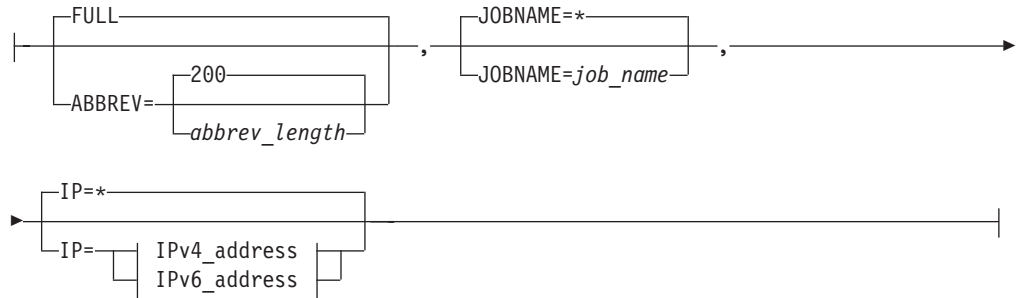


VARY TCPIP DATTRACE

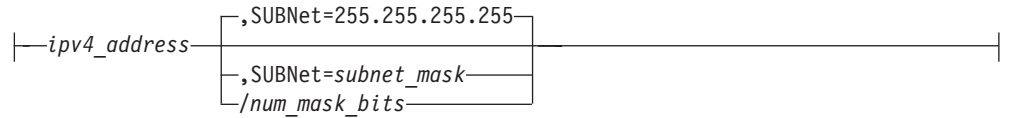
Trace socket data (transforms) into and out of the physical file structure (PFS):



TRACE:



IPv4_address:

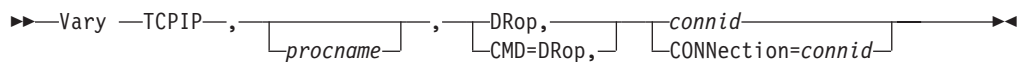


IPv6_address:



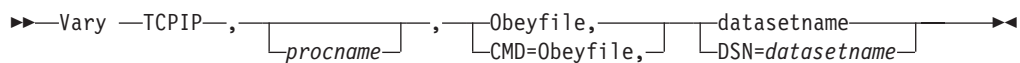
VARY TCPIP DROP

Drop a connection:



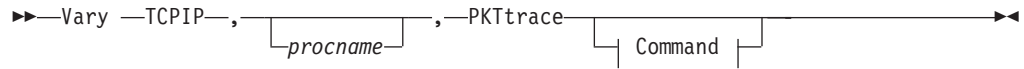
VARY TCPIP OBEYFILE

Change the TCP/IP configuration:

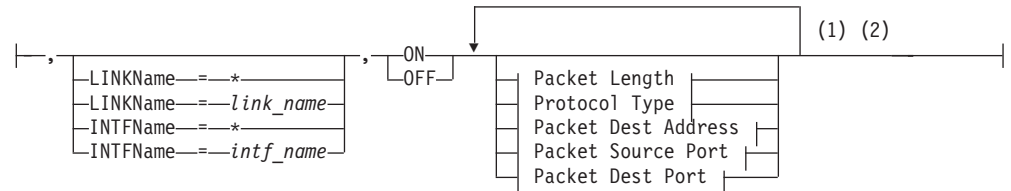


VARY TCPIP PKTTRACE

Set up packet tracing:



Command:



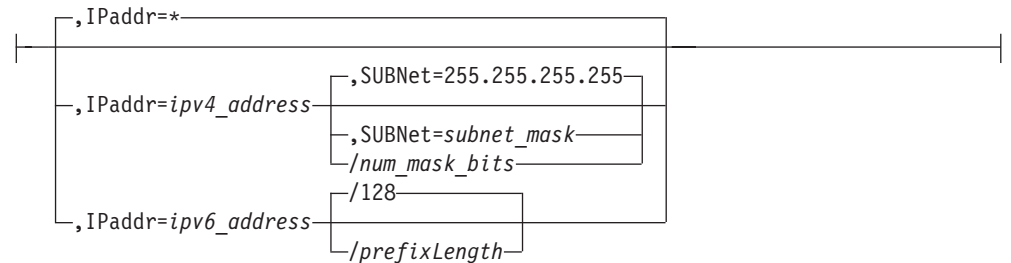
Packet Length:



Protocol Type:



Packet Dest Address:



Packet Source Port:



IP MVS operator commands

Packet Dest Port:

```
| [ ,DESTport=* ] |-----|  
| [ ,DESTport=destination_port ] |-----|
```

Notes:

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

VARY TCPIP PURGECACHE

Delete the ARP cache entries for a link or neighbor cache entries for an interface:

```
▶▶ Vary TCPIP, [ procname ], PURGECache, name ▶▶
```

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 SYSPLEX

Change the TCP/IP stack's sysplex configuration:

```
▶▶ Vary TCPIP, [ procname ] ▶▶
```

```
▶ SYSPlex, [ LEAVEgroup | JOINgroup | DEACTivate, DVIPA=dvipa | REACTivate, DVIPA=dvipa | QUIEsce, POrt=portnum | QUIEsce, TARGET | RESUME, POrt=portnum | RESUME, TARGET ] [ ,JOBNAME=jobname | ,ASID=asid ] ▶▶
```

VARY TCPIP TELNET

Control TELNET:

▶▶ VARY TCPIP, *procname*, TeInet, DEBug, OFF

ACT VARY command:

▶▶ VARY TCPIP, *procname*, TeInet, ACT, *luname*

INACT VARY command:

▶▶ VARY TCPIP, *procname*, TeInet, INACT, *luname*

QUIESCE VARY command:

▶▶ VARY TCPIP, *procname*, TeInet, QUIEsce

,Port=ALL
,Port= <i>num</i>
,Port= <i>num1</i> .. <i>num2</i>
,Port=Basic
,Port=Secure

RESUME VARY command:

▶▶ VARY TCPIP, *procname*, TeInet, RESUME

,Port=ALL
,Port= <i>num</i>
,Port= <i>num1</i> .. <i>num2</i>
,Port=Secure
,Port=Basic

STOP VARY command:

▶▶ VARY TCPIP, *procname*, TeInet, STOp

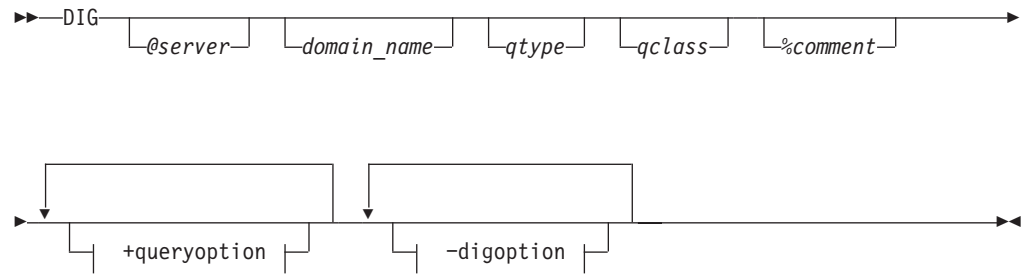
,Port=ALL
,Port= <i>num</i>
,Port= <i>num1</i> .. <i>num2</i>
,Port=Secure
,Port=Basic

IP MVS operator commands

Chapter 2. TSO Commands

DIG Command

Query Name Servers

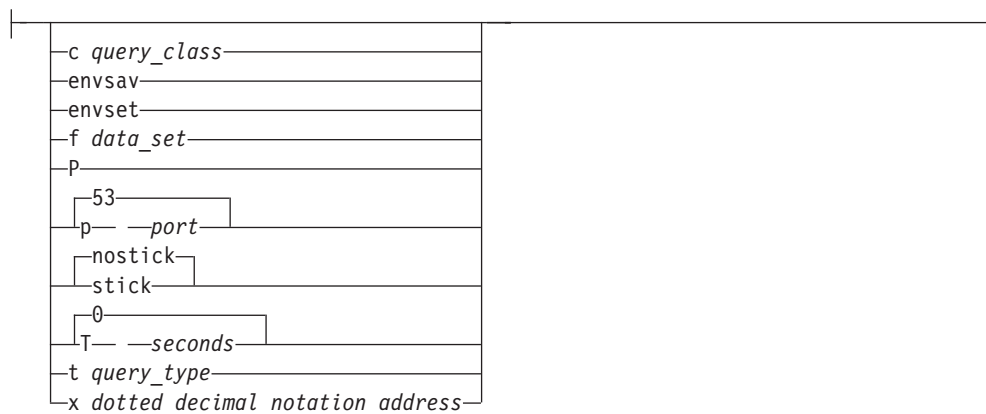


+queryoption:

TSO commands

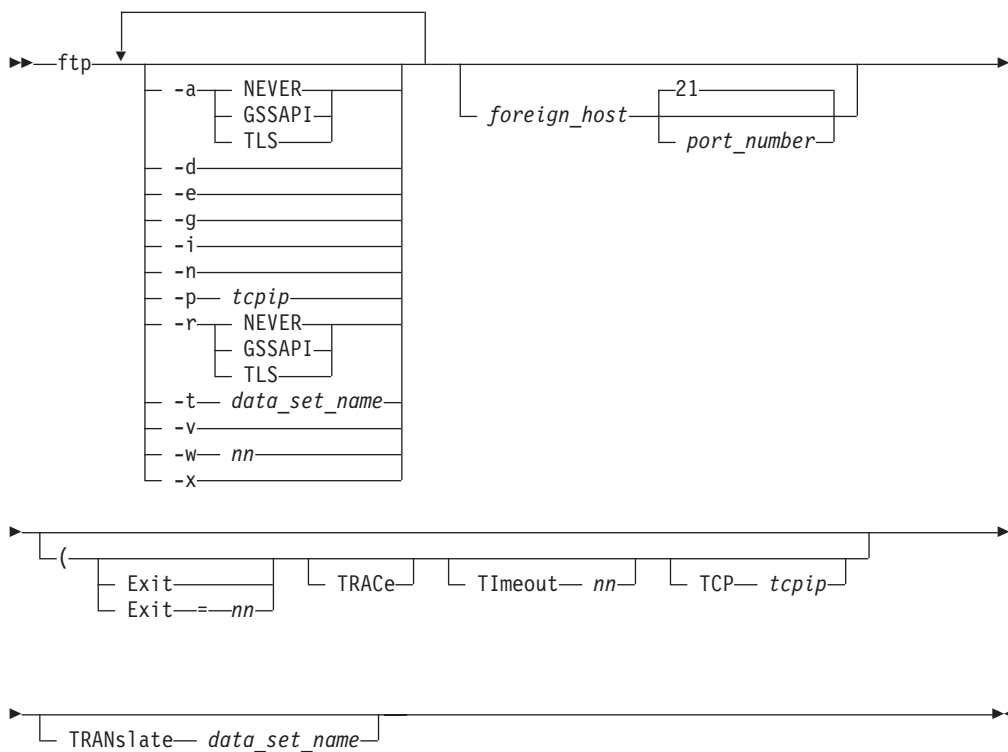
<input type="checkbox"/> noaaonly
<input type="checkbox"/> aaonly
<input type="checkbox"/> addit
<input type="checkbox"/> noaddit
<input type="checkbox"/> answer
<input type="checkbox"/> noanswer
<input type="checkbox"/> author
<input type="checkbox"/> noauthor
<input type="checkbox"/> nocl
<input type="checkbox"/> cl
<input type="checkbox"/> cmd
<input type="checkbox"/> nocmd
<input type="checkbox"/> nod2
<input type="checkbox"/> d2
<input type="checkbox"/> debug
<input type="checkbox"/> nodebug
<input type="checkbox"/> defname
<input type="checkbox"/> nodefname
<input type="checkbox"/> domain= <i>name</i>
<input type="checkbox"/> Header
<input type="checkbox"/> noHeader
<input type="checkbox"/> header
<input type="checkbox"/> noheader
<input type="checkbox"/> noignore
<input type="checkbox"/> ignore
<input type="checkbox"/> noko
<input type="checkbox"/> ko
<input type="checkbox"/> pfand= <i>number</i>
<input type="checkbox"/> pfdef
<input type="checkbox"/> pfmin
<input type="checkbox"/> pfor= <i>number</i>
<input type="checkbox"/> pfset= <i>number</i>
<input type="checkbox"/> nopprimary
<input type="checkbox"/> primary
<input type="checkbox"/> noqr
<input type="checkbox"/> qr
<input type="checkbox"/> ques
<input type="checkbox"/> noques
<input type="checkbox"/> recurse
<input type="checkbox"/> norecurse
<input type="checkbox"/> reply
<input type="checkbox"/> noreply
<input type="checkbox"/> retry= <i>limit</i>
<input type="checkbox"/> nosort
<input type="checkbox"/> sort
<input type="checkbox"/> stats
<input type="checkbox"/> nostats
<input type="checkbox"/> timeout= <i>time_out_value</i>
<input type="checkbox"/> ttlid
<input type="checkbox"/> nottlid
<input type="checkbox"/> novc
<input type="checkbox"/> vc

-digoption:



FTP Command

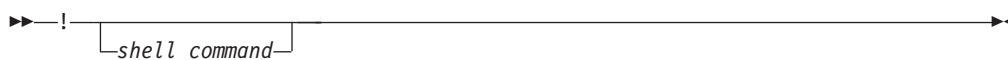
Enter the FTP Environment



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

! Subcommand

Invoke a z/OS UNIX System Services Function



TSO commands

ACCOUNT Subcommand

Supply Account Information

▶▶—ACct—*account_information*—▶▶

APPEND Subcommand

Append a Local Data Set

▶▶—APpend—*local_data_set*—*destination_file*—▶▶

ASCII Subcommand

Change the Data Transfer Type to ASCII

▶▶—AScii—▶▶

BIG5 Subcommand

Change the Data Transfer Type to BIG5

▶▶—BIG5—▶▶

```
graph TD
    A[ ] --- B[ ]
    B --- C[ ]
    C --- D[Ascii]
    D --- E[Ebcdic]
    E --- F[Space]
    C --- G[ ]
    G --- H[NOSo]
    H --- I[ ]
    I --- J[NOType]
```

BINARY Subcommand

Change the Data Transfer Type to Image

▶▶—BINary—▶▶

BLOCK Subcommand

Set the Block Data Transfer Mode

▶▶—BLock—▶▶

CD Subcommand

Change the Directory on the Remote Host

▶▶—CD—*directory*—▶▶

CDUP Subcommand

Change to the Parent of the Working Directory

»-CDUp-»

CLOSE Subcommand

Disconnect from a Remote Host

»-Close-»

COMPRESS Subcommand

Set the Compressed Data Transfer Mode

»-COMpress-»

DEBUG Subcommand

Set Internal Debug Options

»-DEBug-

1
2

-»**DELETE Subcommand**

Delete Files

»-DELEte-*foreign_file*-»**DELIMIT Subcommand**

Display the File Name Delimiter

»-DELImit-»

DIR Subcommand

Obtain a List of Directory Entries

»-DIr-

<i>name</i>

 [

(-DISK)

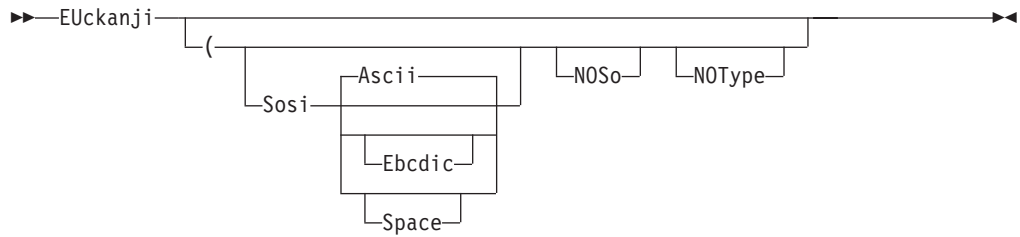
]-»**EBCDIC Subcommand**

Change the Data Transfer Type to EBCDIC

»-EBcdic-»

EUCKANJI Subcommand

Change the Data Transfer Type to EUCKANJI



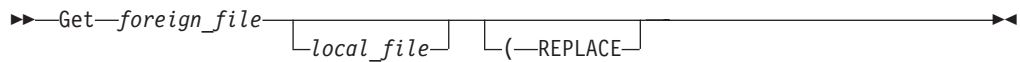
FILE Subcommand

Set the File Structure to File



GET Subcommand

Copy Files



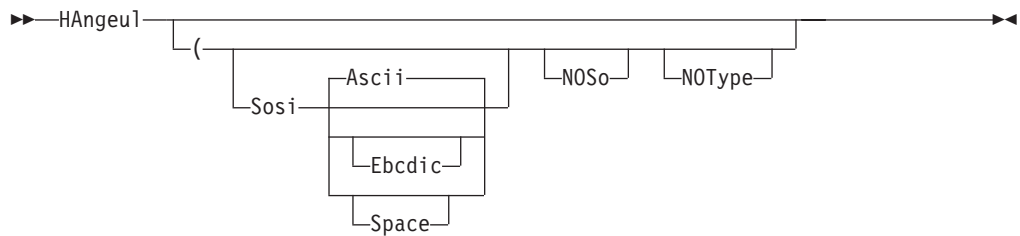
GLOB Subcommand

Toggle Expansion of Metacharacters



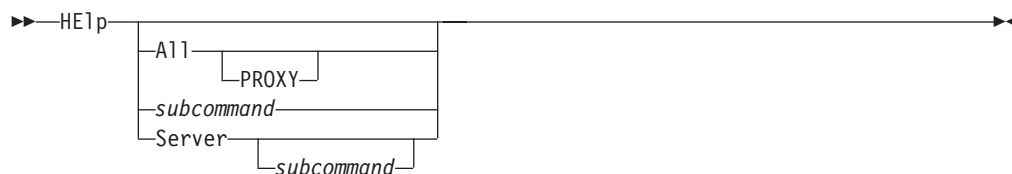
HANGEUL Subcommand

Change the Data Transfer Type to HANGEUL



HELP and ? Subcommands

Display Help Information



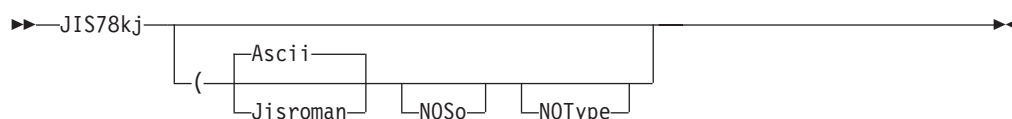
IBMKANJI Subcommand

Change the Data Transfer Type to IBMKANJI



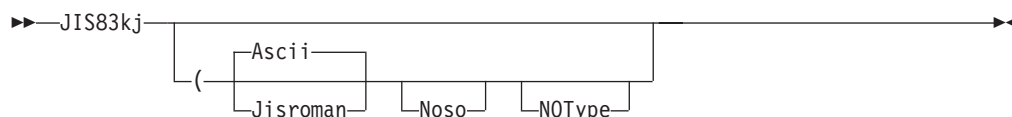
JIS78KJ Subcommand

Change the Data Transfer Type to JIS78KJ



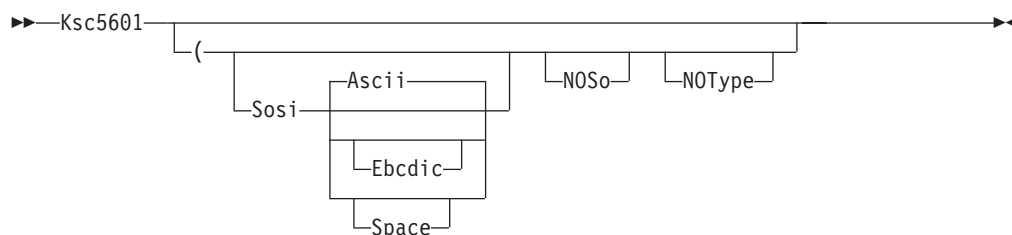
JIS83KJ Subcommand

Change the Data Transfer Type to JIS83KJ



KSC5601 Subcommand

Change the Data Transfer Type to KSC-5601



LCD Subcommand

Change the Local Working Directory



TSO commands

LMKDIR Subcommand

Create a Directory on the Local Host

►► LMKdir *directory* [(-like *remote_directory*)]

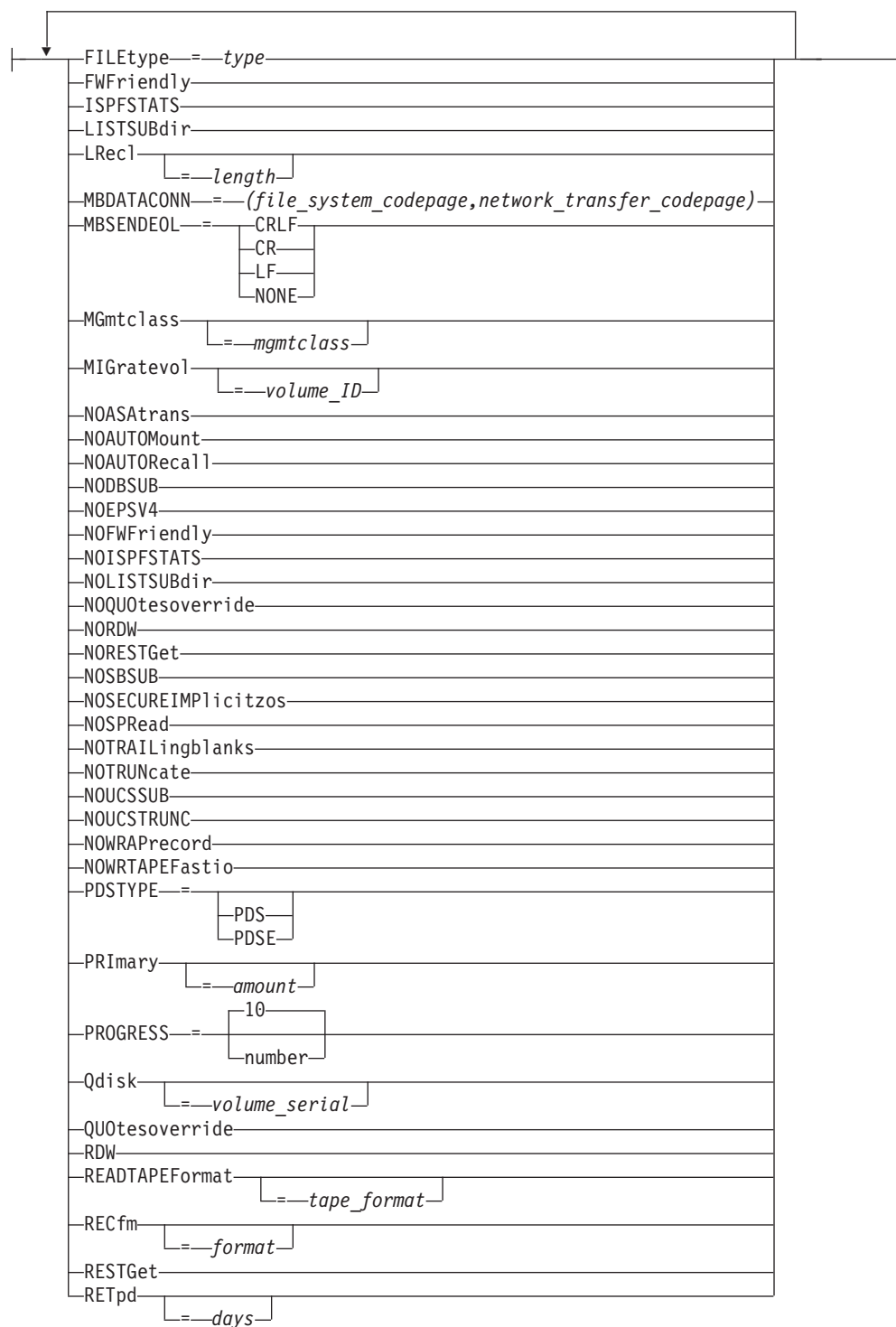
LOCSITE Subcommand

Specify Site Information to the Local Host

►► LOCSite | options |

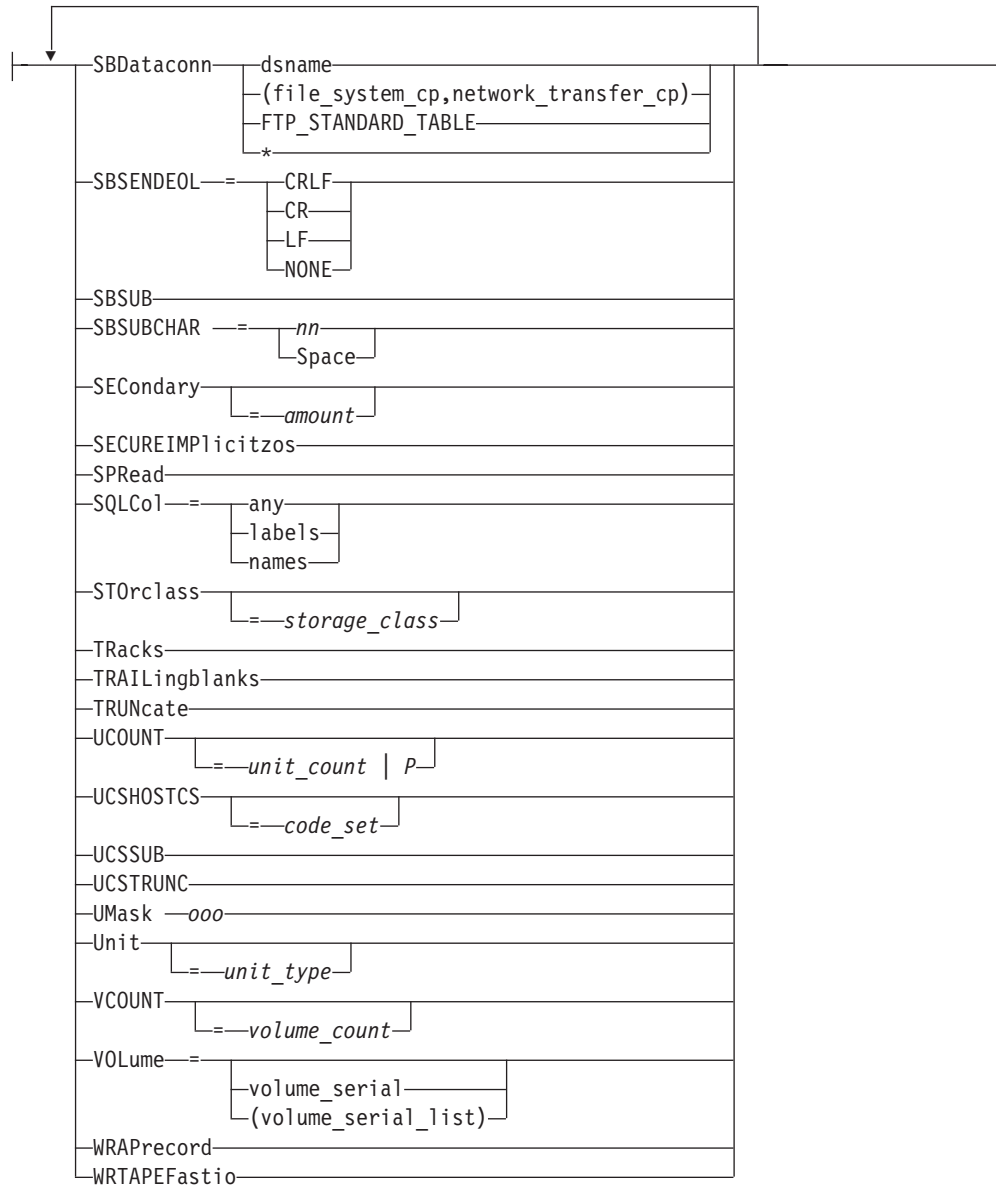
options:

ASATrans	
AUTOMount	
AUTOREcall	
BLKsize	[= <i>size</i>]
BLOCKS	
BLOCKSize	[= <i>size</i>]
BUfno	= [5 number]
CHKptint	= [0 number]
CHKPTrefix	[home userid local]
CHMod	[<i>ooo filename</i> symbolic filename]
CONDdisp	= [Catlg Delete]
CTRLConn	[7BIT iconv_ascii FTP_STANDARD_TABLE *]
CYLinders	
DATAclass	[= <i>data_class</i>]
DATASetmode	
DB2	= [<i>db2_name</i>]
DBSUB	
DCbdsn	[= <i>data_set_name</i>]
Directory	[= <i>size</i>]
DIRECTORYMode	
ENCODING	= [SBCS MBCS]
EPSV4	



TSO commands

I



LOCSTAT Subcommand

Display Local Status Information

▶▶—LOCStat—▶▶

LPWD Subcommand

Display the Current Working-Level Qualifier

▶▶—LPwd—▶▶

TSO commands

OPEN Subcommand

Connect to the FTP Server

▶▶—Open—*host_name*—

21
<i>port_number</i>

—▶▶

PASS Subcommand

Supply a Password

▶▶—PAss—*password*—

<i>/newpass/newpass</i>
<i>:userdata</i>

—▶▶

▶▶—

<i>account_information</i>

—▶▶

PROMPT Subcommand

Toggle Interactive Prompting for M* Commands

▶▶—PRoMpt—▶▶

PROXY Subcommand

Execute FTP Subcommand on Secondary Control Connections

▶▶—PRoXy—*subcommand*—▶▶

PUT Subcommand

Copy Data Sets to the Remote Host

▶▶—PUt—*local_file*—

<i>foreign_file</i>

—▶▶

PWD Subcommand

Display the Current Working Directory

▶▶—PwD—▶▶

QUIT Subcommand

Leave the FTP Environment

▶▶—QUIt—▶▶

SENDSITE Subcommand

Toggle the Sending of Site Information

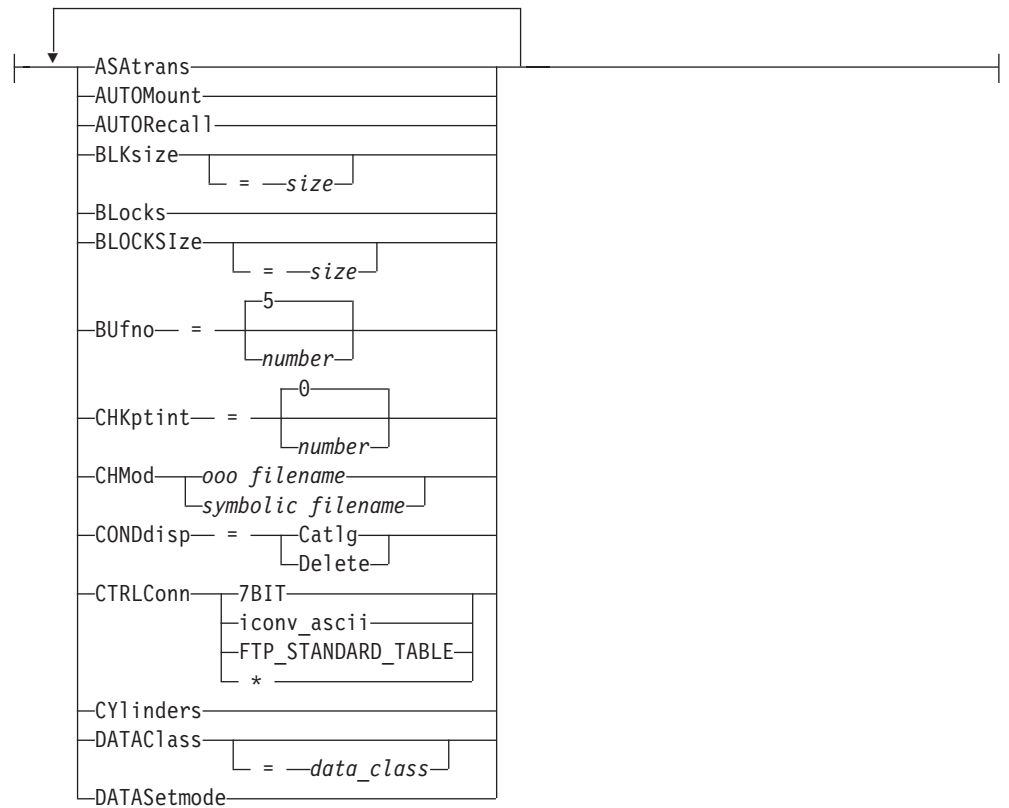
►►SENDSite◄◄

SITE Subcommand

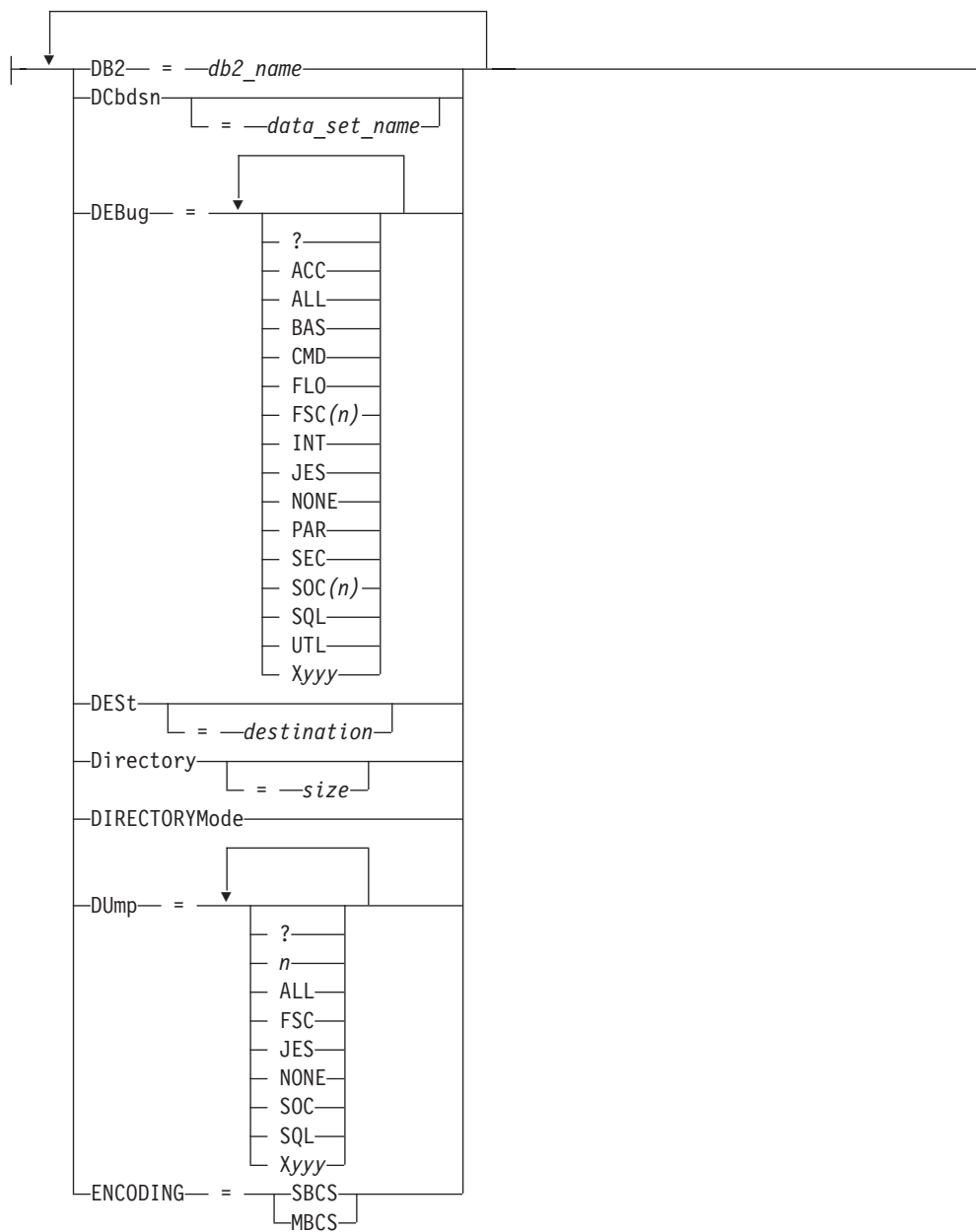
Send Site Specific Information to a Host

►►Site | options ◄◄

options:

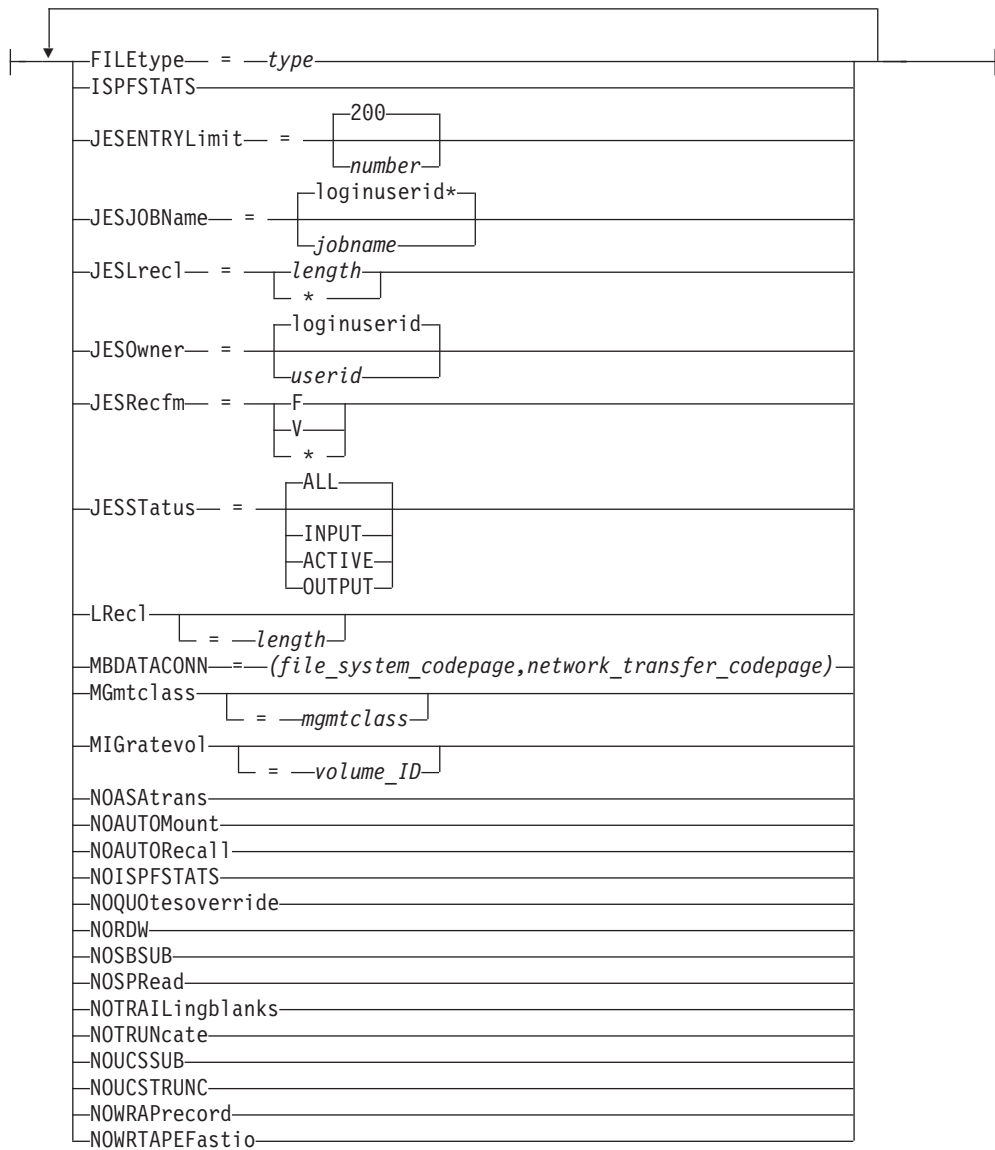


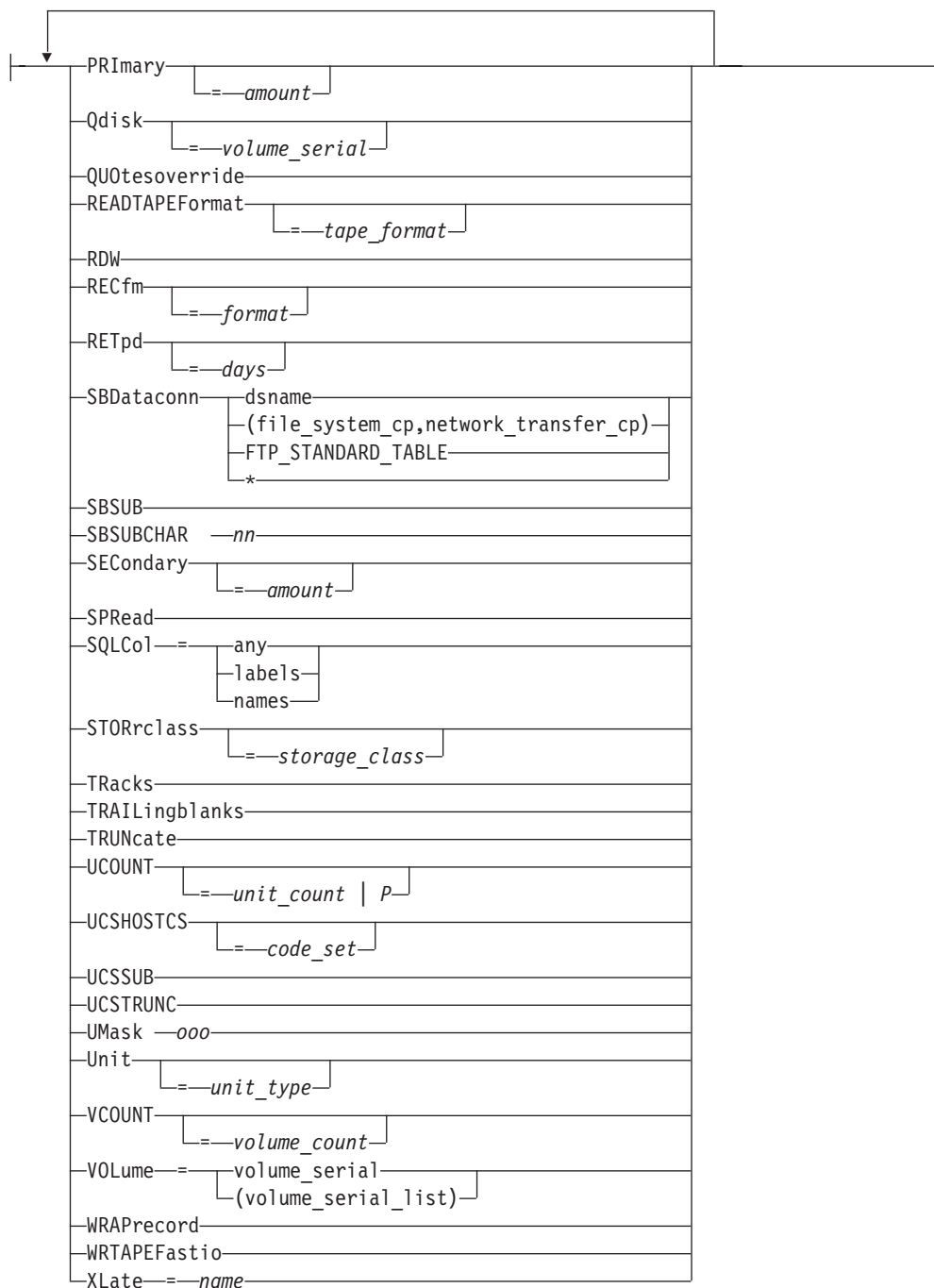
1



TSO commands

1

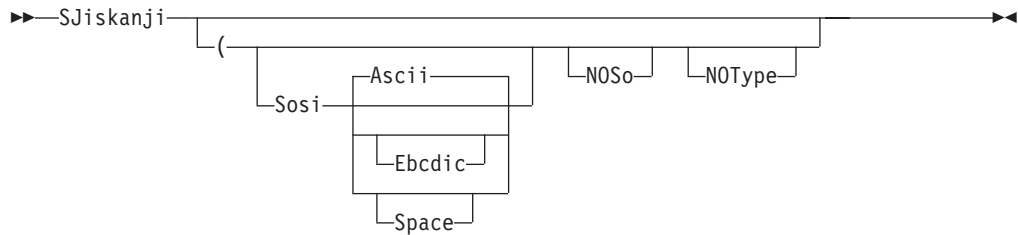




TSO commands

SJISKANJI Subcommand

Change the Data Transfer Type to SJISKANJI



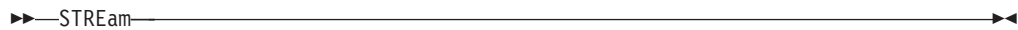
STATUS Subcommand

Retrieve Status Information from a Remote Host



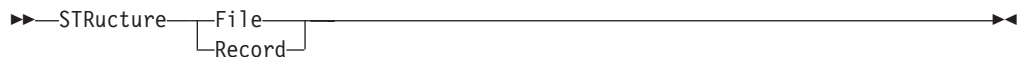
STREAM Subcommand

Set the Stream Data Transfer Mode



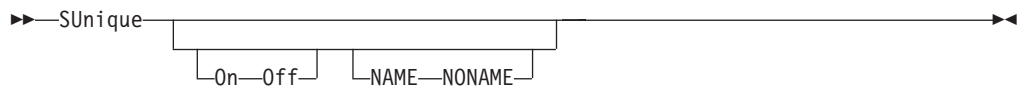
STRUCTURE Subcommand

Set the File Structure



SUNIQUE Subcommand

Toggle the Storage Method



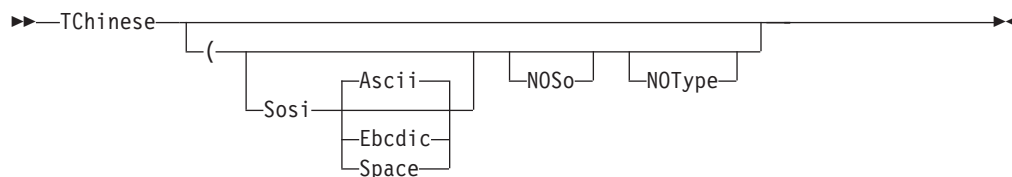
SYSTEM Subcommand

Display the Operating System Name



TCHINESE Subcommand

Change the Data Transfer Type to TCHINESE



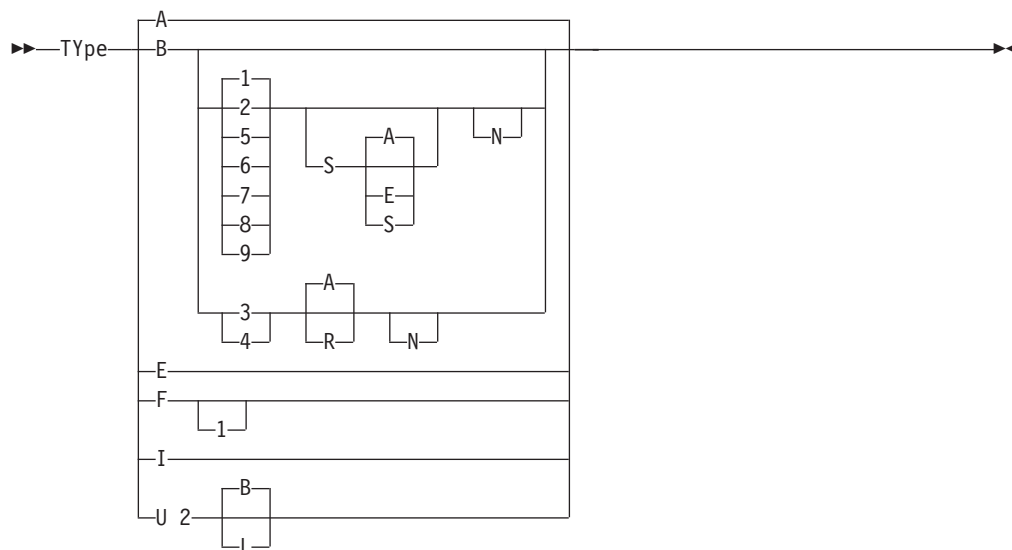
TSO Subcommand

Use TSO Commands



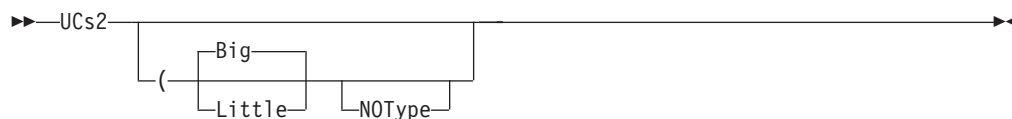
TYPE Subcommand

Set the Data Transfer Type



UCS2 Subcommand

Change Data Transfer Type to Unicode UCS-2



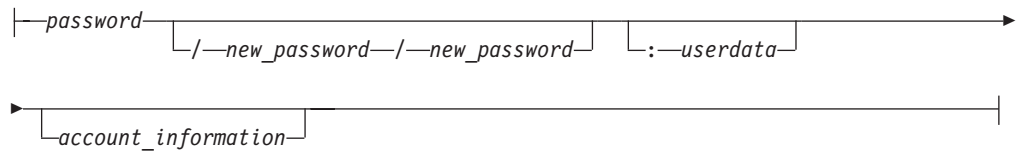
USER Subcommand

Identify Yourself to a Host or Change Your TSO User ID Password



TSO commands

Password:



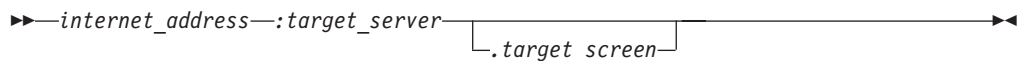
GDDMXD Command

Invoke the GDDMXD CLIST



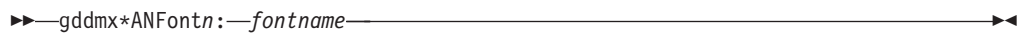
The following sections describe the syntax for GDDMXD command options.

Identifying the Target Display Option



ANFontn Option

Specify the X Window System Font Used for Characters in the Alphanumeric Presentation Space



CMap Option

Specify Whether the Default Color Map is Loaded or Bypassed



Compr Option

Control the Technique Used to Compress Bit-Mapped Data



Enter Option

Override the Default Key Mapping for Enter



GColornn Option

Specify a Color Name

▶▶—gddmx*GColornn:—*c*—————▶▶**Geometry Option**

Specify the Size and Location of the Initial GDDMXD Graphics Presentation Space

▶▶—gddmx*Geometry:—*width x height*— + —*x_offset*— + —*y_offset*—————▶▶**GMCPnn Option**Override GDDM[®] Multicolor Patterns with Workstation Color Names▶▶—gddmx*GMCPnn:—*c*—————▶▶**HostRast Option**

Perform Raster Image Processing at the System/370 Host

▶▶—gddmx*HOSTRAST:—

N
Y
X

—————▶▶**NewLine Option**

Override the Default Key Mapping for NewLine

▶▶—gddmx*NewLine:—*keysym_name*—————▶▶**XSync Option**

Request that the X Window System Process One Request at a Time

▶▶—gddmx*XSync:—

N
Y

—————▶▶**ZWL Option**

Tell GDDMXD/MVS to Draw All Lines Using 0-Width Lines

▶▶—gddmx*ZWL:—

N
Y

—————▶▶

HOMETEST Command

Verify Your Host Name and Address Configuration

▶▶—HOMETEST—▶▶

KDESTROY Command

Delete Kerberos Ticket Data Sets

▶▶—KDESTROY—
┌_f_┐ ┌_q_┐

KINIT Command

Connect to the Kerberos System

▶▶—KINIT—
┌_i_┐ ┌_r_┐ ┌_v_┐ ┌_l_┐
└_irvl┘

KLIST Command

Display Your Current Tickets

▶▶—KLIST—
┌user_id.TMP.TKT0┐
└_file data_set_name┘ ┌_srvtab┐

KPASSWD Command

Change Your Password

▶▶—KPASSWD—
-u user_name ┌_i instance┐

LPQ Command

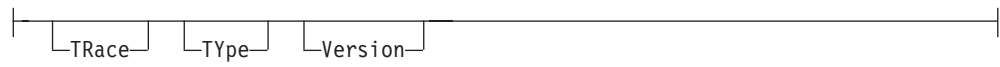
Request a List of the Printer Queue on a Remote Printer

▶▶—LPQ—
┌job_id┐ ┌(┐ Opt Params 1: ┌┐ Opt Params 2: ┌┐

Opt Params 1:

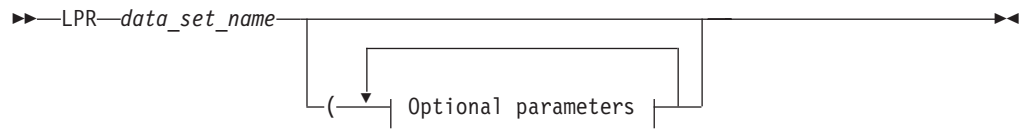
┌┐ ┌ALL┐ ┌Printer —name┐ ┌Host —host┐
└AT —host┘

Opt Params 2:



LPR Command

Print to a Remote Printer

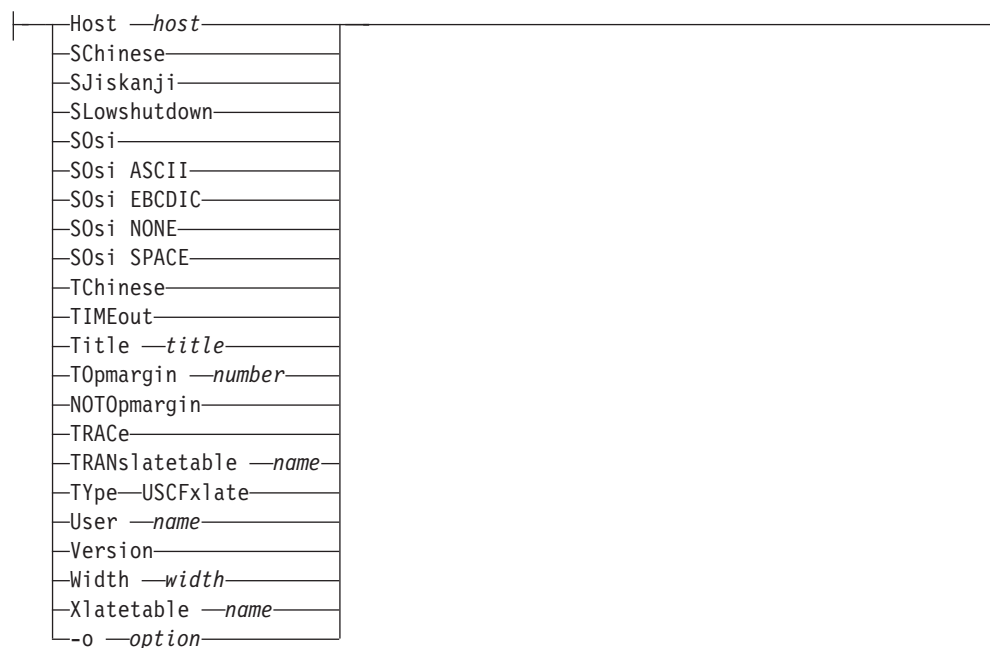


Optional parameters:

TSO commands

AT <i>—host</i>
BIG5
NOBinary
BINary
BUrst
NOBUrst
CC
NOCC
CFfirst
Class <i>—class</i>
1
COpies <i>—copies</i>
EOF1f
NOEOF1f
Euckanji
Filter filter
HAngeul
HEader
NOHeader
IBmkanji
Indent <i>—number</i>
JIS78kj
ASCII
JISROMAN
JIS83kj
ASCII
JISROMAN
JNum <i>—number</i>
Job jobname
Ksc5601
LAandscape
LANDNOcz
LATEconn
LNcz
55
LIInecount <i>—count</i>
NOLIncount
Mail
NAME <i>—name</i>
POstscript
NOPostscript
Printer <i>—name</i>

More optional parameters:

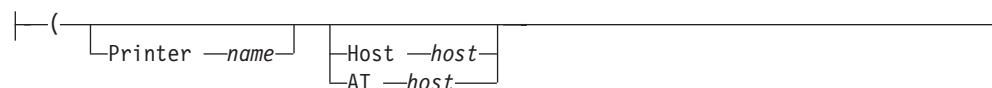


LPRM Command

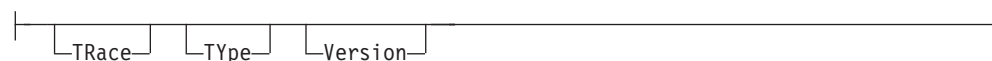
Remove a Job from the Printer Queue on a Remote Host



Opt Parns 1:



Opt Parns 2:



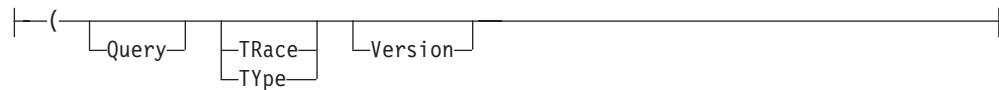
LPRSET Command

Set the Default Printer and Host Name



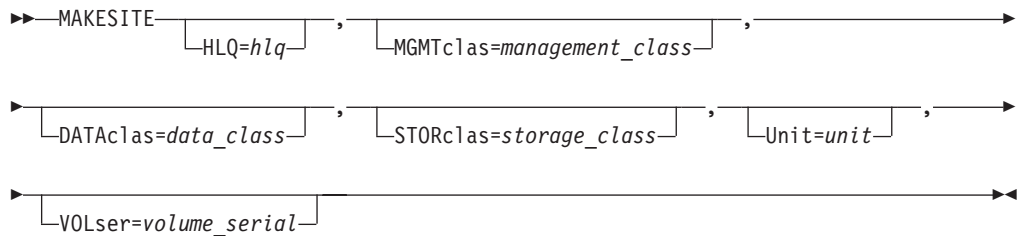
TSO commands

Optional Parameters:



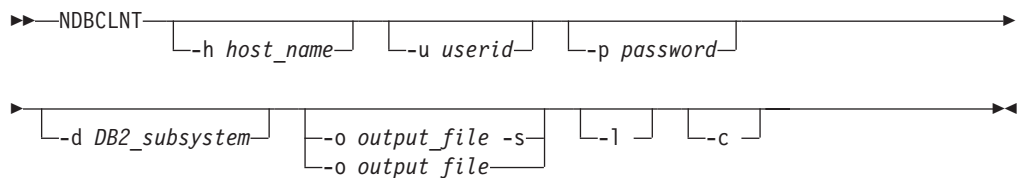
MAKESITE Command

Generate new *hlq*.HOSTS.SITEINFO and *hlq*.HOSTS.ADDRINFO Data Sets



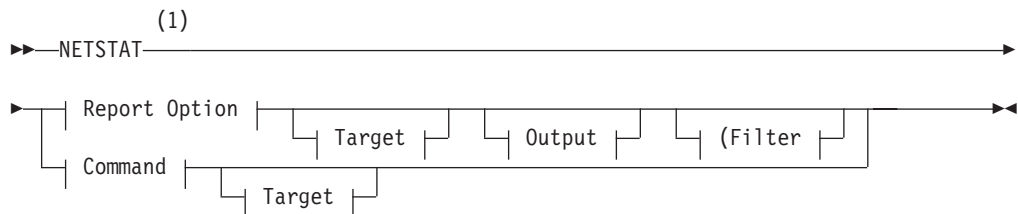
NDBCLNT Command

Issue SQL Statements to a DB2[®] Subsystem

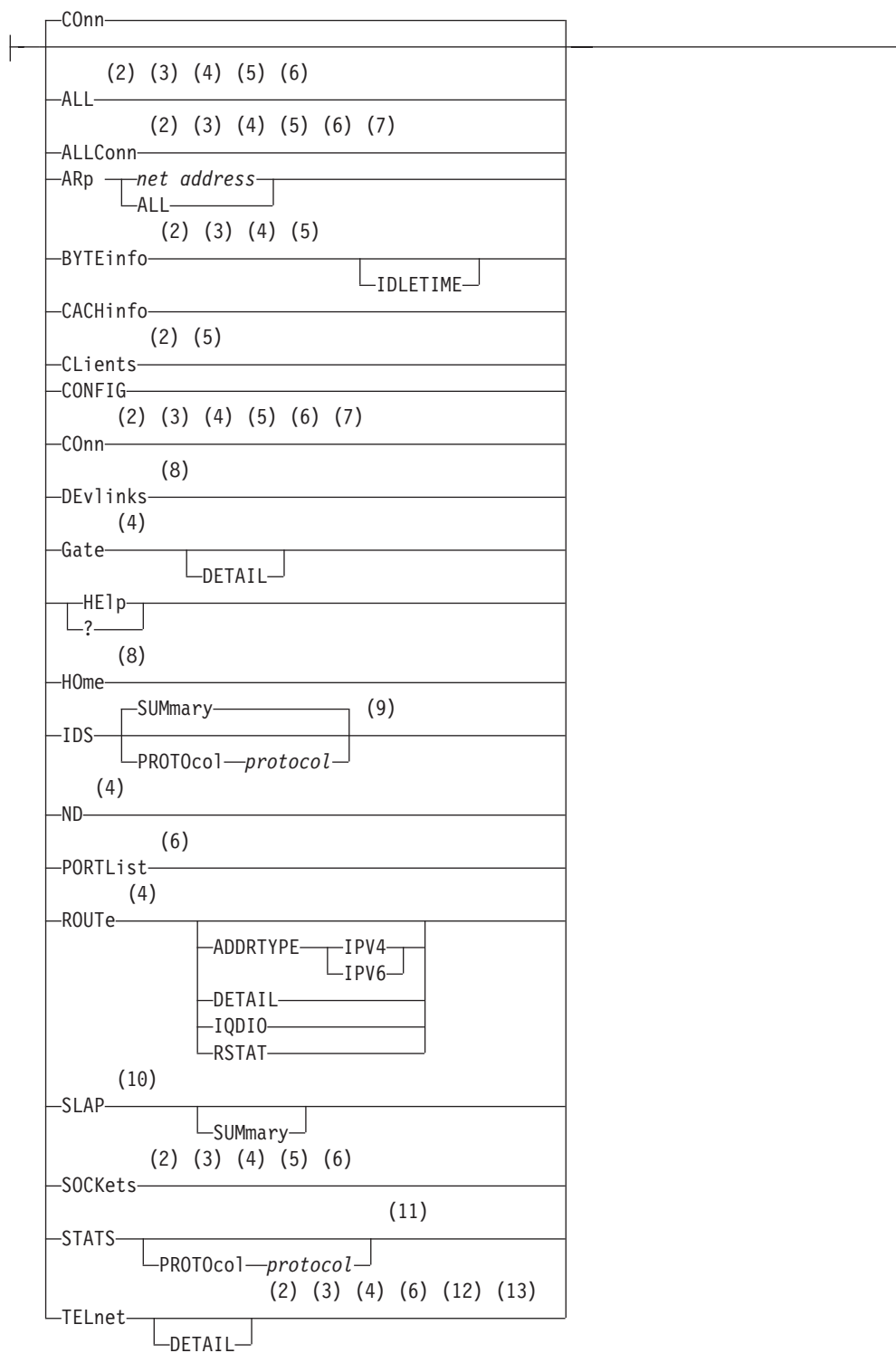


NETSTAT Command

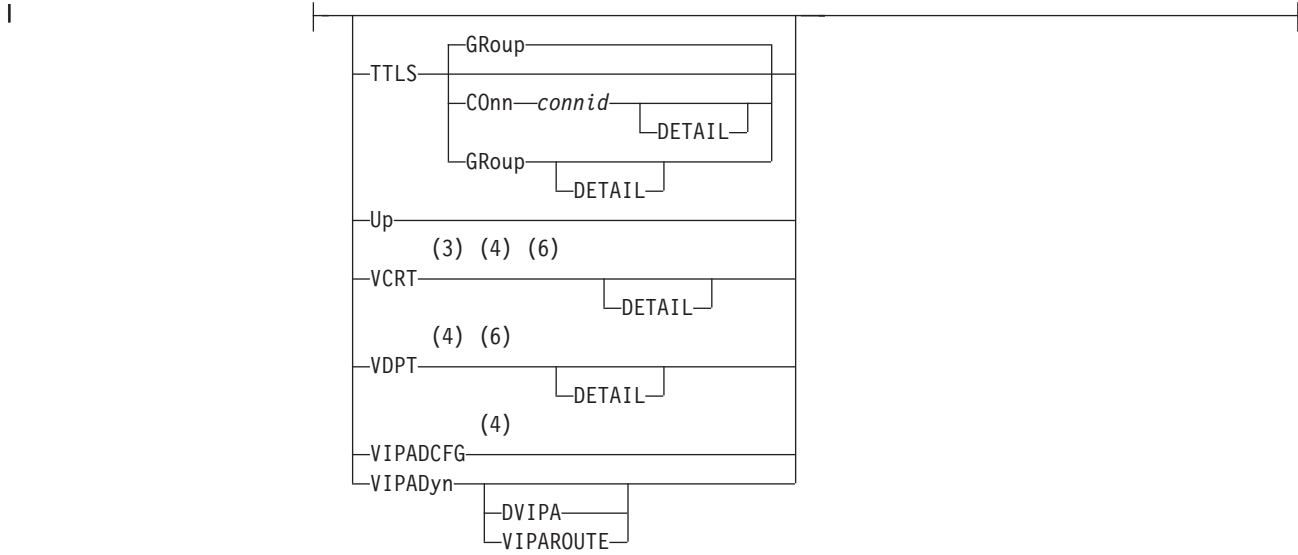
Use the TSO NETSTAT command to display the network configuration and status on a local TCP/IP stack



Report Option:



TSO commands



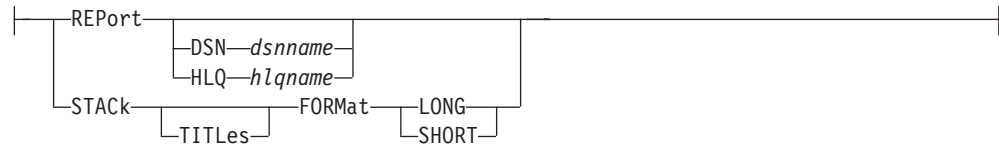
Command:

—DRop —*n*—

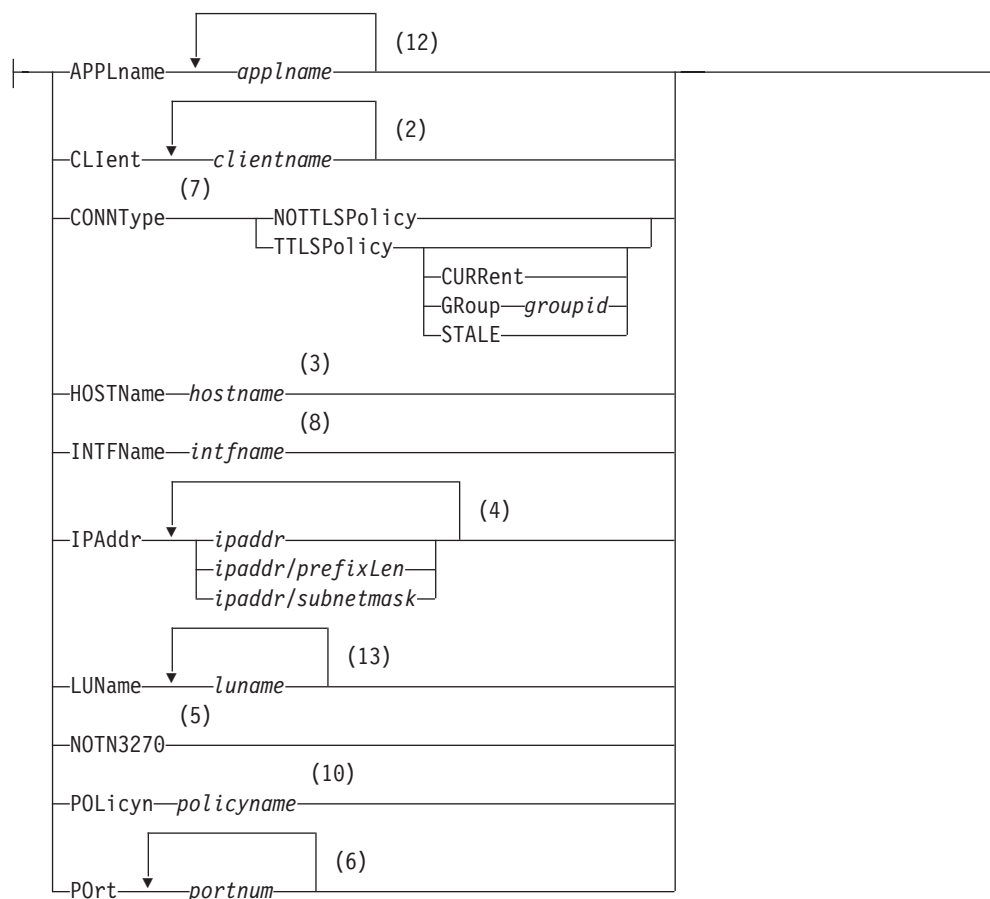
Target:

—TCp *tcpname*—

Output:



Filter:

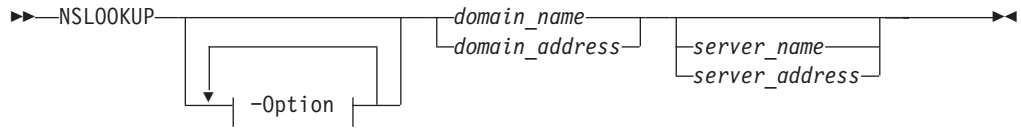


Notes:

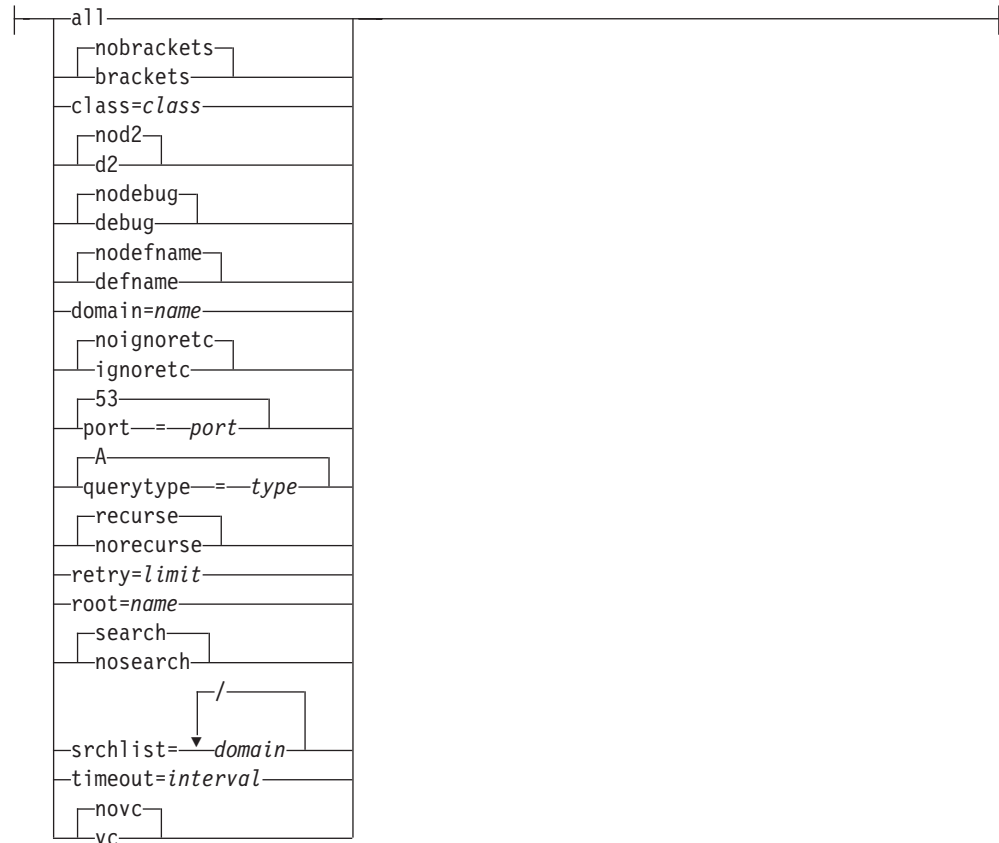
- 1 The minimum abbreviation for each parameter is shown in uppercase letters.
- 2 The CLient filter is valid with ALL, ALLConn, BYTEinfo, CONn, CLients, SOCKets, and TELnet.
- 3 The HOSTName filter is valid only with ALL, ALLConn, BYTEinfo, CONn, SOCKets, TELnet, and VCRT.
- 4 The IPAddr filter is valid only with ALL, ALLConn, BYTEinfo, CONn, Gate, ND, ROUTE, SOCKets, TELnet, VCRT, and VDPT, and VIPADCFG.
- 5 The NOTN3270 filter is valid only with ALL, ALLConn, BYTEinfo, CONn, CLients, and SOCKets.
- 6 The POrt filter is valid only with ALL, ALLConn, CONn, PORTList, SOCKets, TELnet, VCRT, and VDPT.
- 7 The CONNType is valid only with ALLConn and CONn.
- 8 The INTFName filter is valid only with DEvlinks and HOme.
- 9 The valid protocol values are TCP and UDP.
- 10 The POLicyn filter is valid only with SLAP.
- 11 The valid protocol values are IP, ICMP, TCP, and UDP.
- 12 The APPLName filter is valid only with TELnet.
- 13 The LUName filter is valid only with TELnet.

NSLOOKUP Command

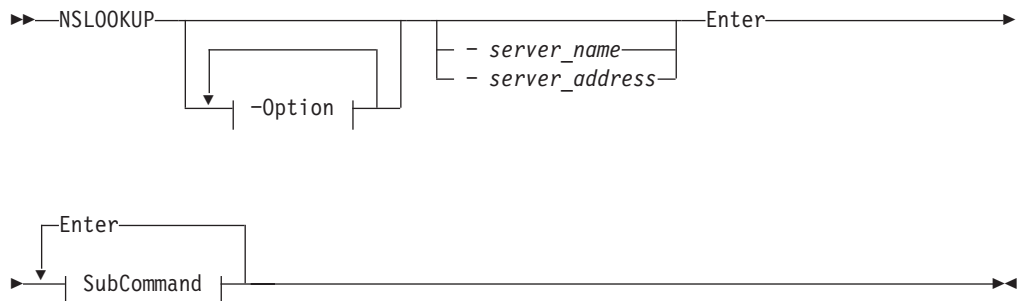
Query a Name Server in Command Mode



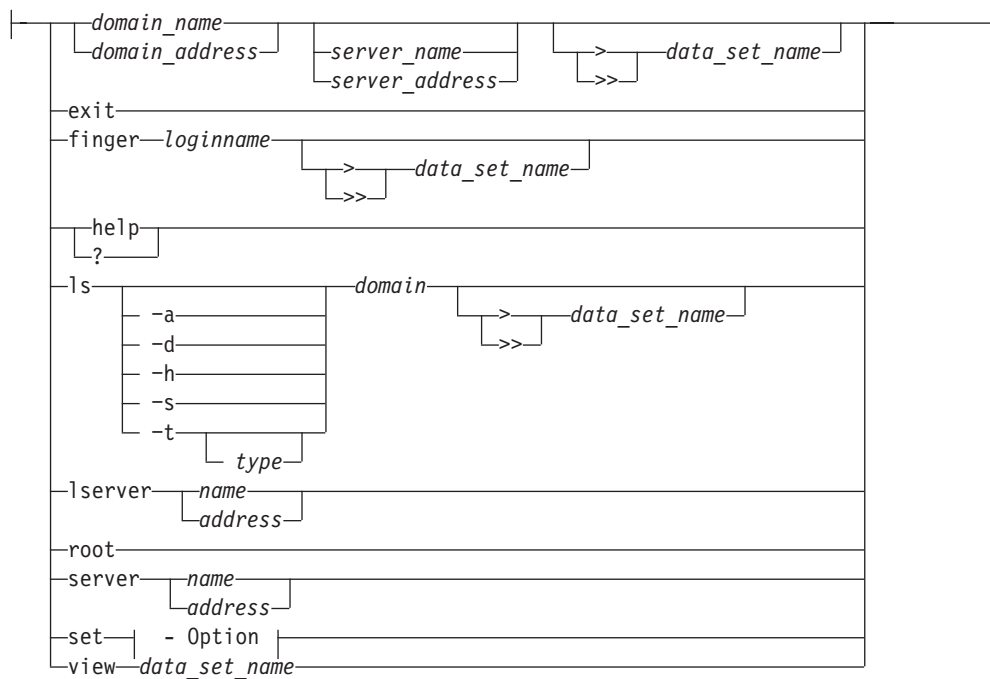
Option:



Issue Queries to Name Servers in Interactive Mode

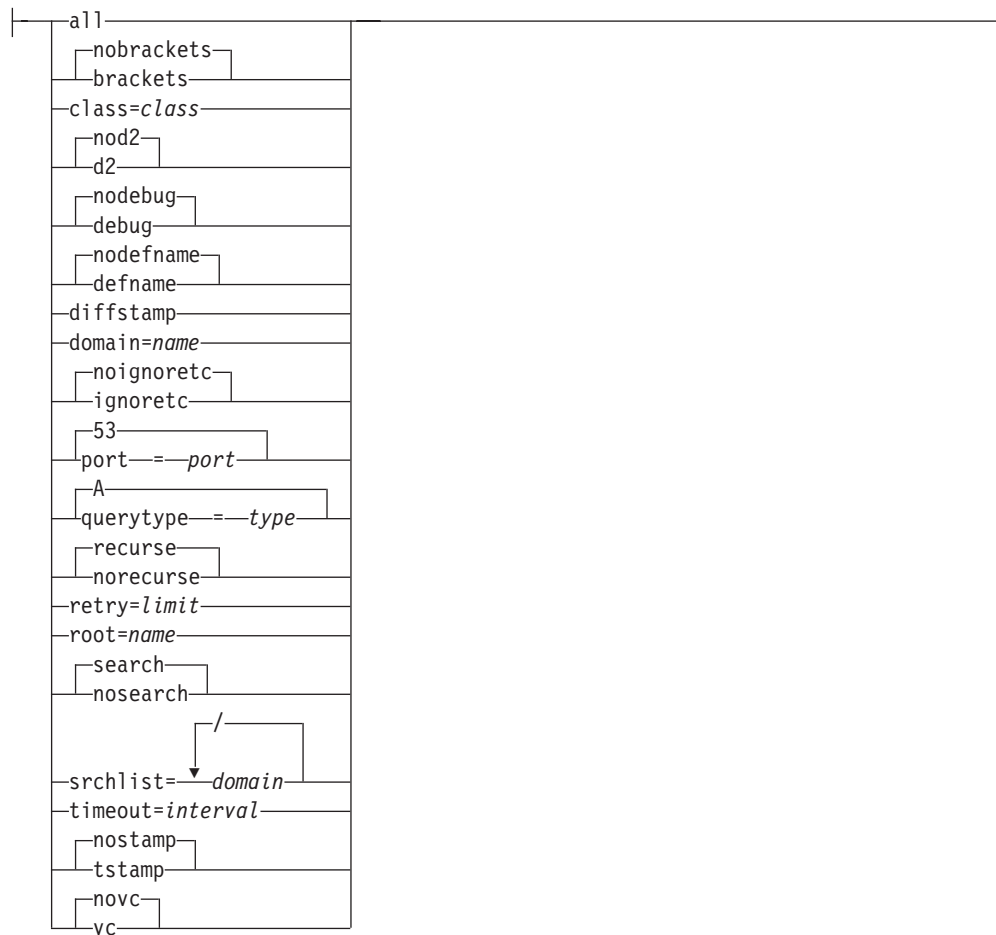


SubCommand:



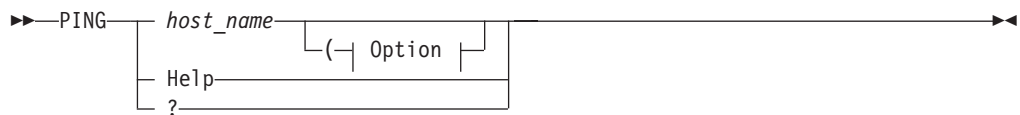
TSO commands

Option:

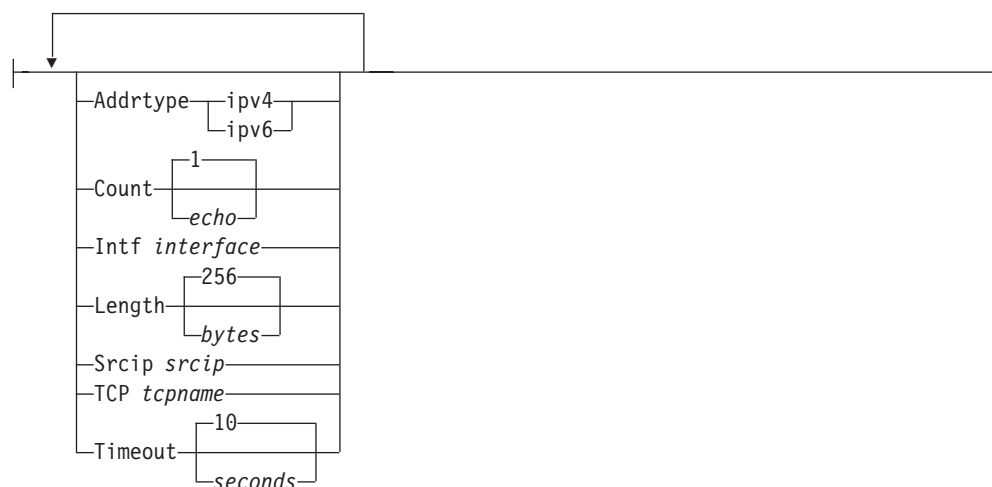


PING Command

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

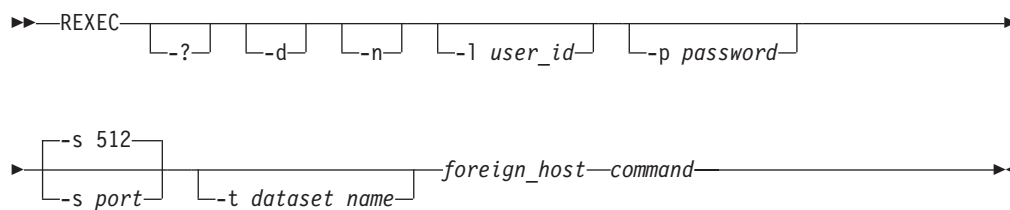


Option:



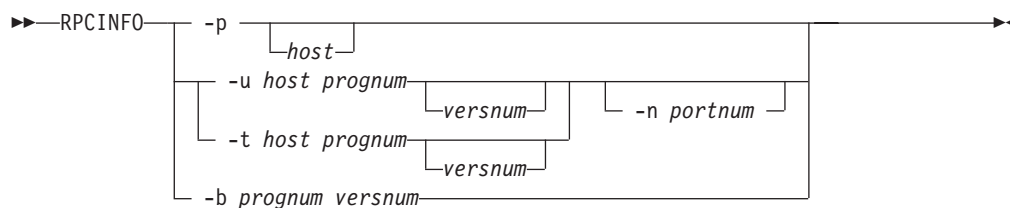
REXEC Command

Execute a Command on the Remote Host and Receive the Results on Your Local Host



RPCINFO Command

Display Server Information



RSH Command

Execute a Command on a Remote Host and Receive the Results on Your Local Host



TSO commands

▶ *foreign_host* *command* ▶▶

SMSG SMTP Command

Command for the general user

▶▶ SMSG SMTP { HELP
 Queues
 Stats } ▶▶

Command for the privileged user

▶▶ SMSG SMTP { DEbug
 EXpire *IP_address*
 NODebug
 NOTrace
 SHUTDOWN
 STOPEXIT
 STARTEXIT
 TRace } ▶▶

SMTPNOTE Command

Send Electronic Mail to One or More Recipients on NJE or TCP Networks

▶▶ SMTPNOTE { To (*recipient*)
 Cc (*recipient*)
 NOcc } ▶▶
▶▶ { Subject (*subject*)
 Dataset (*data_set_name*) { Batch }
 Reuse } ▶▶

TELNET Command

▶▶ TELNET { *foreign_host* { 23
 port_number }
 Help } ▶▶
▶▶ { (*Linemode*) { DEBUG } { TRANslate *data_set_name* } } ▶▶

The following sections describe the syntax for TELNET command options

AO Option

Terminate Output Display

»—AO—«

AYT Option

Query the Connection

»—AYt—«

BRK Option

Send the Break or Attention Keystroke to a Host

»—Brk—«

HELP Option

Display Help Information

»—Help—«
└─?─┘**IP Option**

Interrupt the Process

»—Ip—«

PA1 Option

Send the PA1 Keystroke to a Host

»—Pa1—«

QUIT Option

End the Telnet Session

»—Quit—«

SYNCH Option

Clear the Data Path

»—Synch—«

TSO commands

¢ and ` Option

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

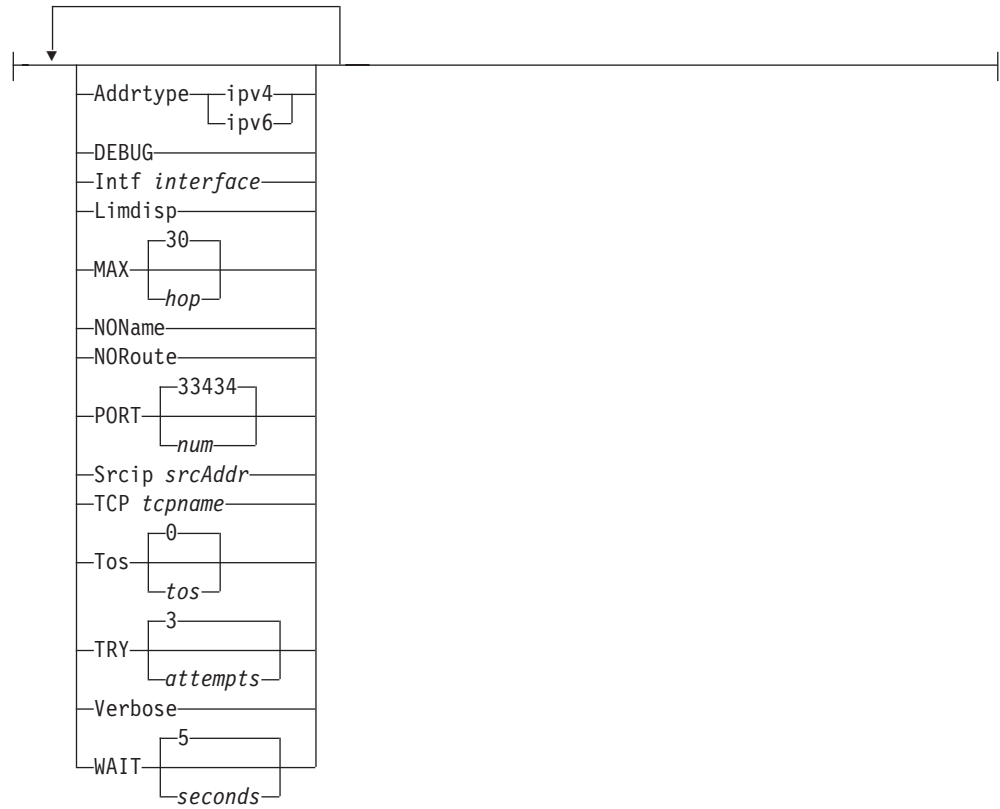
▶▶—`TESTSITE`—▶▶

TRACERTE Command

Debug Network Problems

▶▶—`TRACERTE`—?—`host_name`—`packetSize`—`(- Options`—▶▶

Options:



TSO commands

Chapter 3. z/OS UNIX Commands

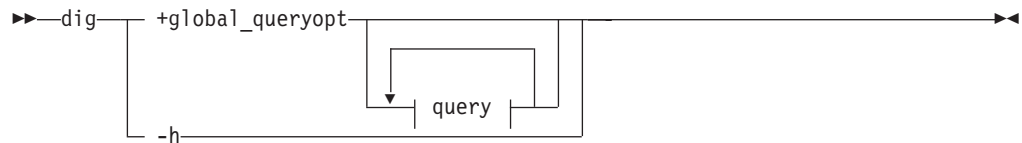
dig Command

Gather information from the Domain Name System servers

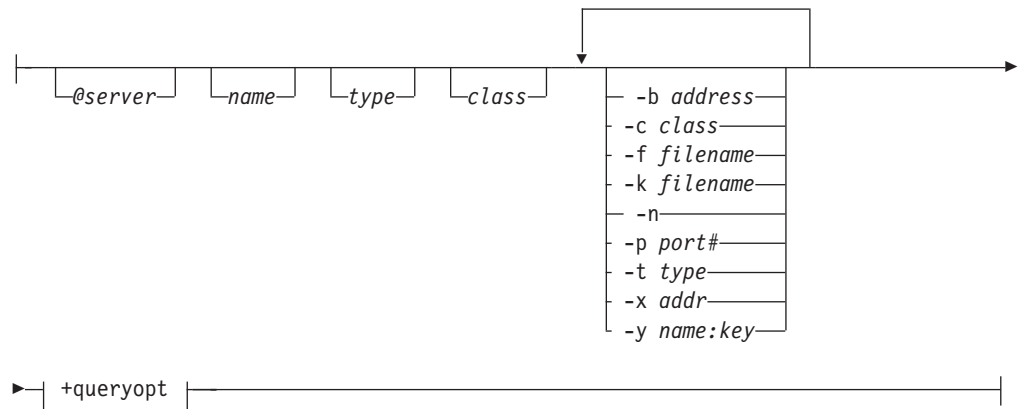
Command Line Mode



Multiple Query Mode



query:



+queryopt or +global_queryopt:

+noaaonly		+aaonly
+noadditional		+additional
+noadflag		+adflag
+noall		+all
+noanswer		+answer
+noauthority		+authority
+nobesteffort		+besteffort
+nocdflag		+cdflag
+nocmd		+cmd
+nocomments		+comments
+nodefname		+defname
+nodnssec		+dnssec
+nofail		+fail
+noidentify		+identify
+noignore		+ignore
+nomultiline		+multiline
+nonssearch		+nssearch
+noqr		+qr
+noquestion		+question
+norecursive		+recursive
+nosearch		+search
+noshort		+short
+nosta		+sta
+notcp		+tcp
+notrace		+trace
+novc		+vc
+bufsize= <i>B</i>		
+domain= <i>somename</i>		
+ndots= <i>D</i>		
+time= <i>T</i>		
+tries= <i>A</i>		

dnsdomainname Command

Display the DNS Domain Name of the System

dnsdomainname	- c
	(1)
	- c
	(1)
	- g
	(1)
	- r
	- p <i>stackname</i>
	- d
	- h
	- ?

Notes:

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

dnssec-keygen Command

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

►► dnssec-keygen [Parameters]

Parameters:

| -a *algorithm* -e -b *keysize* [-g *generator*] -n *nametype* →

► [-c *class* -p *protocol-value* -r *randomdev* -s *strength-value* -t *type* -v *level*] name

dnssec-makekeyset Command

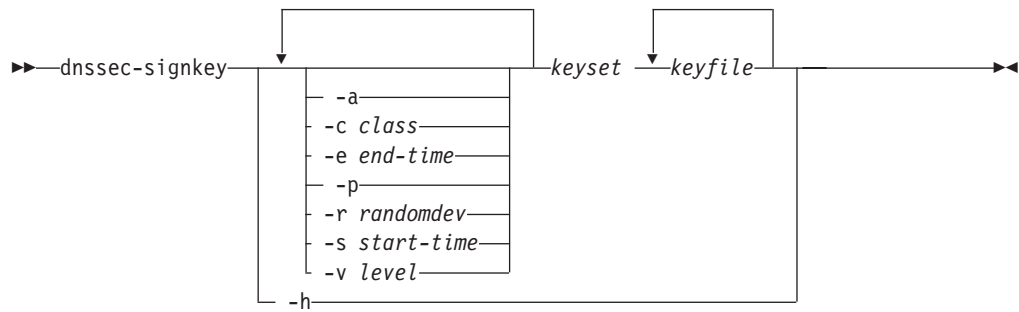
Create a key set file from one or more keys created by the dnssec-keygen command

►► dnssec-makekeyset [-a -s *start-time* -e *end-time* -t *TTL* -r *randomdev* -p -v *level*] *keyfile* [-h]

dnssec-signkey Command

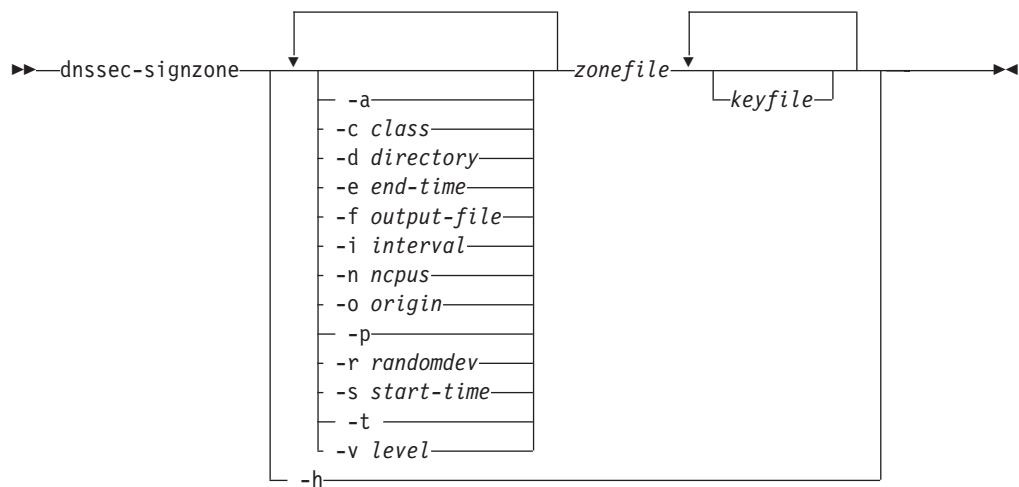
Sign a key set for a child zone

z/OS UNIX Commands



dnssec-signzone Command

Sign a DNS zone with one or more key files

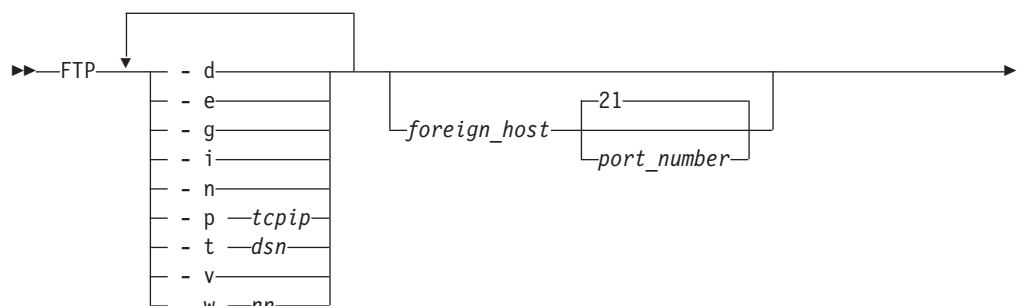


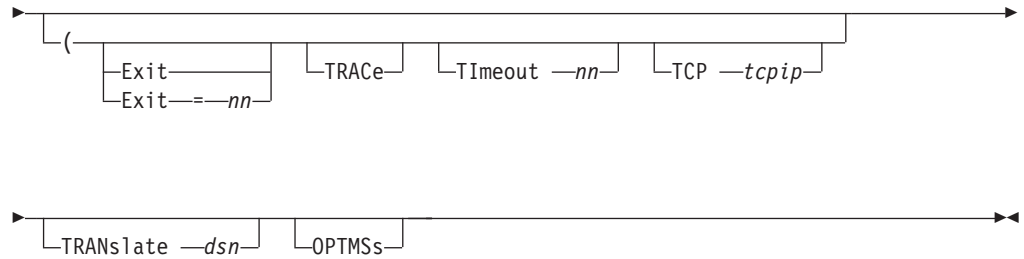
dnsmigrate Command

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



ftp Command





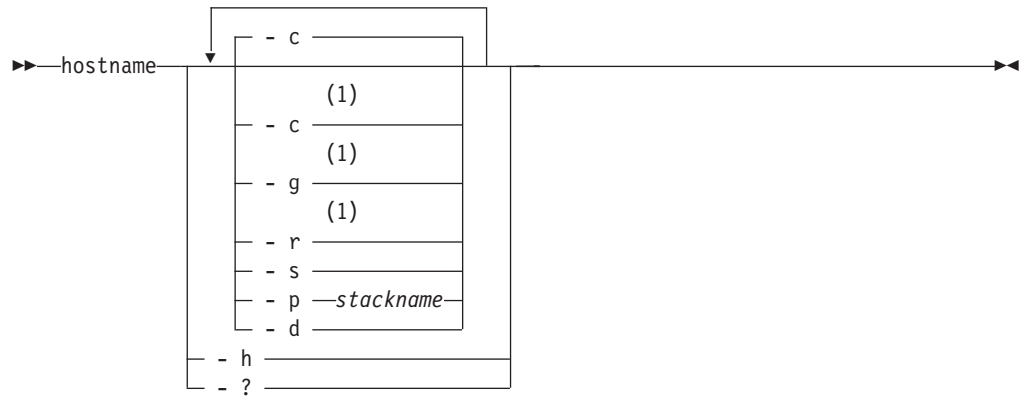
host Command

Identify the IP Addresses Associated with a Specified DNS Hostname or Identify the DNS Hostnames Associated with a Specified IP Address



hostname Command

Display the Fully-Qualified DNS Hostname of the Local System

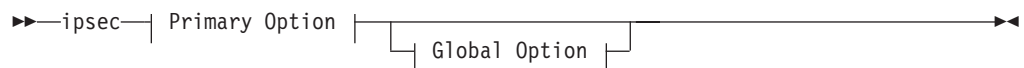


Notes:

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

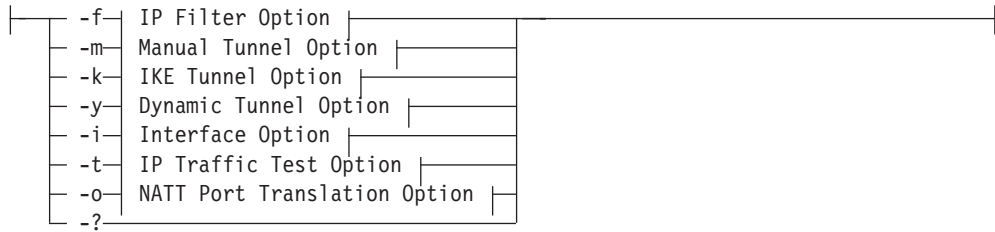
ipsec Command

Display and modify IP security information on the local host

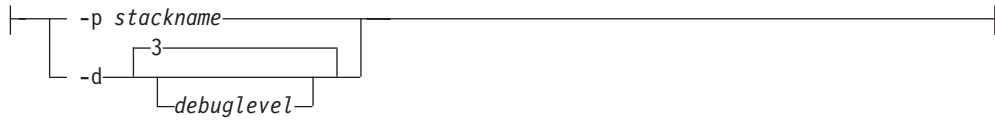


Primary Option:

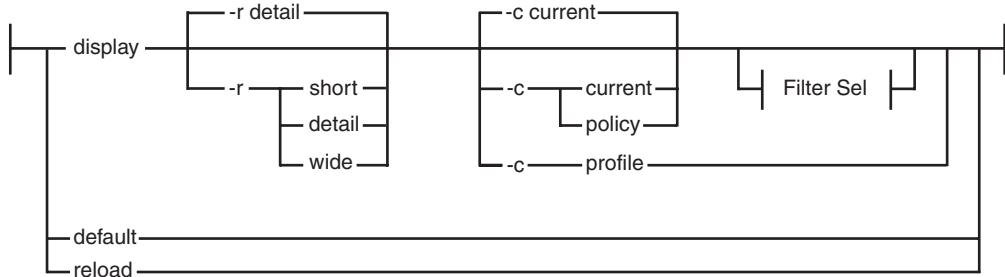
z/OS UNIX Commands



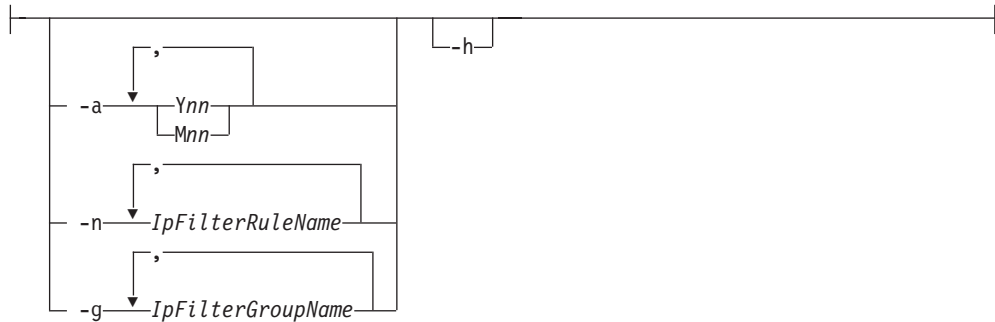
Global Option:



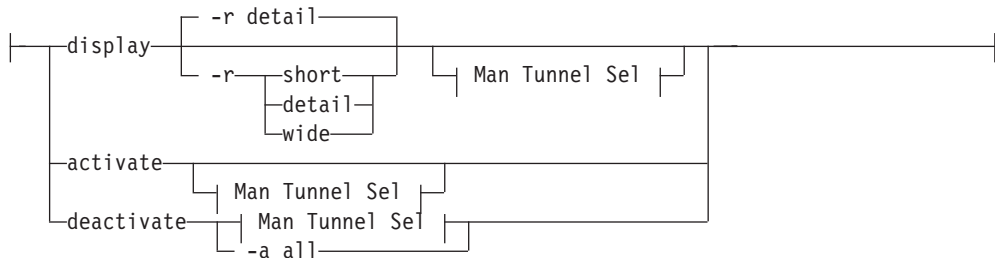
IP Filter Option:



Filter Selection:



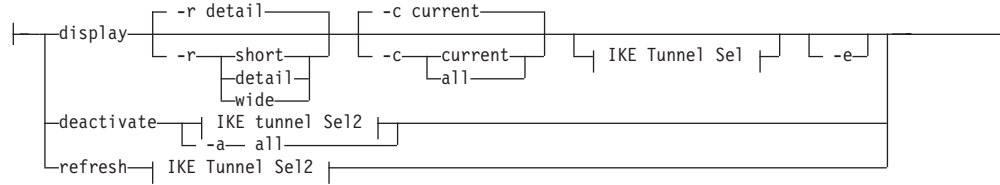
Manual Tunnel Option:



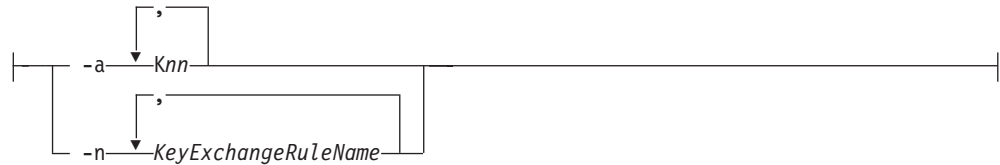
Man Tunnel Selection:



IKE Tunnel Option:



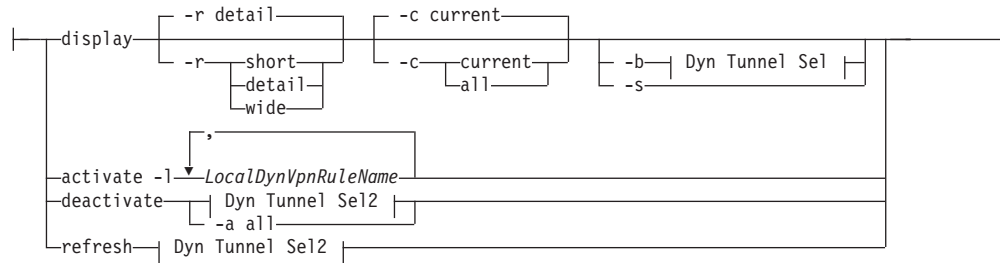
IKE Tunnel Selection:



IKE Tunnel Selection2:

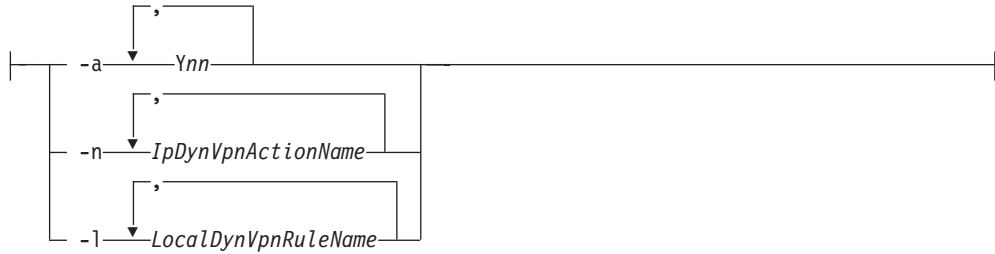


Dynamic Tunnel Option:

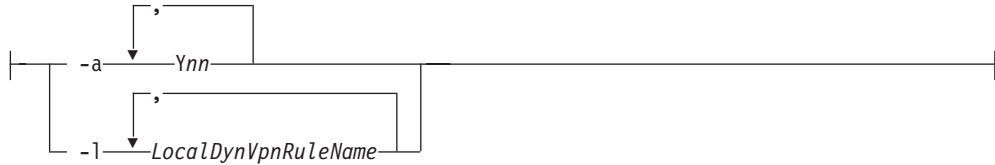


z/OS UNIX Commands

Dyn Tunnel Selection:



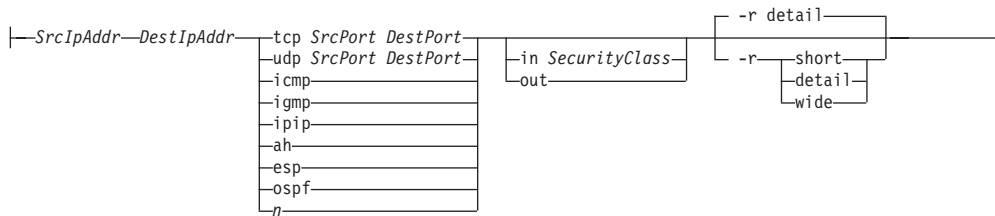
Dyn Tunnel Selection2:



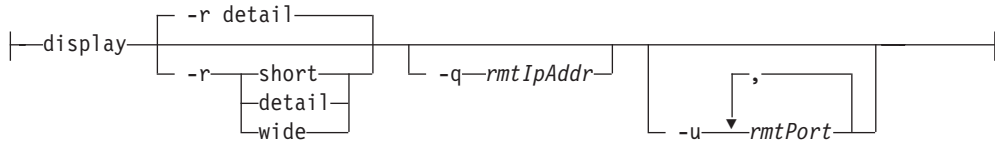
Interface Option:



IP Traffic Test Option:



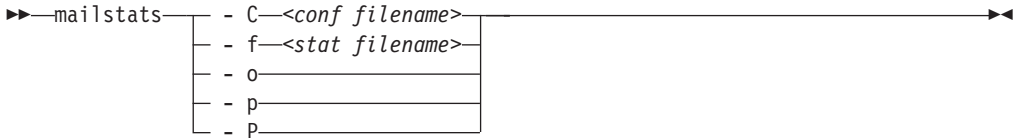
NATT Port Translation Option:



mailstats Command

Printing Statistics

|



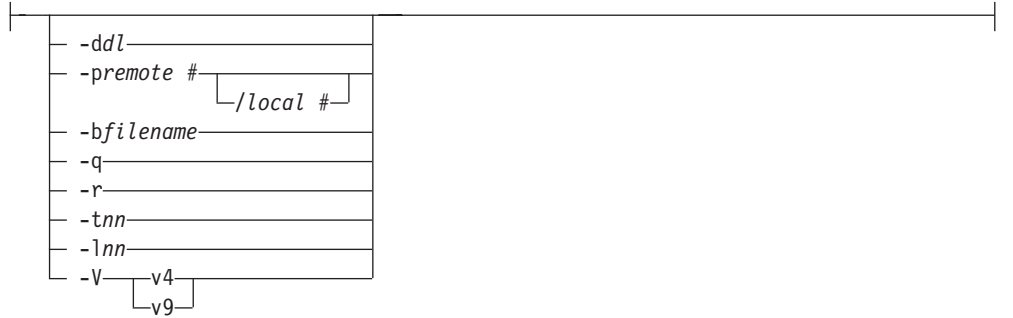
named Command

Start a name server

BIND 4.9.3



Option:



BIND 9



Option:

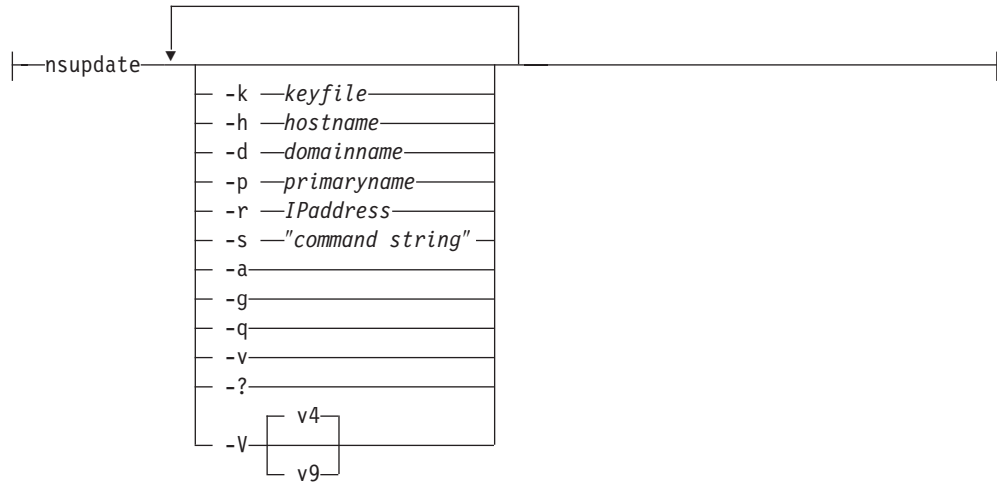


nsupdate Command

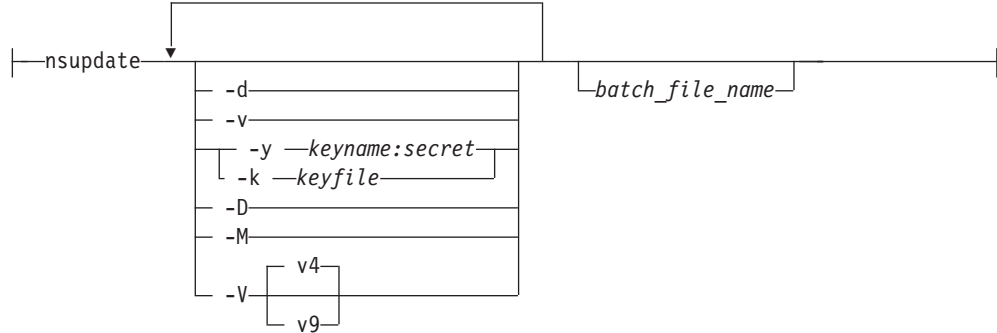
Dynamically update a name server

Command mode

BIND 4.9.3:



BIND 9:



Subcommand mode

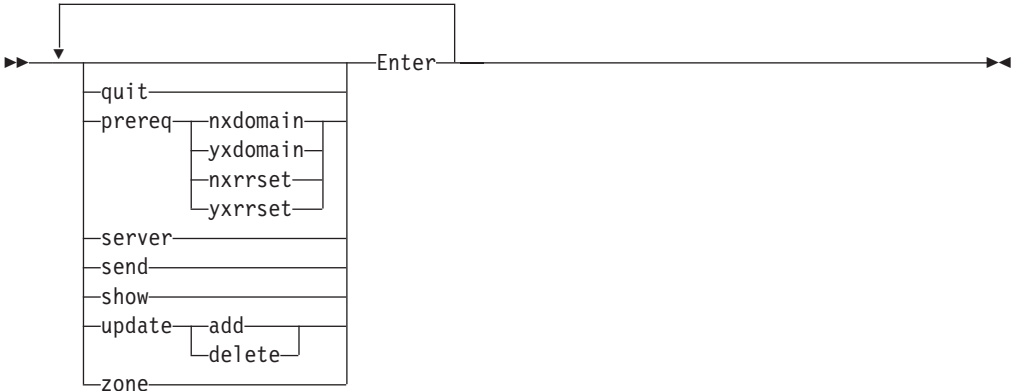
Start nsupdate subcommand mode

▶▶ `nsupdate`—Enter

Subsequent subcommand entry (valid with version 4 of nsupdate)



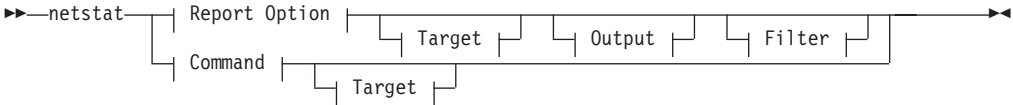
Subsequent subcommand entry (valid with version 9 of nsupdate)



netstat Command

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

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

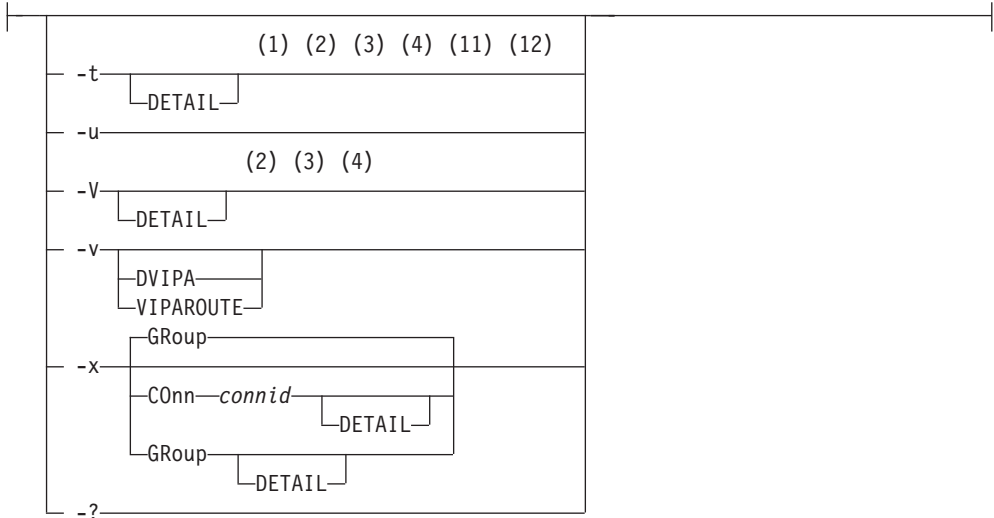


Report Option:

z/OS UNIX Commands

-c	(1) (2) (3) (4) (5)
-A	(1) (2) (3) (4) (5) (6)
-a	(1) (2) (3) (5)
-b	IDLETIME
-C	(1) (2) (3) (4) (5) (6)
-c	(7)
-d	(1) (5)
-e	(3)
-F	
-f	(3)
-g	DETAIL (7)
-h	
-J	(8)
-j	SUMmary
-k	SUMmary (9) PROT0co1— <i>protocol</i>
-n	(3) (4)
-O	DETAIL (4)
-o	
-R	<i>net address</i> ALL (3)
-r	ADDRTYPE—IPV4 IPV6 DETAIL IQDIO RSTAT (10)
-S	PROT0co1— <i>protocol</i> (1) (2) (3) (4) (5)
-s	

I



Command:

-D *n*

Target:

-p *tcpname*

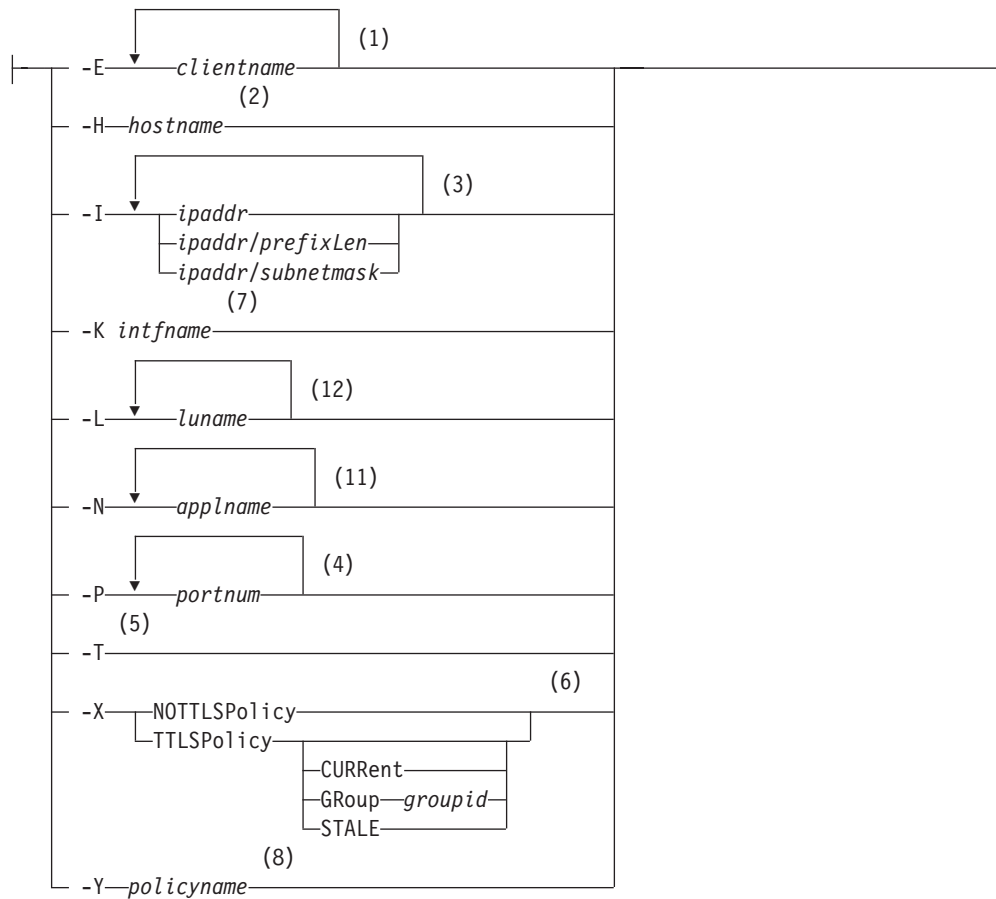
Output:

-M LONG
SHORT

Filter:

z/OS UNIX Commands

I



Notes:

- 1 -E filter is valid only with -A, -a, -b, -c, -e, -s, and -t.
- 2 -H filter is valid only with -A, -a, -b, -c, -s, -t, and -V.
- 3 -I filter is valid only with -A, -a, -b, -c, -F, -g, -n, -O, -r, -s, -t, and -V.
- 4 -P filter is valid only with -A, -a, -c, -O, -o, -s, -t, and -V.
- 5 -T filter is valid only with -A, -a, -b, -c, -e, and -s.
- 6 -X filter is valid only with -a, and -c.
- 7 -K filter is valid only with -d and -h.
- 8 -Y filter is valid only with -j.
- 9 The valid protocol values are TCP, and UDP.
- 10 The valid protocol values are ICMP, IP, TCP, and UDP.
- 11 -N filter is valid only with -t.
- 12 -L filter is valid only with -t.

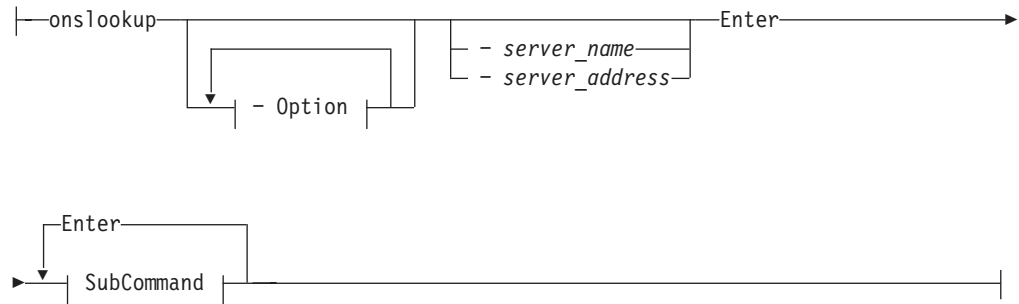
I

onslookup/nslookup Command

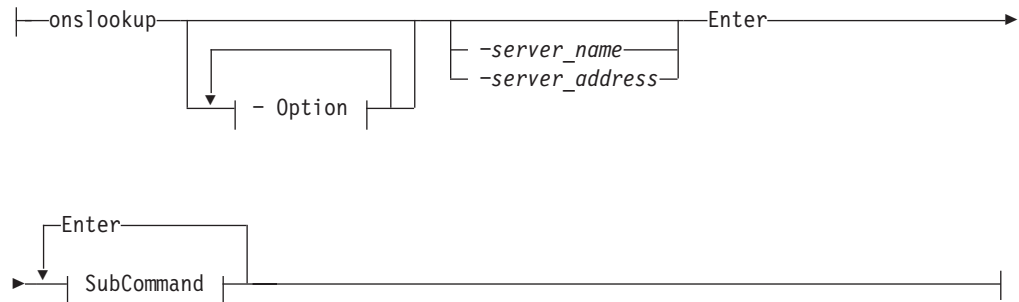
Note: nslookup is a synonym for the onslookup command in the z/OS UNIX shell. nslookup command syntax is the same as that for the onslookup command.

Issuing Multiple Queries to Name Servers in Interactive Mode

BIND 4.9.3:



BIND 9.0:



Options:

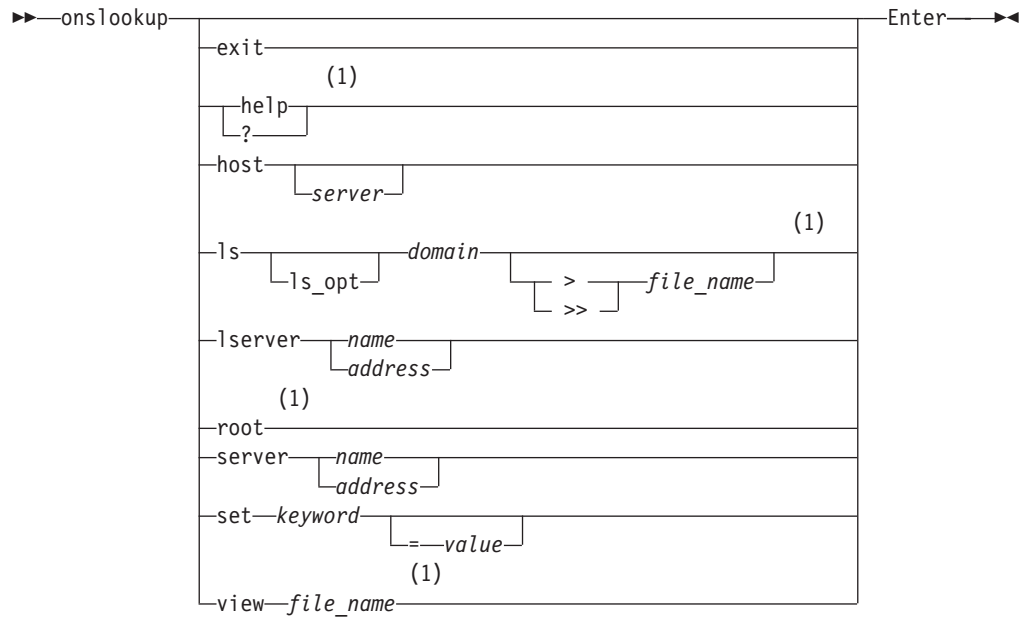
z/OS UNIX Commands

-all	
-class=	<ul style="list-style-type: none"> IN ANY CHAOS HESIOD
-nod2	
-d2	
-nodebug	
-debug	
-defname	
-ndefname	
-domain= <i>name</i>	
	(1)
-help	
	(2)
-h	
-noignoretc	(1)
-ignoretc	
-port	<ul style="list-style-type: none"> 53 =<i>port_number</i>
-querytype	<ul style="list-style-type: none"> A =<i>resource_record_type</i>
-recurse	(1)
-norecurse	
	(1)
-retry= <i>limit</i>	
	(1)
-root= <i>name</i>	
-search	(1)
-nosearch	
	(2)
-sil	
	<ul style="list-style-type: none"> /
-srchlist= <i>domain</i>	(1)
-timeout= <i>interval</i>	
-V=	<ul style="list-style-type: none"> v4 v9
-novc	(1)
-vc	

Notes:

- 1 Valid with version v4 nslookup only.
- 2 Valid with version v9 nslookup only.

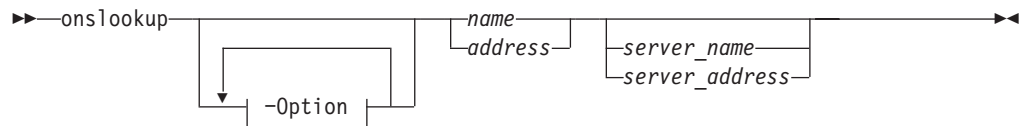
SubCommand:



Notes:

- 1 Valid with BIND 4.9.3 version of nslookup only.

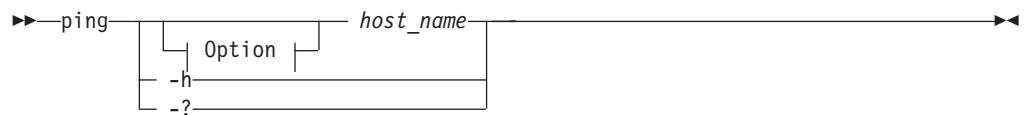
Querying A Name Server in Command Mode



ping Command

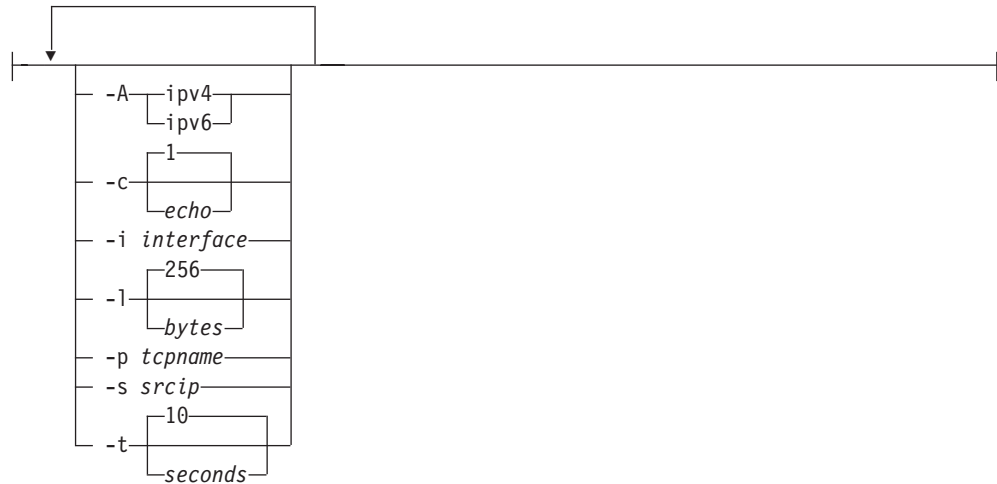
Send an echo request to a foreign node (remote host) to determine whether the node is accessible

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



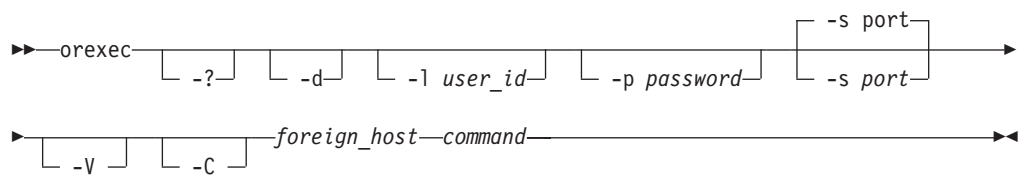
Option:

z/OS UNIX Commands



orexec/rexec Command

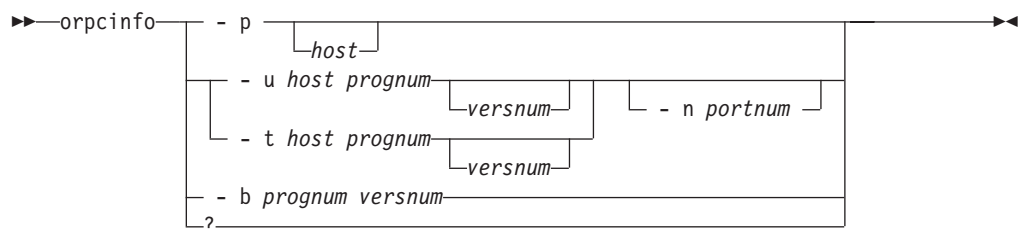
Execute a Command on the Remote Host



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

orpcinfo/rpcinfo Command

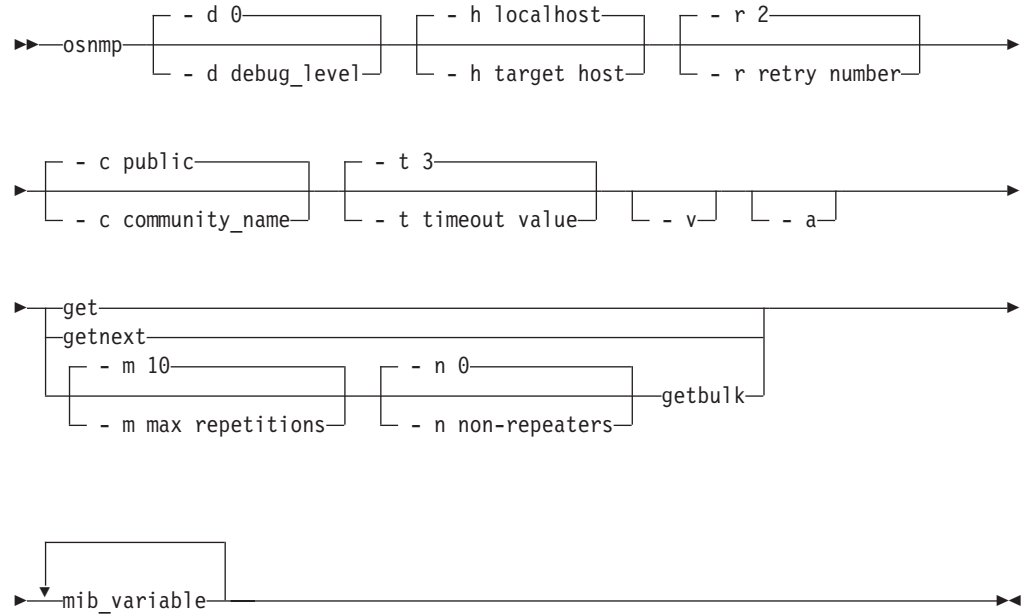
Display Server Information



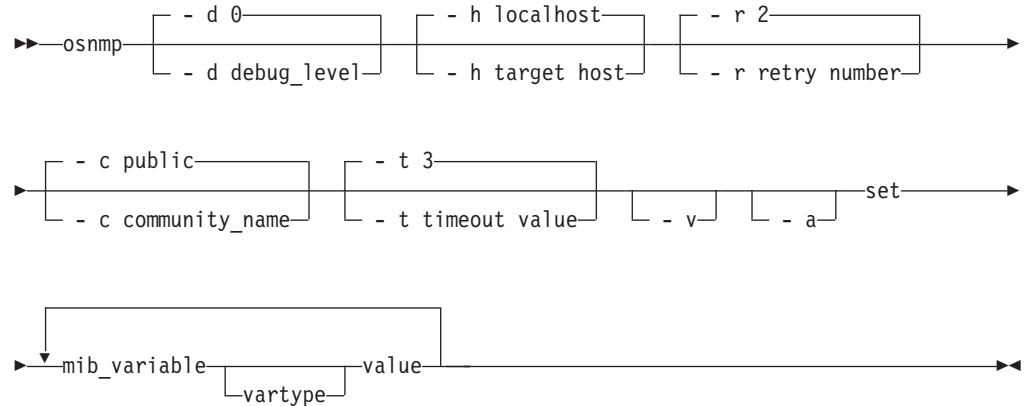
Note: rpcinfo is a synonym for the orpcinfo command in the z/OS UNIX shell. rpcinfo command syntax is the same as that for the orpcinfo command.

osnmp/snmp Command

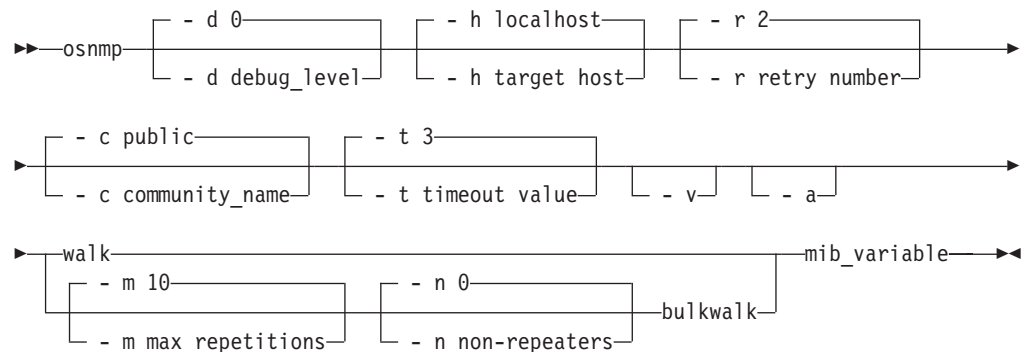
Getting MIB Variables



Setting the MIB Variables



Walking the MIB Tree



Displaying osnmp Help

z/OS UNIX Commands

▶▶ osnmp - ? ◀◀

Receiving a Trap

▶▶ osnmp [- d 0] [- p 162] trap ◀◀
 [- d debug_level] [- p port_number]

Finding a MIB Variable Name

▶▶ osnmp [- d 0] findname mib_variable ◀◀
 [- d debug_level]

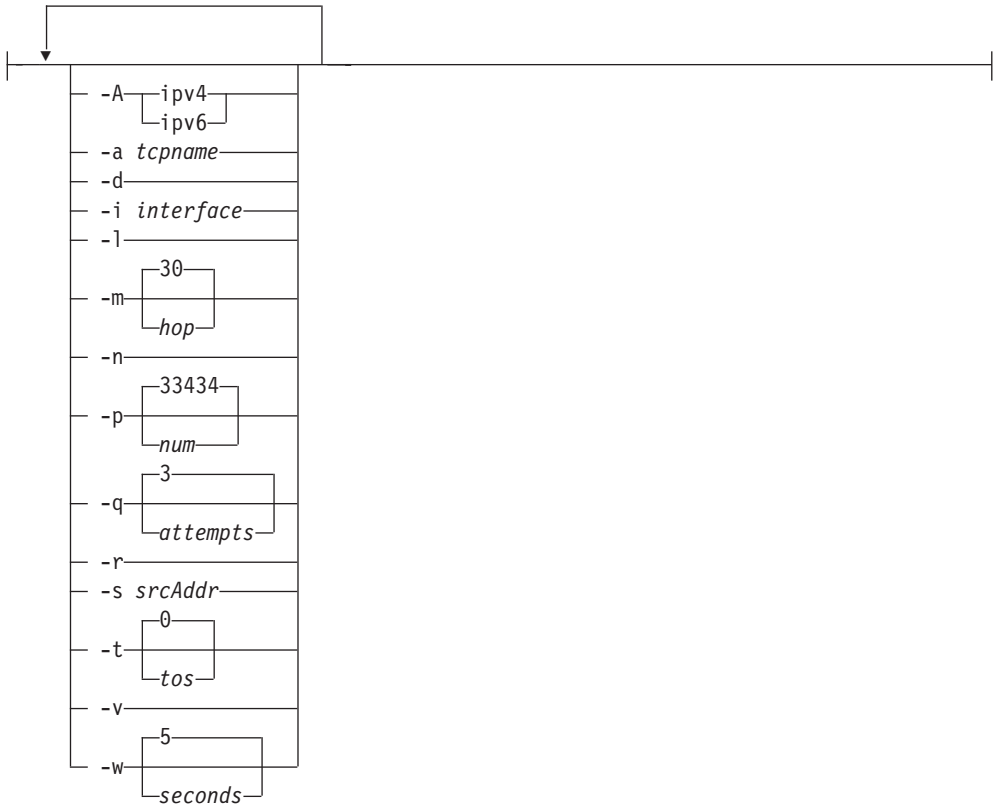
Note: snmp is a synonym for the osnmp command in the z/OS UNIX shell. snmp command syntax is the same as that for the osnmp command.

otracert/traceroute Command

Debug Network Problems

| ▶▶ [traceroute | otracert] ? [Options] host_name [packetSize] ◀◀

Options:



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

pasearch Command

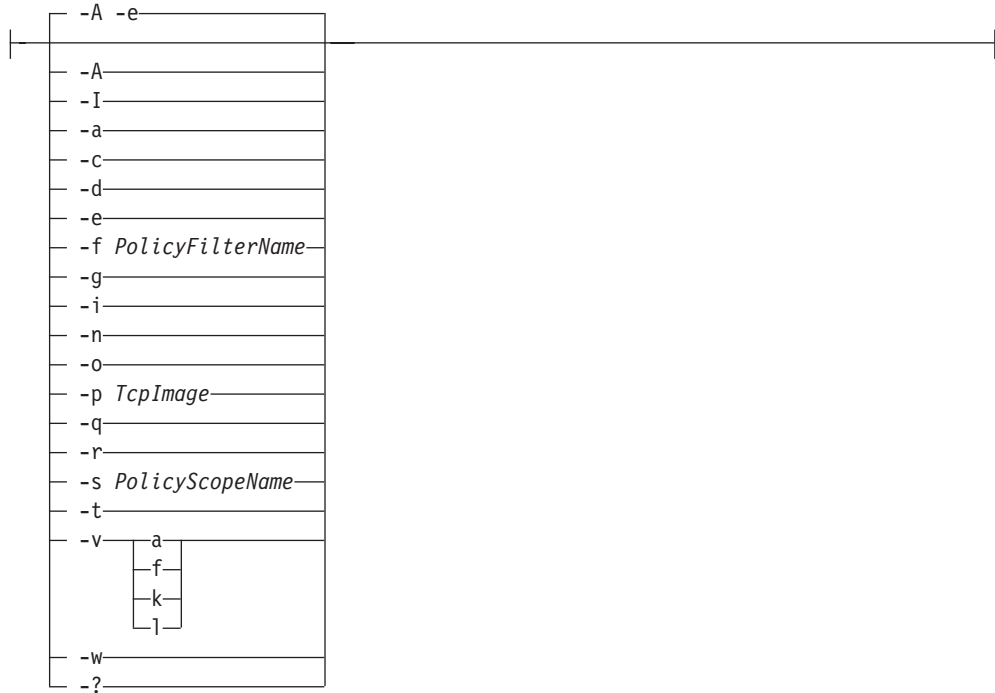
Query information from the Policy Agent (Pagent)



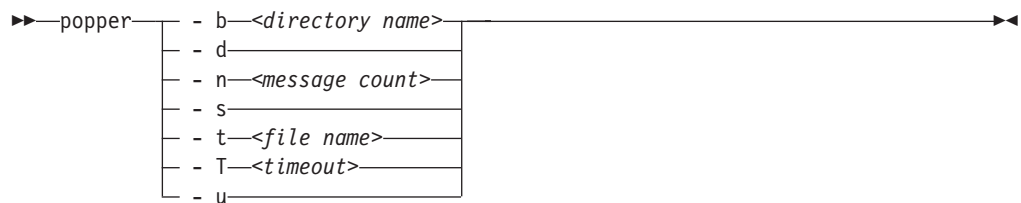
Option:

z/OS UNIX Commands

I

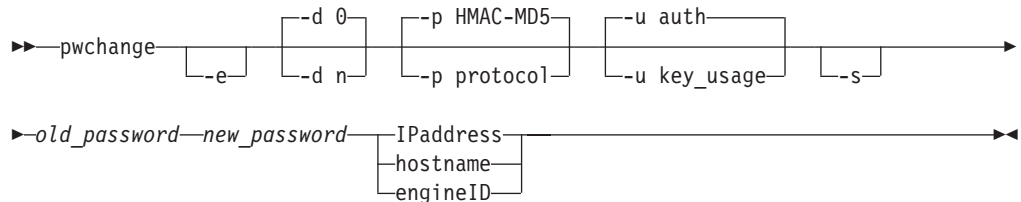


popper Command



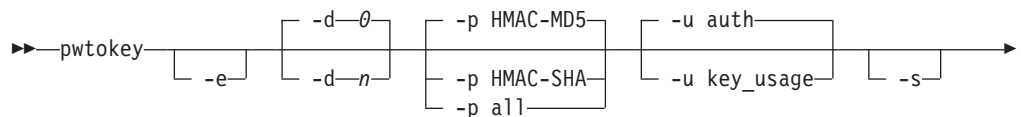
pwchange Command

Generate hexadecimal encryption key to update password for SNMP use



pwtokey Command

Convert password into hexadecimal encryption key for SNMP or OMPROUTE use



```

▶ password
  |-----|
  | IPaddress |
  | hostname  |
  | engineID  |
  |-----|

```

rndc Command

Remotely control the operation of a name server

```

▶▶ rndc
  |-----|
  | -c config |
  | -s server  |
  | -p port   |
  | -y key    |
  | -V       |
  |-----|
  command command ...

```

rndc-confgen Command

Create configuration files for rndc

```

▶▶ rndc-confgen
  |-----|
  | -a      |
  | -b keysize |
  | -c keyfile |
  | -h      |
  | -k keyname |
  | -p port  |
  | -r randomdev |
  | -s address |
  | -t chrootdir |
  | -u user  |
  |-----|

```

sendmail Command

```

▶▶ sendmail
  |-----|
  | user_name |
  |-----|
  |-----|
  | command_line_switch |
  |-----|

```

sntpd Command

Start the sntp daemon

```

▶▶ sntpd
  |-----|
  | -d pathname |
  | -df pathname |
  | -pf pathname |
  | -unicast mode |
  | -b nnnnn |
  | -unicast mode |
  | -m nnnnn |
  | -s n |
  |-----|
  | ? |

```

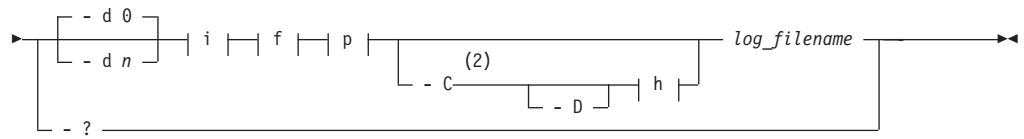
trmdstat

```

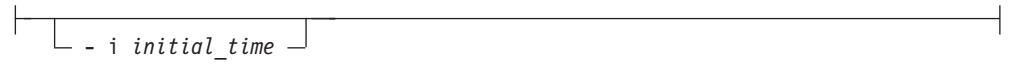
▶▶ trmdstat (1)

```

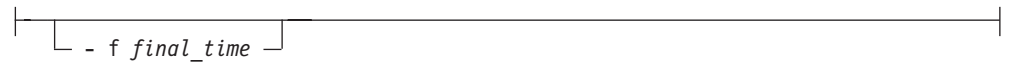
z/OS UNIX Commands



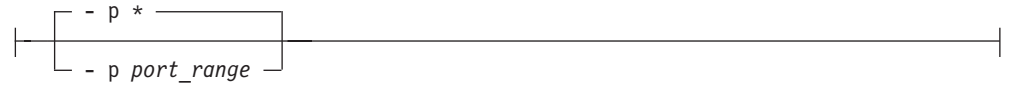
i:



f:



p:



h:



Notes:

- 1 If no options are specified the overall summary report is displayed.
- 2 The -D and -h options can be used in any order with the -C option.

Chapter 4. Other IP commands, options, and subcommands

Table 1. IP commands, options, and subcommands

Command type	Reference
NetView [®] SNMP (SNMP) Command	Refer to <i>z/OS Communications Server: IP System Administrator's Commands</i> .
IPCS Subcommands for TCP/IP	Refer to <i>z/OS Communications Server: IP Diagnosis Guide</i> .
CTRACE Command and Options for TCP/IP	Refer to <i>z/OS Communications Server: IP Diagnosis Guide</i> .

Other IP commands, options, and subcommands

Part 2. VTAM commands

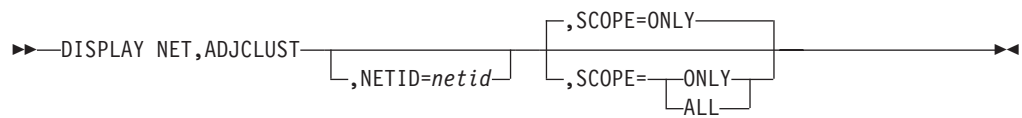
VTAM commands are listed in this section alphabetically. For more information on these commands, refer to *z/OS Communications Server: SNA Operation*.

VTAM commands

Chapter 5. Display commands

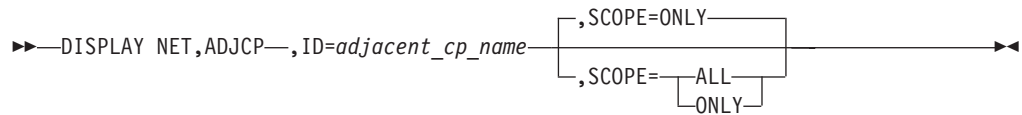
D ADJCLUST

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



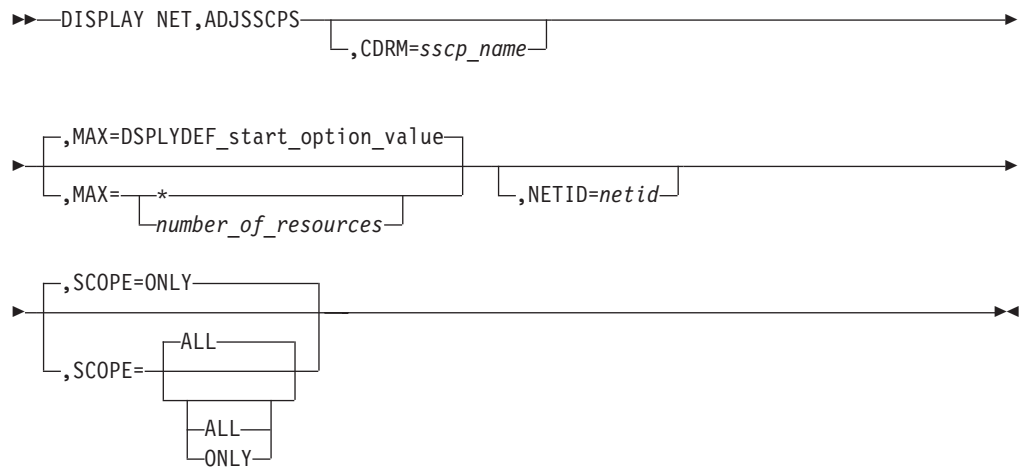
D ADJCP

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



D ADJSSCPS

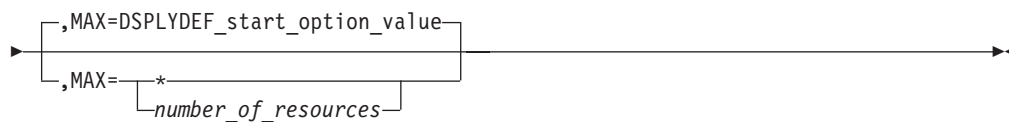
Display user-defined and dynamic adjacent SSCP tables:



Display adjacent SSCP table for specific cross-domain resource:

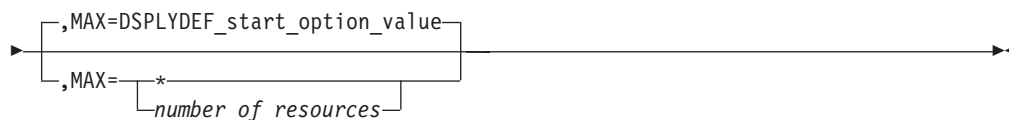


Display commands



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

▶▶—DISPLAY NET,ADJSSCPS—,ADJLIST=*list_name*—————▶▶



Display all lists of adjacent CDRMs:

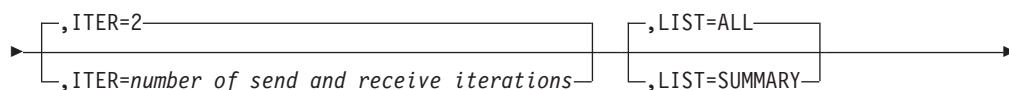
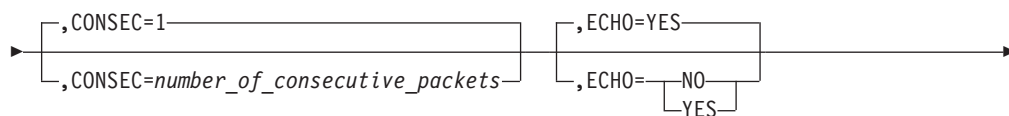
▶▶—DISPLAY NET,ADJSSCPS—,ADJLIST=*—————▶▶

A diagram showing a command line with two options. The first option is `,MAX=DSPLYDEF_start_option_value`. The second option is `,MAX=*number_of_resources`. Both options are enclosed in brackets and connected to the command line by lines. The command line ends with a double arrow pointing to the right.

D APING

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:

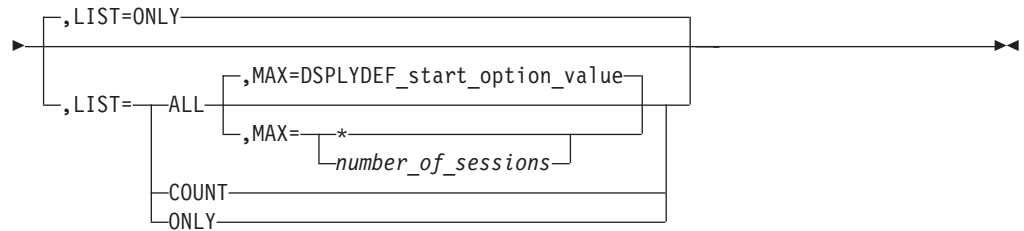
▶▶—DISPLAY NET,APING—,ID=*resource_name*—————▶▶



D APINGDTP

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

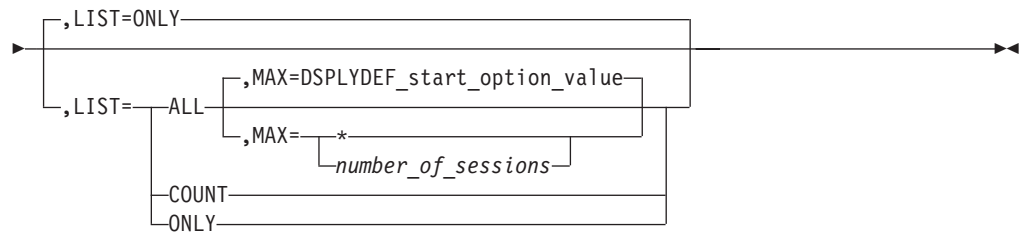
►►—DISPLAY NET,APINGDTP—►►



D APINGTP

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:

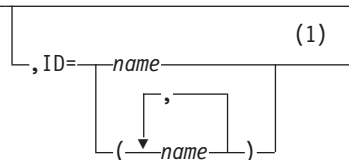
►►—DISPLAY NET,APINGTP—►►



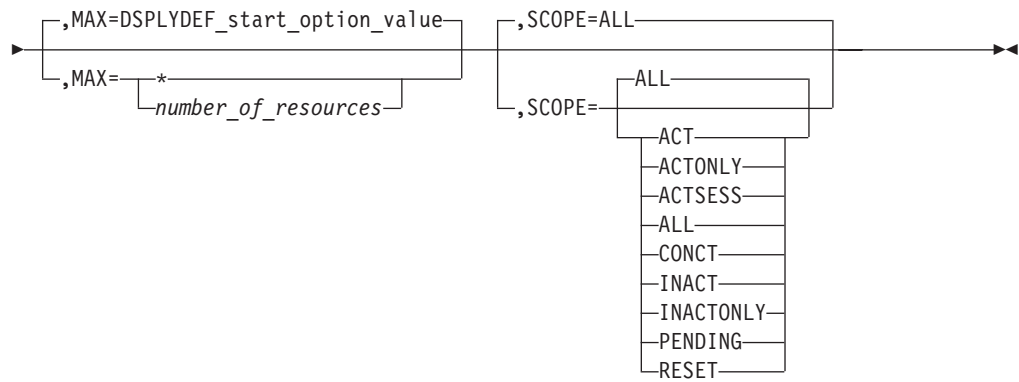
D APPLS

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

►►—DISPLAY NET,APPLS—►►



Display commands



Notes:

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

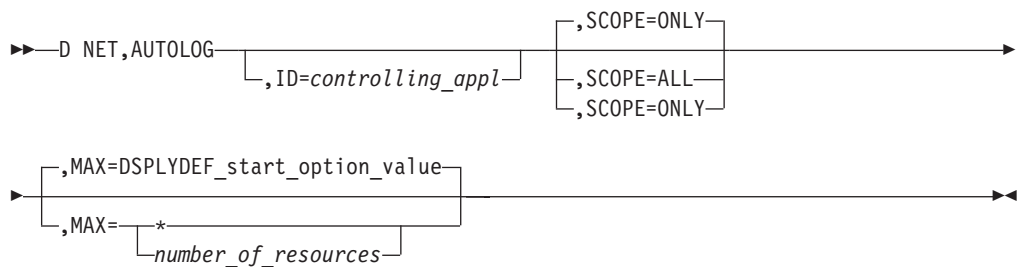
D APPNTOSA

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



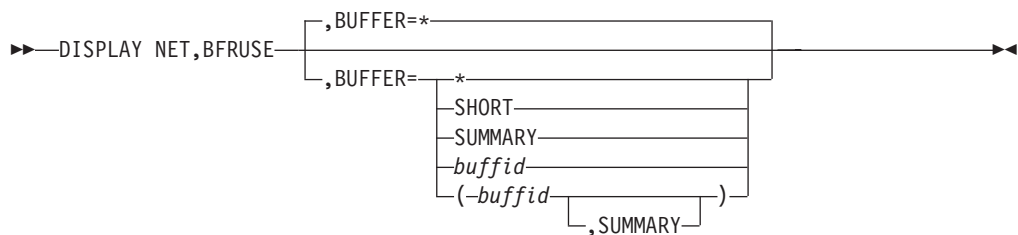
D AUTOLOG

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



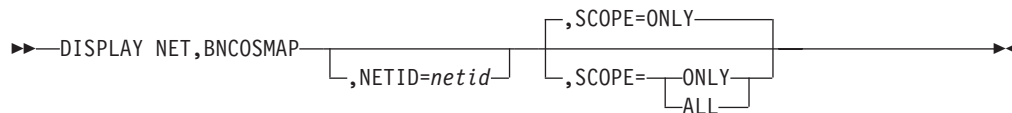
D BFRUSE

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



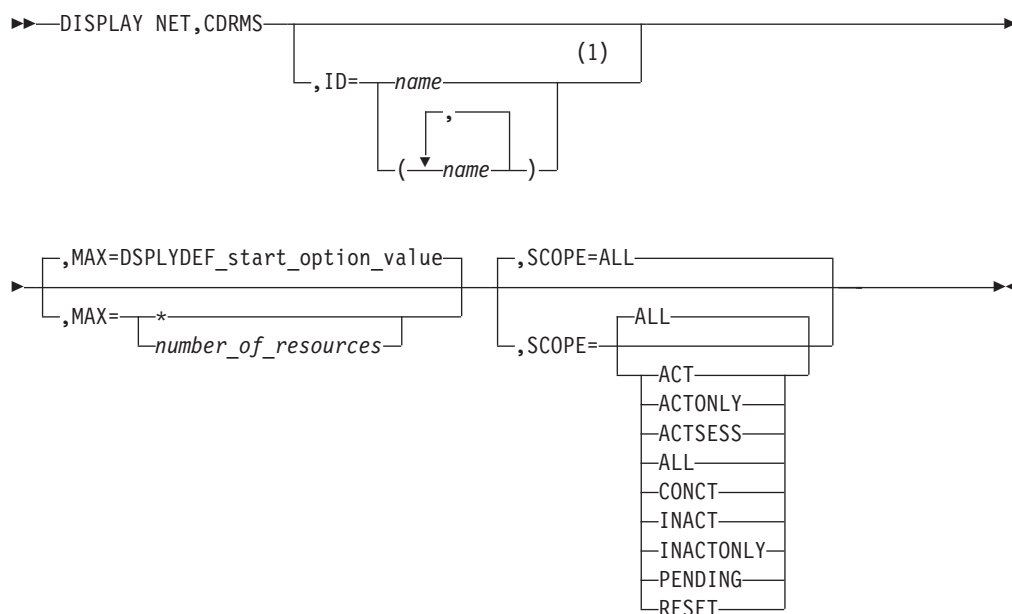
D BNCOSMAP

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



D CDRMS

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

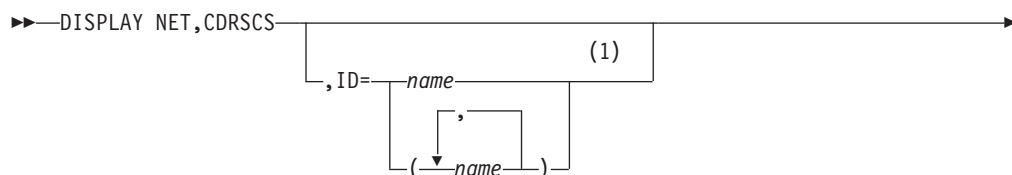


Notes:

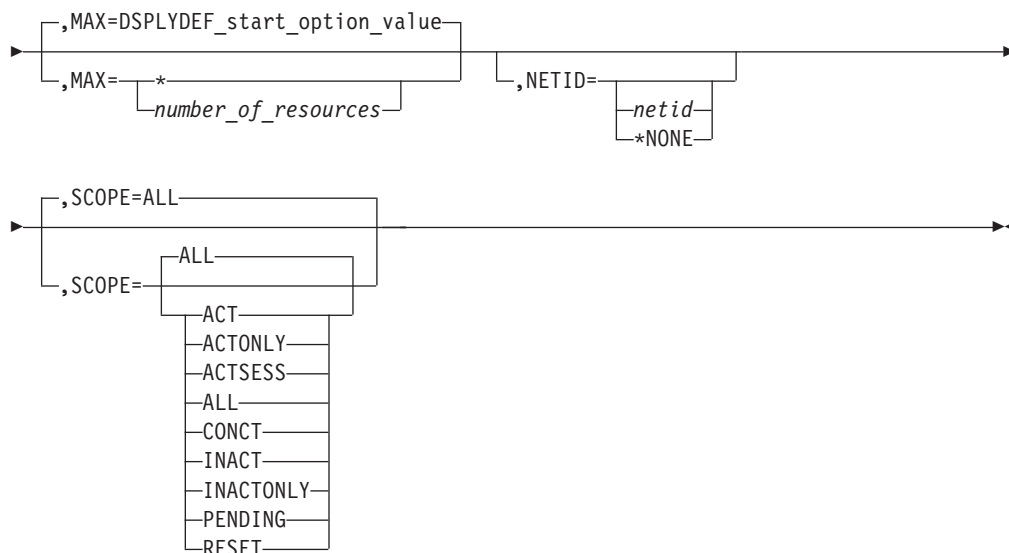
- 1 Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.

D CDRSCS

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



Display commands

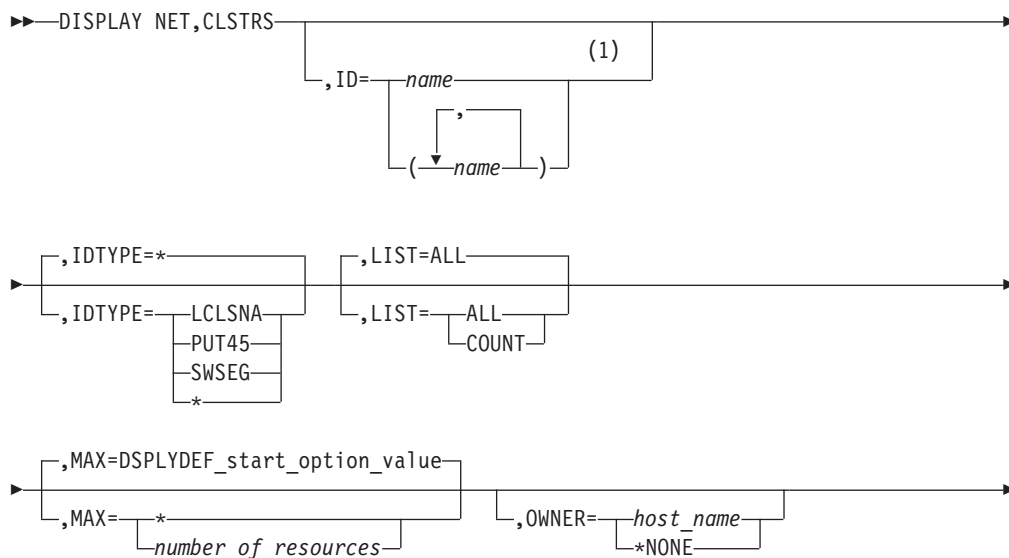


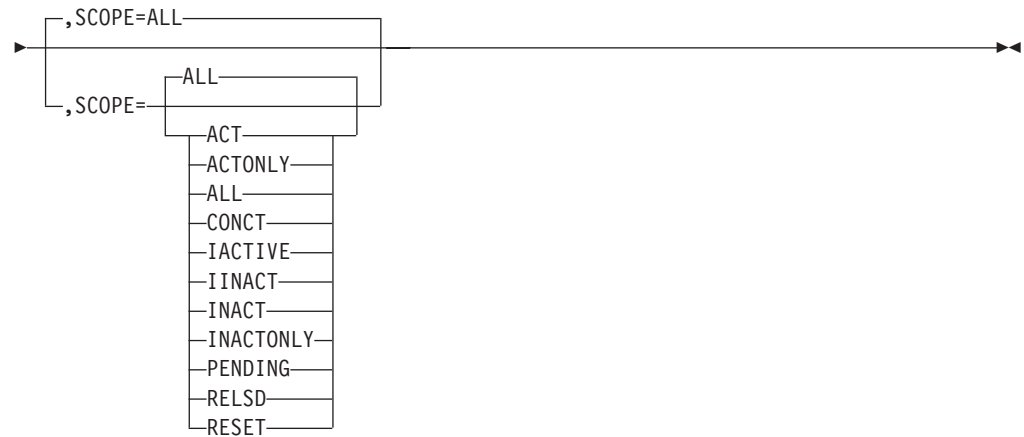
Notes:

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

D CLSTRS

Display the status of physical units (PUs) subordinate to an NCP node, a local SNA node, or a switched subarea node:



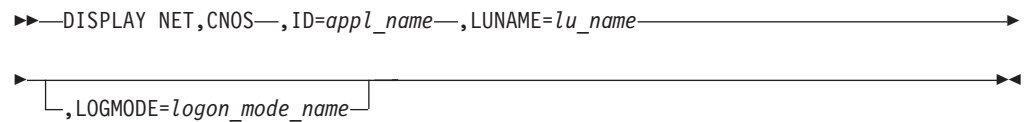


Notes:

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

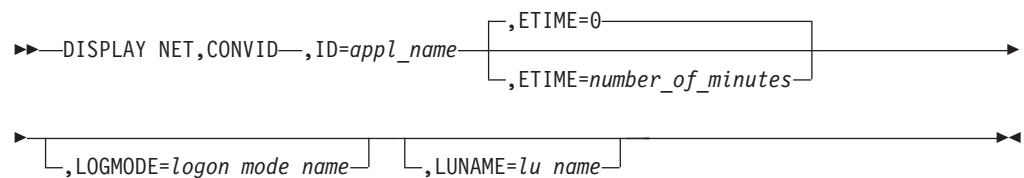
D CNOS

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



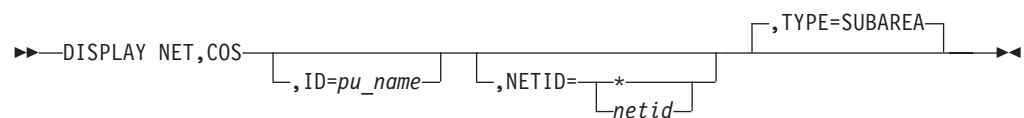
D CONVID

Provide information about active conversations with the specified application program:



D COS

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 commands

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

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

D CPCP

Display detailed CP-CP session status:

```
►►—DISPLAY NET,CPCP—►►
```

(1) `,ID=*.*` or `,ID=adjacent_cp_name`

(2) `,LIST=ALL` or `,LIST=NN` or `,LIST=EN`

`,MAX=DSPLYDEF_start_option_value` or `,MAX=*number_of_adjacent_CP`

`,SCOPE=ALL` or `,SCOPE=ACT` or `,SCOPE=ALL` or `,SCOPE=PENDING` or `,SCOPE=INACT`

Notes:

- 1 Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.
- 2 Since an end node will never have a CP-CP session 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

Display the current CSDUMP triggers set earlier by Modify CSDUMP command:

```
►►—DISPLAY NET,CSDUMP—►►
```

D CSM

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

```
►►—DISPLAY NET,CSM—►►
```

`,OWNERID=ALL` or `,ownerid`

Display the status of the CSM Monitoring as follows:

```
►►—DISPLAY NET,CSM,MONITOR—►►
```


D EE

Display general Enterprise Extender information:

```

>> DISPLAY NET,EE [ ,LIST=SUMMARY ]
                  [ ,LIST=SUMMARY ]
                  [ ,LIST=DETAIL ]
    
```

Display Enterprise Extender connection information by LINE or PU name:

```

>> DISPLAY NET,EE [ ,ID=name ] [ ,LIST=SUMMARY ]
                  [ ,LIST=SUMMARY ]
                  [ ,LIST=DETAIL ]
    
```

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

Display Enterprise Extender connection information by IPADDR:

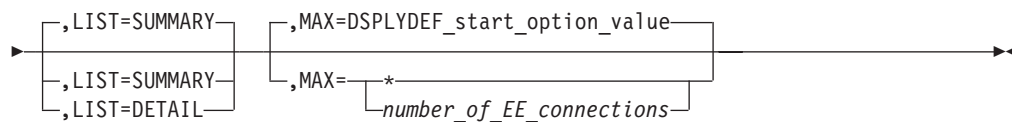
```

>> DISPLAY NET,EE [ ,IPADDR= [ local_ipaddr [ ,HOSTNAME=(,remote_hostname) ]
                              [ (local_ipaddr) [ ,HOSTNAME=(,remote_hostname) ]
                              [ (local_ipaddr,remote_ipaddr)
                              [ (,remote_ipaddr) ] ] ] ]
                  [ ,LIST=SUMMARY ]
                  [ ,LIST=SUMMARY ]
                  [ ,LIST=DETAIL ]
                  [ ,MAX=DSPLYDEF_start_option_value ]
                  [ ,MAX=* [ number_of_EE_connections ] ]
    
```

Display Enterprise Extender connection information by HOSTNAME:

```

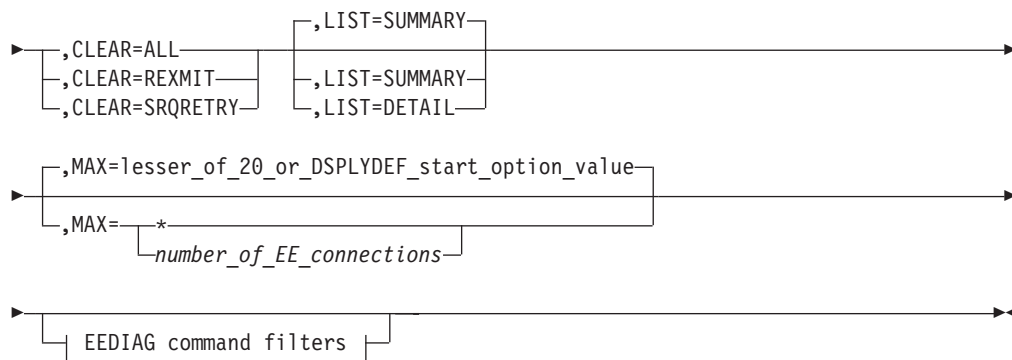
>> DISPLAY NET,EE [ ,HOSTNAME= [ local_hostname [ ,IPADDR=(,remote_ipaddr) ]
                              [ (local_hostname) [ ,IPADDR=(,remote_ipaddr) ]
                              [ (local_hostname,remote_hostname)
                              [ (,remote_hostname) ] ] ] ]
    
```



D EEDIAG

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

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

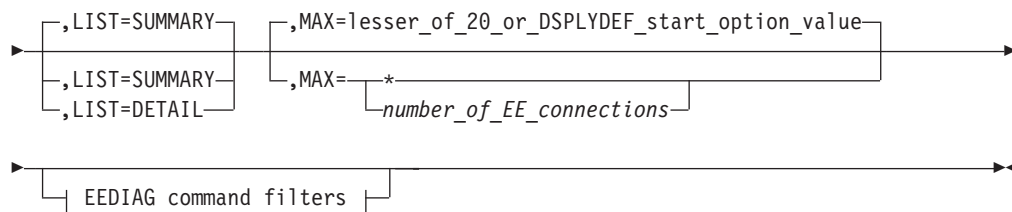


The *retransmission_rate_percentage* value specifies that only EE connections that have a retransmission rate equal to or exceeding the specified percentage should be displayed.

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

Display Enterprise Extender connections that meet or exceed a specified SRQRETRY threshold:

►► `DISPLAY NET,EEDIAG—SRQRETRY=retries` `SRQRETRY=*` `,CLEAR=ALL` `,CLEAR=REXMIT` `,CLEAR=SRQRETRY` ►►



The *retries* value indicates that only EE connections with LDLC signal retries equal to or exceeding the specified value should be displayed.

Display commands

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

Clearing Enterprise Extender diagnostic counters:

```
▶▶—DISPLAY NET,EEDIAG—,CLEAR=ALL—
                        |
                        |,CLEAR=REXMIT—
                        |
                        |,CLEAR=SRQRETRY—
                        |
                        | EEDIAG command filters
```

EEDIAG command filters:

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

```
▶▶—,ID=name—
```

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

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

```
▶▶—,IPADDR=—local_ipaddr—
              |
              |,HOSTNAME=(,remote_hostname)—
              |
              |(local_ipaddr)—
              |,HOSTNAME=(,remote_hostname)—
              |
              |(local_ipaddr,remote_ipaddr)—
              |
              |(,remote_ipaddr)—
```

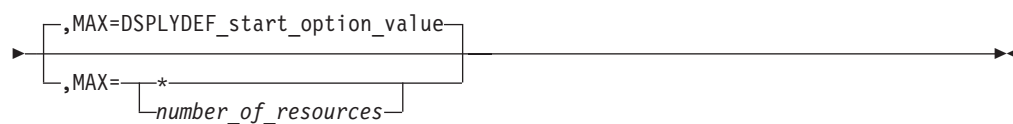
Limit the D EEDIAG command scope to EE connections that are identified by HOSTNAME:

```
▶▶—,HOSTNAME=—local_hostname—
               |
               |,IPADDR=(,remote_ipaddr)—
               |
               |(local_hostname)—
               |,IPADDR=(,remote_ipaddr)—
               |
               |(local_hostname,remote_hostname)—
               |
               |(,remote_hostname)—
```

D EXIT

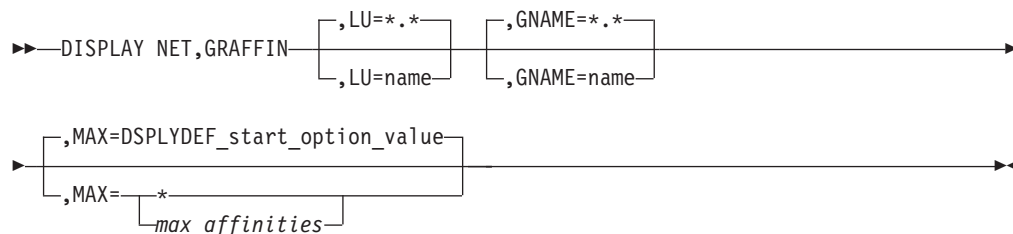
Display the name, exit level, module name, and status of installation-wide exit routines:

```
▶▶—DISPLAY NET,EXIT—,ID=*—
                        |
                        |,ID=*—
                        |
                        | exit_name
```



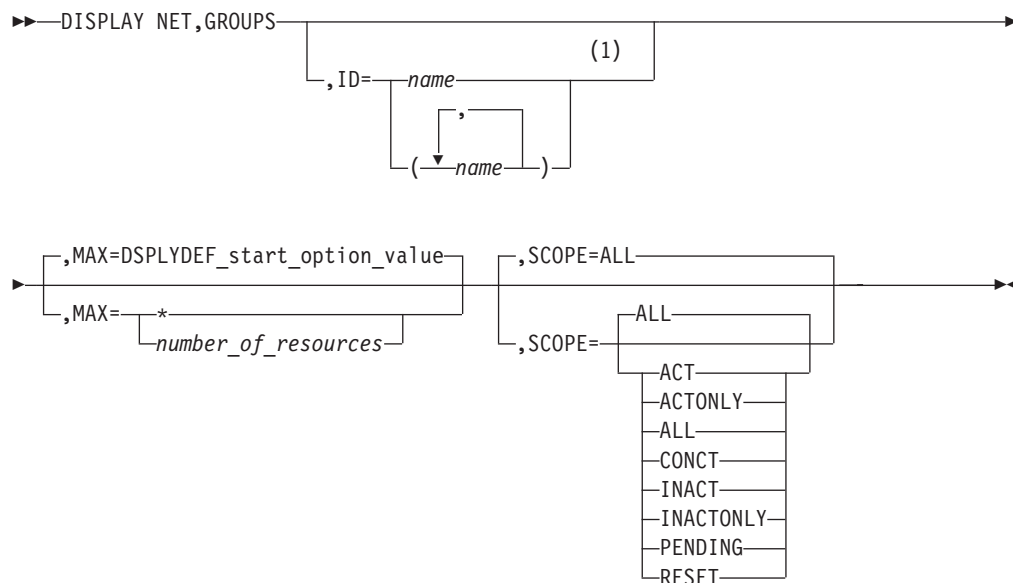
D GRAFFIN

Display affinity information for generic resources:



D GROUPS

Provide information about line groups:



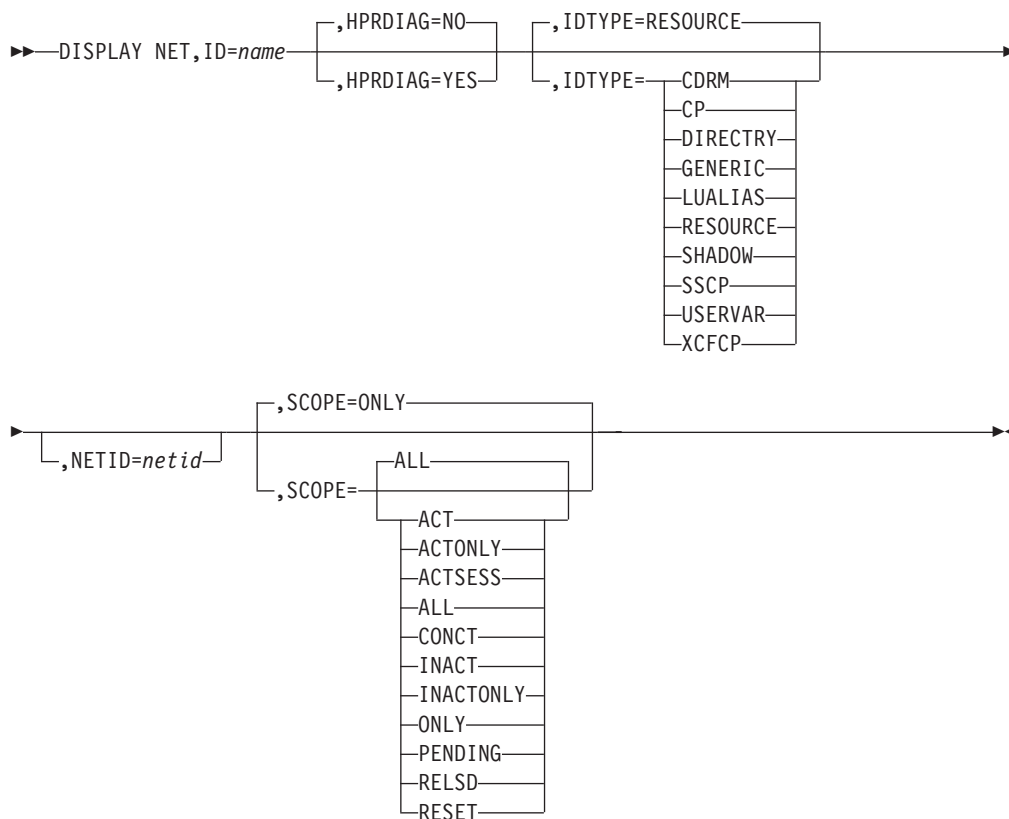
Notes:

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

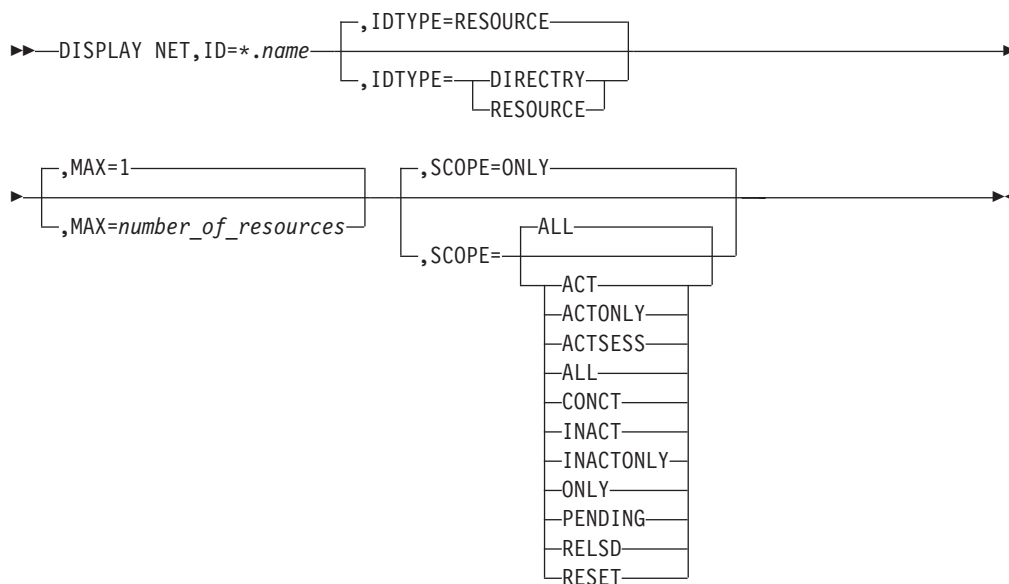
D ID

Display a resource:

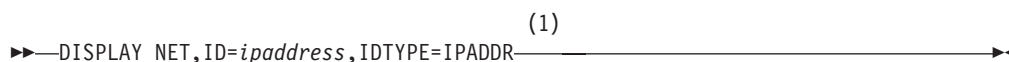
Display commands



Display a resource name in any network:



Display a resource name using an IP address:

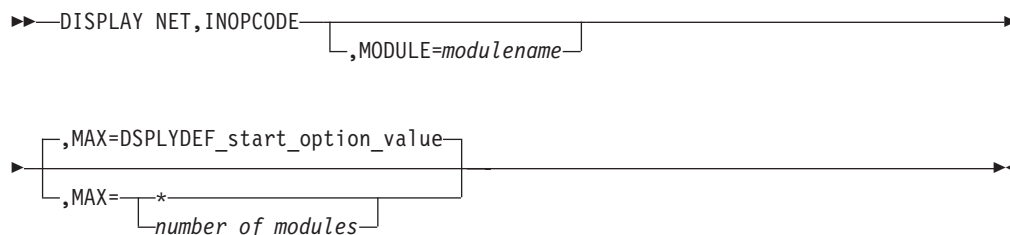


Notes:

- 1 The ID type of IPADDR is not related to the IPADDR start option.

D INOPCODE

Determine the dump attributes for all VTAM INOPCODESs or all VTAM INOPCODEs in a given VTAM module:



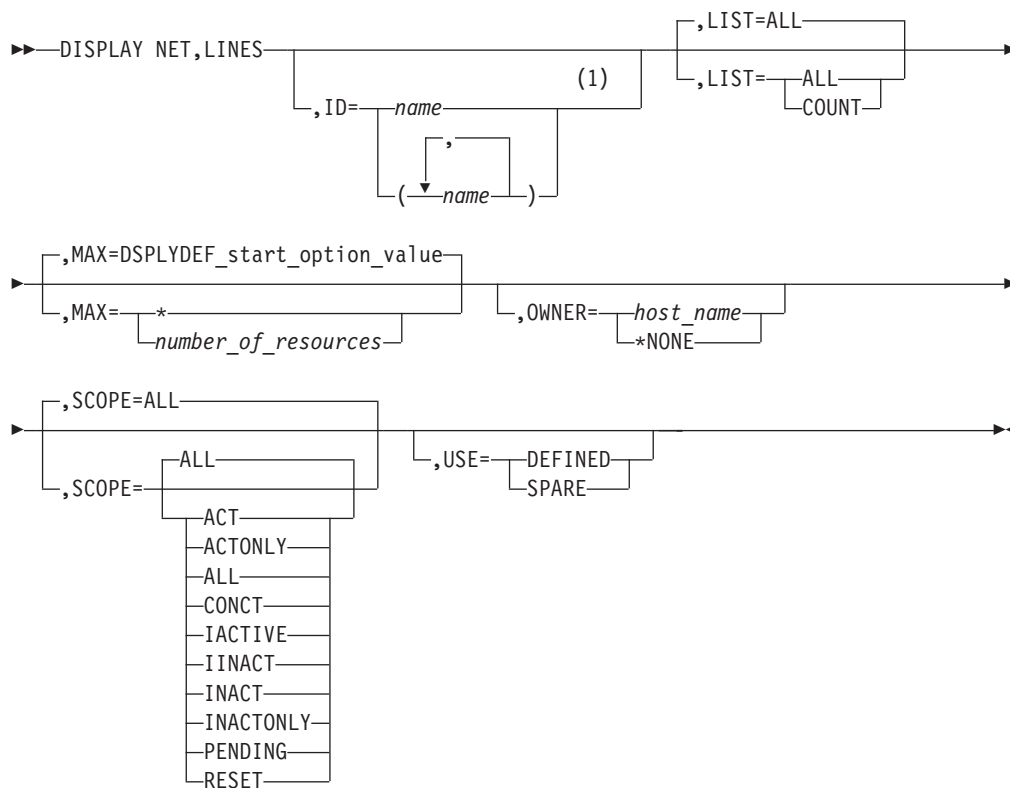
D INOPDUMP

Determine the global status for INOPDUMP:



D LINES

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



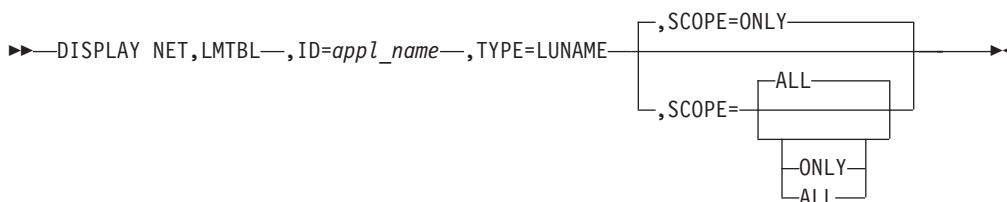
Display commands

Notes:

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

D LMTBL

Display partner LUs in LU-mode table:

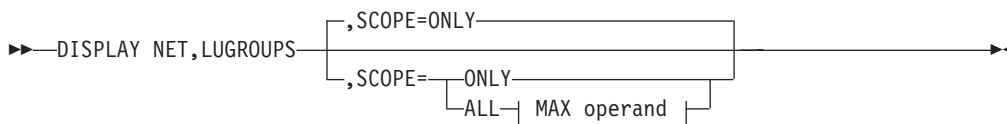


Display logon mode names in LU-mode table:



D LUGROUPS

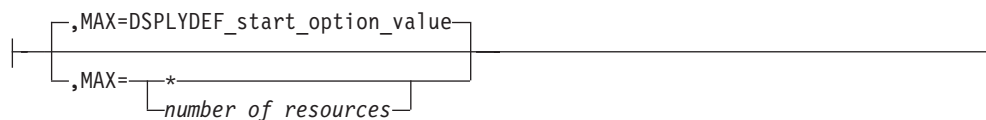
Display all LUGROUP major nodes:



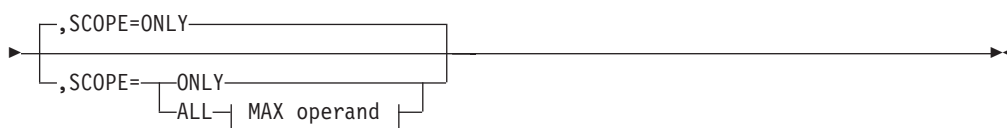
MAX operand:



MAX operand



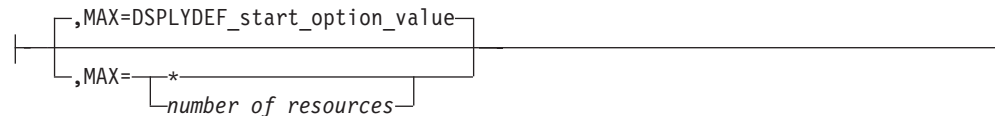
Display a specific LUGROUP major node:



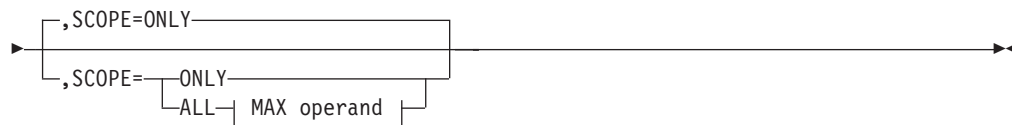
MAX operand:



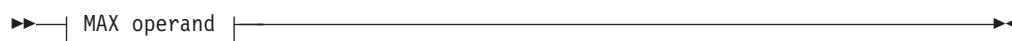
MAX operand



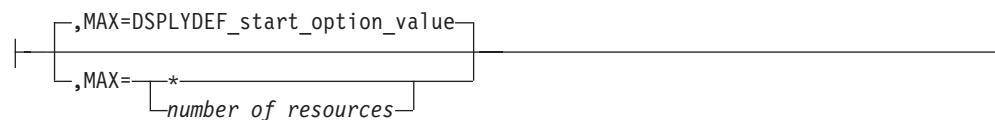
Display a model LU group:



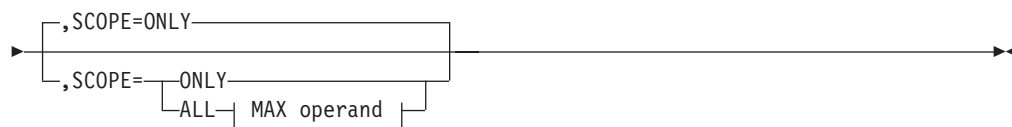
MAX operand:



MAX operand



Display a model LU:

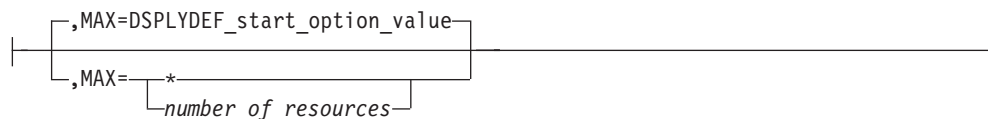


MAX operand:



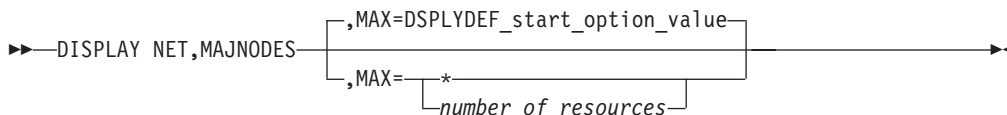
Display commands

MAX operand



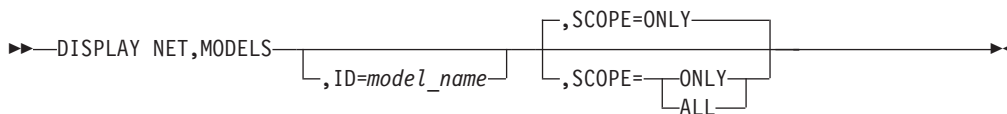
D MAJNODES

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



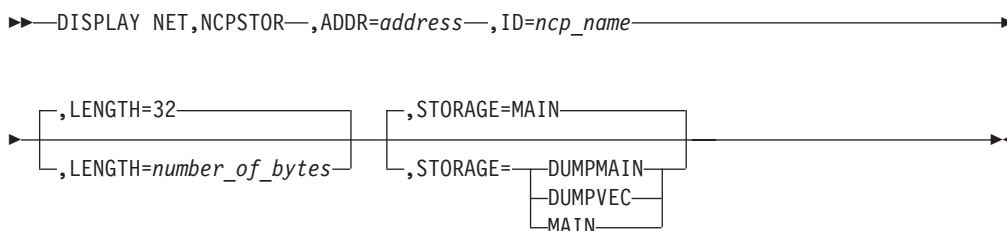
D MODELS

Provide information about model resources, excluding model applications and model CDRSCs:



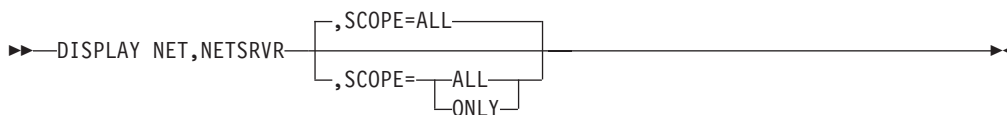
D NCPSTOR

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:



D NETSRVR

Display information about network node servers:



D PATHS

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

▶▶—DISPLAY NET,PATHS—,ID=*switched_pu_name*—————▶▶

D PATHTAB

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

▶▶—DISPLAY NET,PATHTAB—————▶▶

┌,ADJSUB=*subarea_number*┐
└,DESTSUB=*subarea_number*┘

▶▶—┌,MAX=DSPLYDEF_start_option_value┐—————▶▶

└,MAX=*┐
└number_of_resources┘

D PENDING

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

▶▶—DISPLAY NET,PENDING—————▶▶

┌,ID=*name*┐
└┌,
└(*name*)┘┘

▶▶—┌,MAX=DSPLYDEF_start_option_value┐—————▶▶

└,MAX=*┐
└number_of_resources┘

D ROUTE

Display the status of routes:

▶▶—DISPLAY NET,ROUTE—————▶▶

┌,DESTSUB=*subarea_number*┐

┌,ER=ALL┐
└,COSNAME=*name*┘
┌,ER=ALL┐
└,ER=*er_number*┘
└,VR=*vr_number*┘

▶▶—┌,NETID=*netid*┐—————▶▶

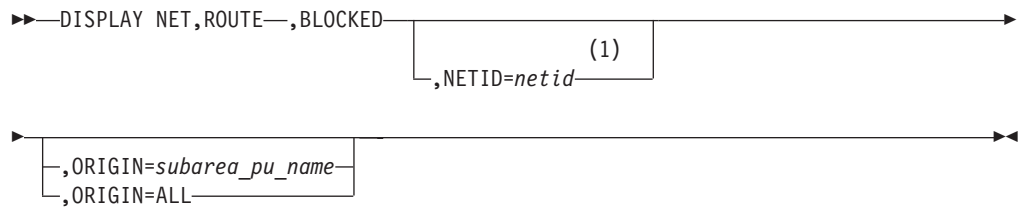
┌,ORIGIN=*subarea_pu_name*┐

┌,TEST=NO┐
└,TEST=┌NO┐
└YES┘┘

└,ORIGIN=ALL┘

Display blocked virtual routes:

Display commands



Notes:

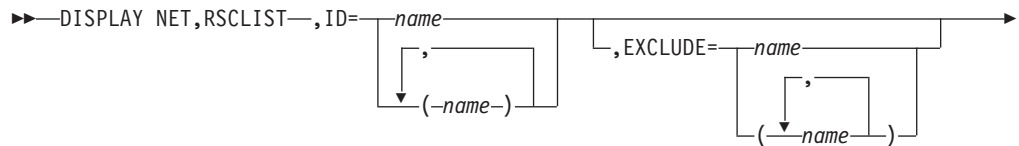
- 1 When the `BLOCKED` operand is specified, the `NETID` of the host where the command was entered is assumed, and specification of another `NETID` is not permitted.

Display held virtual routes:

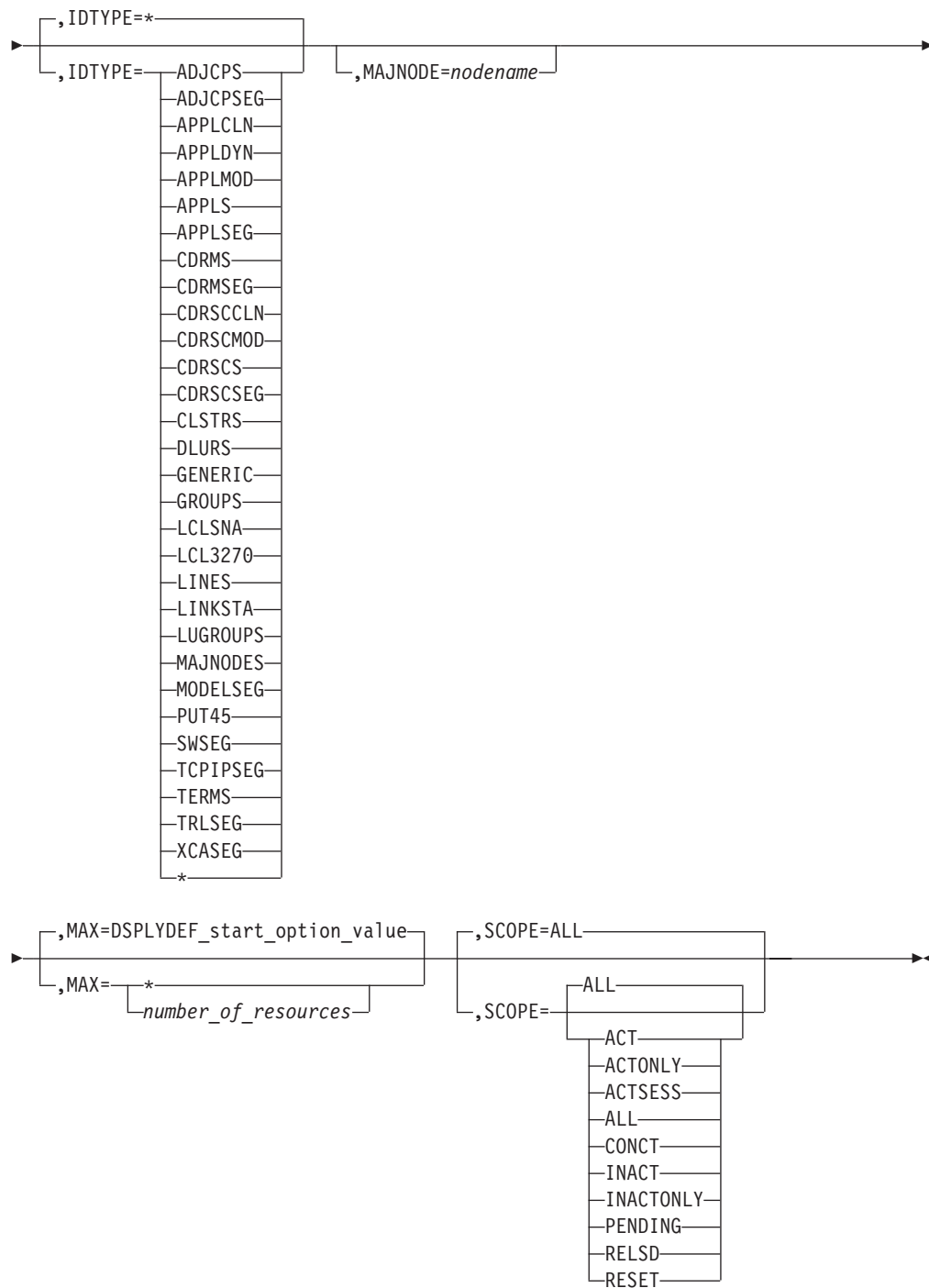


D RSCLIST

Display information about resources whose names match a particular pattern:

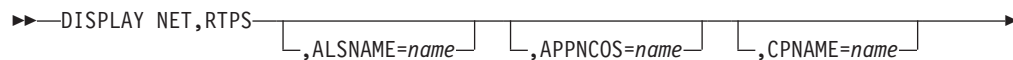


I

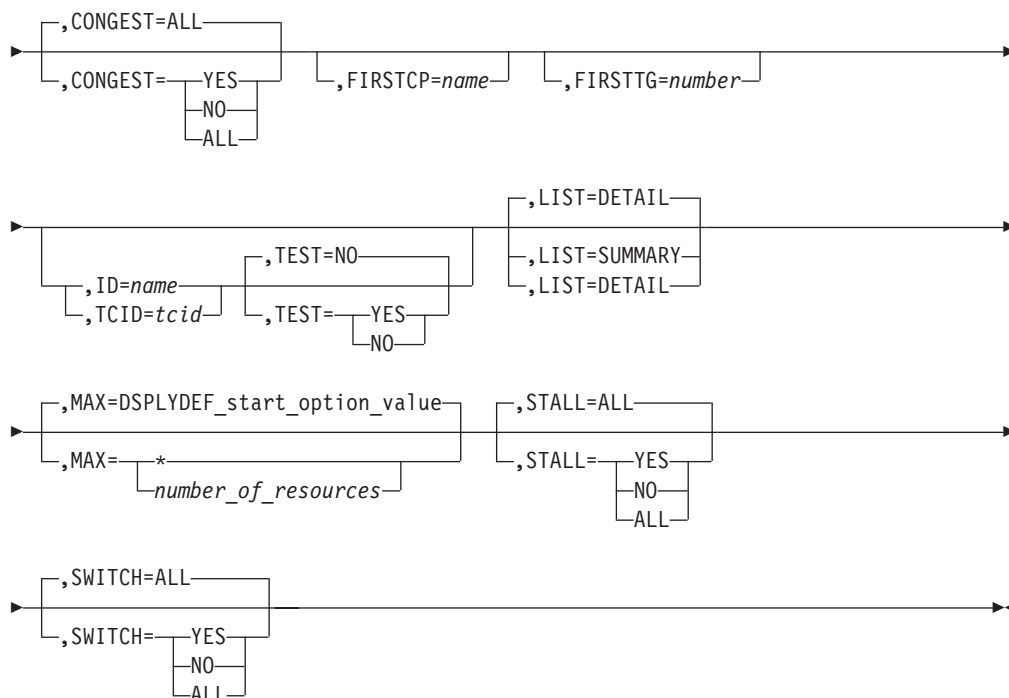


D RTPS

Display information concerning HPR pipes:



Display commands



D SAMAP

Display the subarea mapping table from an ICN host:

►►—DISPLAY NET,SAMAP—►►

D SATOAPPN

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

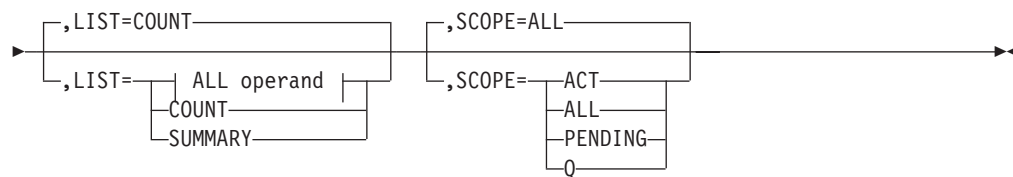
►►—DISPLAY NET,SATOAPPN—►►

D SESSIONS

Display all sessions:

►►—DISPLAY NET,SESSIONS—►►

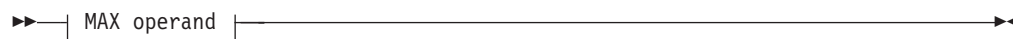
,LU1=lu_name	,LU2=lu_name
,LU2=lu_name	,LU1=lu_name
,PLU=plu_name	,SLU=slu_name
,SLU=slu_name	,PLU=plu_name



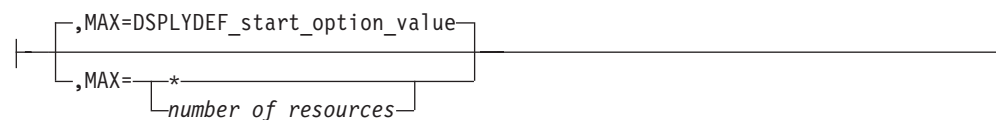
ALL operand



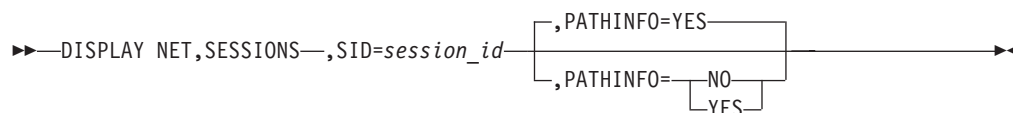
MAX operand:



MAX operand

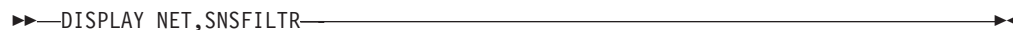


Display a specific session:



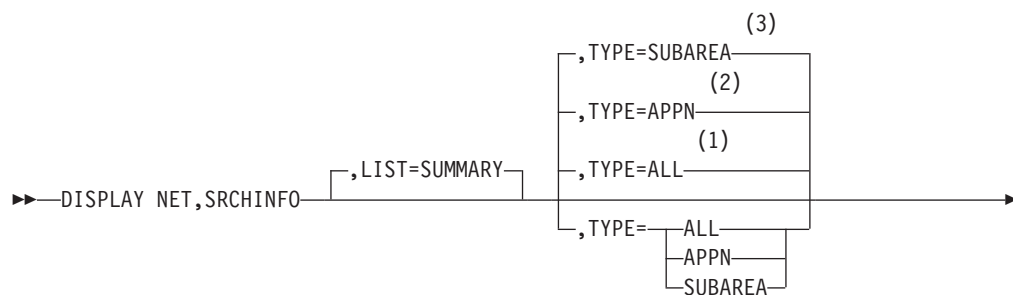
D SNSFILTR

Display the current active SAW sense filter:

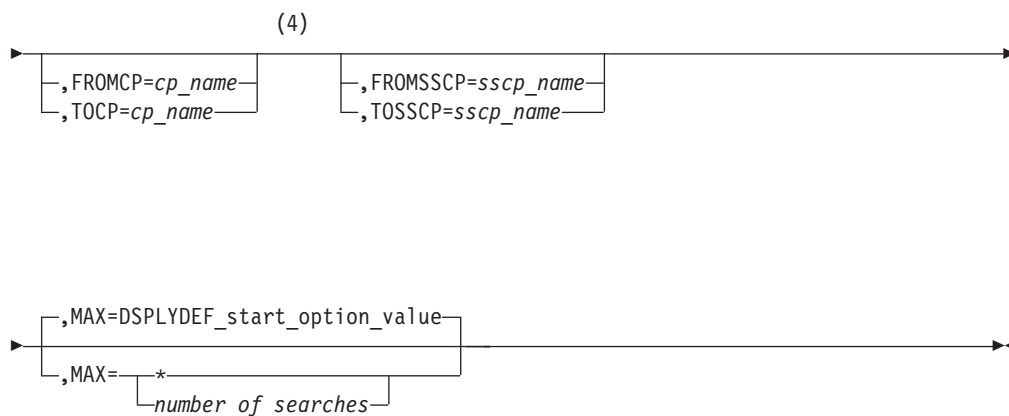


D SRCHINFO

Display summary information about outstanding subarea and APPN searches:



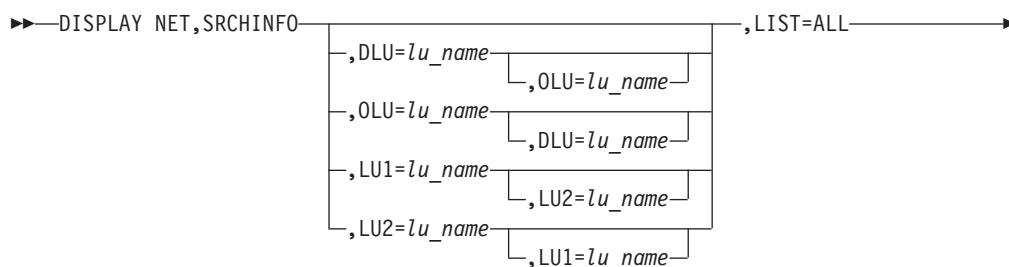
Display commands

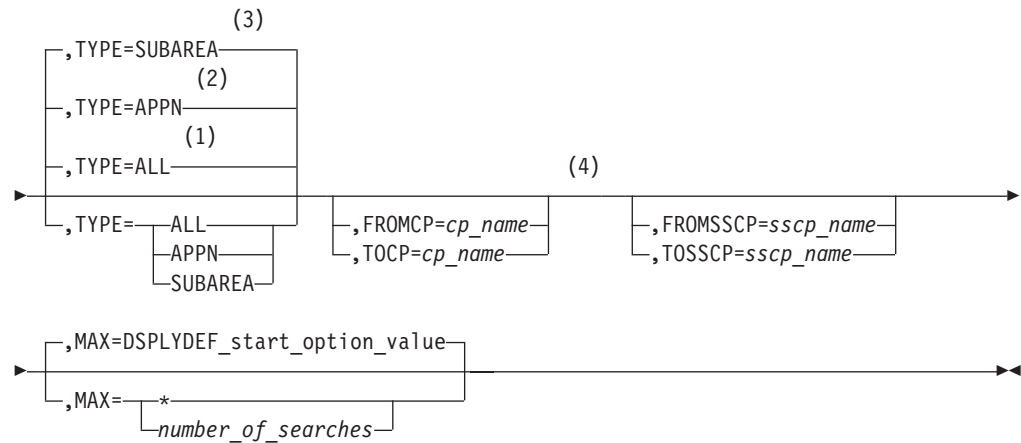


Notes:

- 1 TYPE=ALL is the default when the HOSTSA and NODETYPE start options are specified.
- 2 TYPE=APPN is the default when the NODETYPE start option is specified without the HOSTSA start option.
- 3 TYPE=SUBAREA is the default when the HOSTSA start option is specified without the NODETYPE start option.
- 4 These operands are valid with TYPE=APPN or TYPE=ALL.

Display detailed information about outstanding subarea and APPN searches:

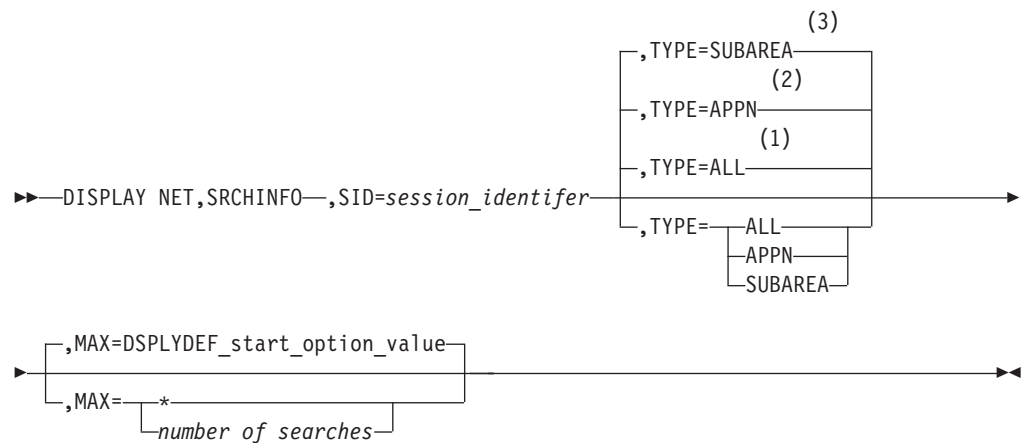




Notes:

- 1 TYPE=ALL is the default when the HOSTSA and NODETYPE start options are specified.
- 2 TYPE=APPN is the default when the NODETYPE start option is specified without the HOSTSA start option.
- 3 TYPE=SUBAREA is the default when the HOSTSA start option is specified without the NODETYPE start option.
- 4 These operands are valid with TYPE=APPN or TYPE=ALL.

Display search information about a specific search request:



Notes:

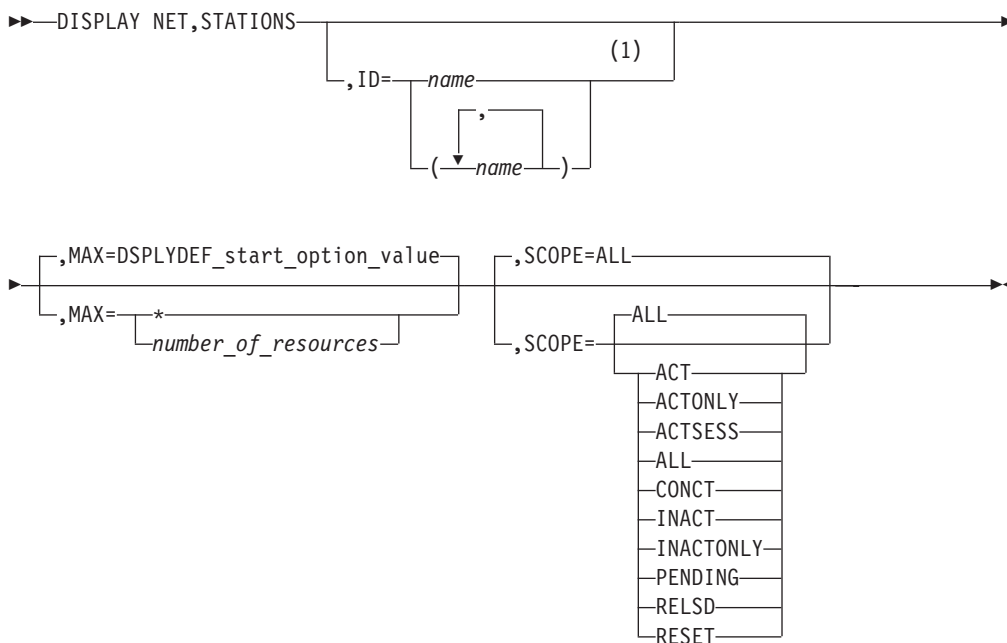
- 1 TYPE=ALL is the default when the HOSTSA and NODETYPE start options are specified.

Display commands

- 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

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

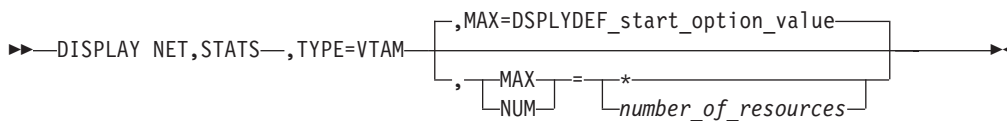


Notes:

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

D STATS

Display resource statistics:

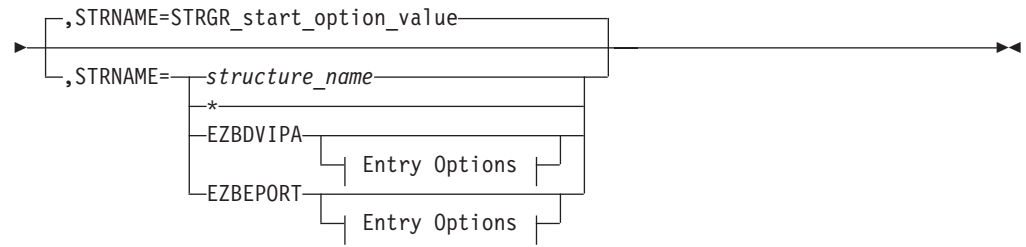


Display data compression statistics:

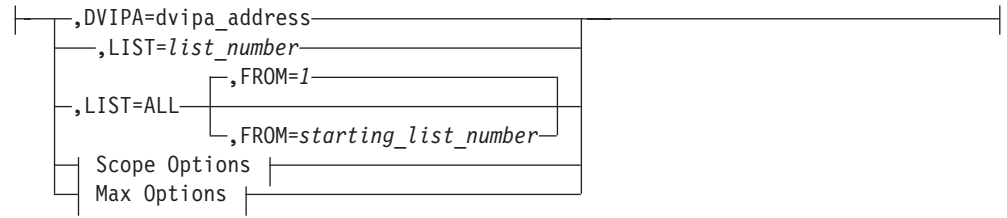


Display coupling facility structure statistics:





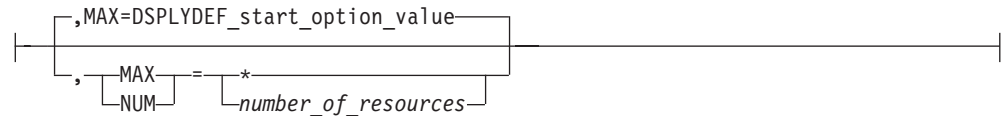
Entry Options:



Scope Options:

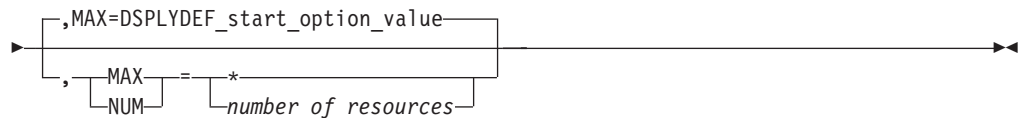
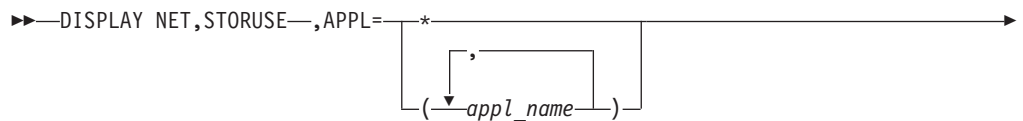


Max Options:

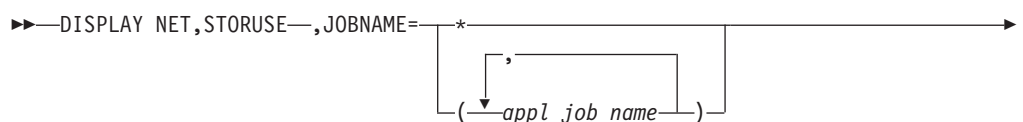


D STORUSE

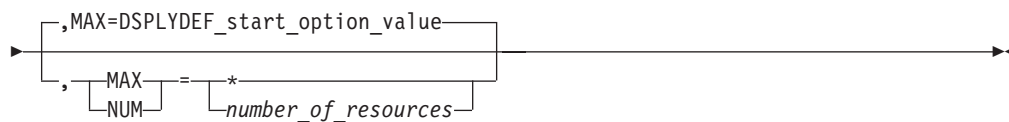
Display storage usage for applications:



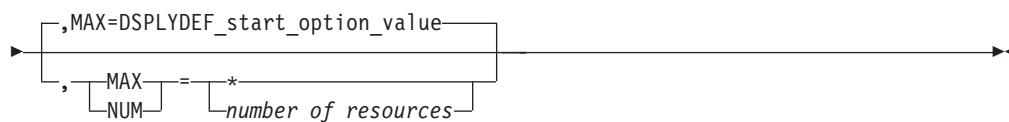
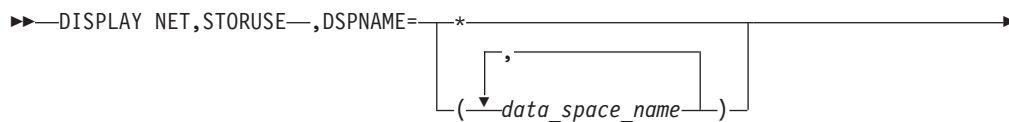
Display storage usage for application jobs:



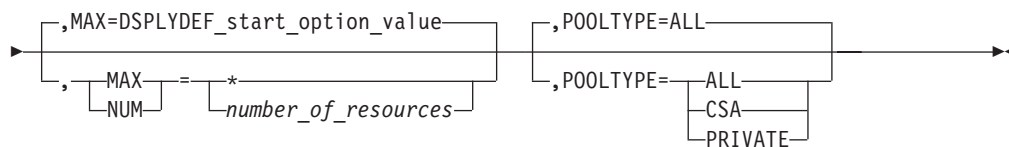
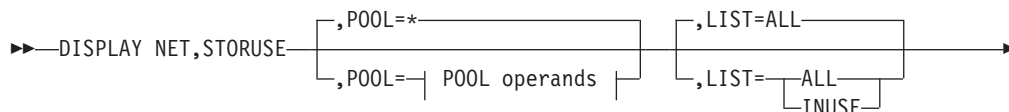
Display commands



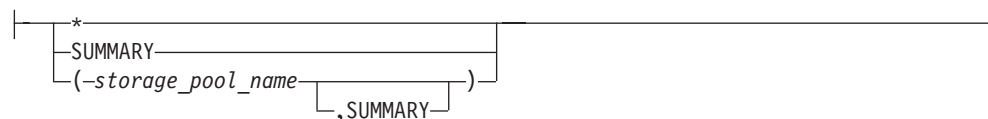
Display storage usage for data spaces:



Display storage usage for storage pools:

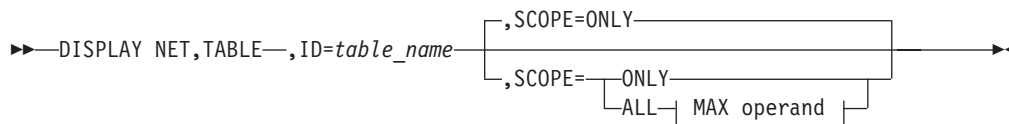


POOL operands:



D TABLE

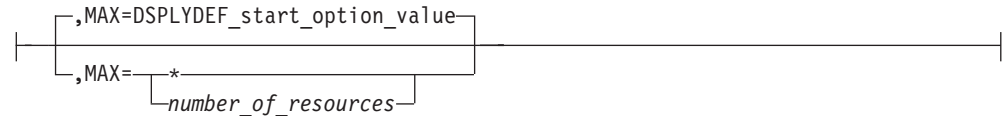
Display the table type and the number of resources that are associated with the table (use count) and identify the users of a table:



MAX operand:

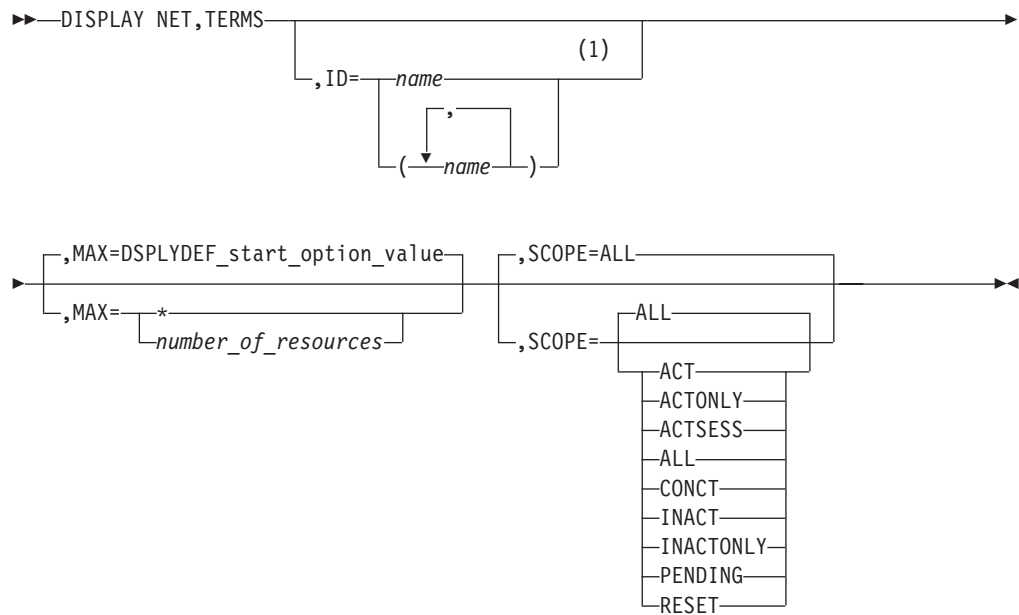


MAX operand



D TERMS

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

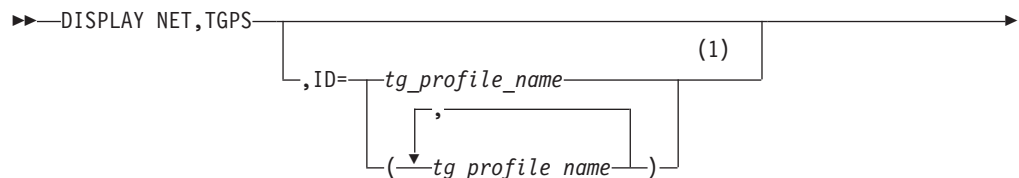


Notes:

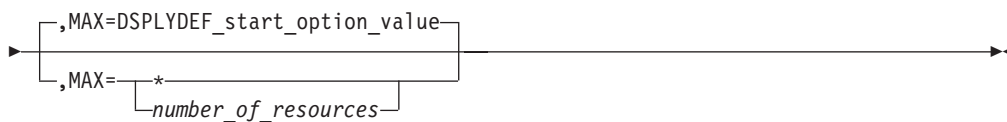
- 1 Depending on the value of the DSPLYWLD start option, wildcard values can be used for this operand.

D TGPS

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



Display commands



Notes:

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

D TNSTAT

Display the current state of global and TRLE tuning statistics, and the CNSL and TIME values. If SMF is not in the system, this will also be indicated.



D TOPO

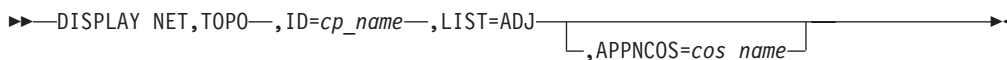
Display a summary of the topology database:



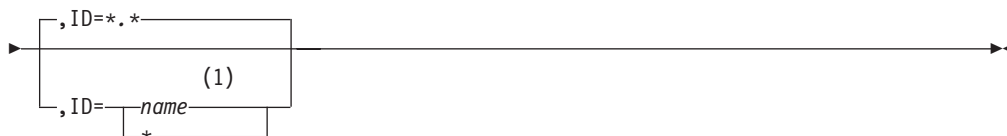
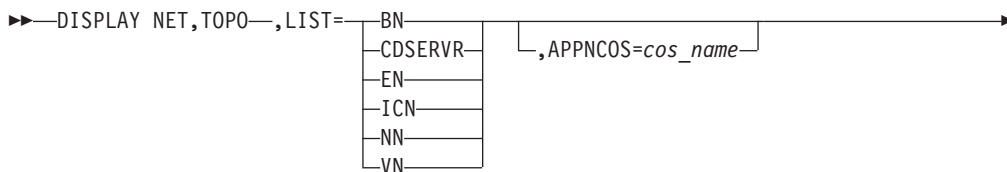
Display a specific node:



Display adjacent nodes:



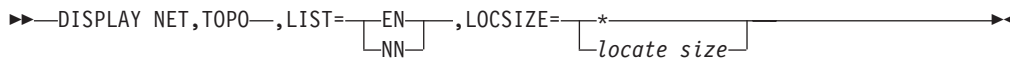
Display all nodes of a specific type:



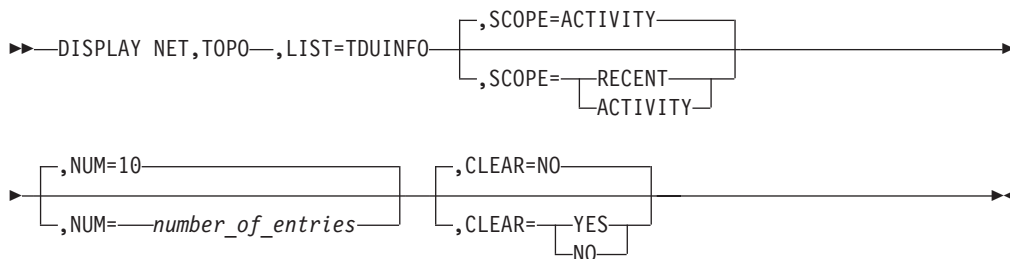
Notes:

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

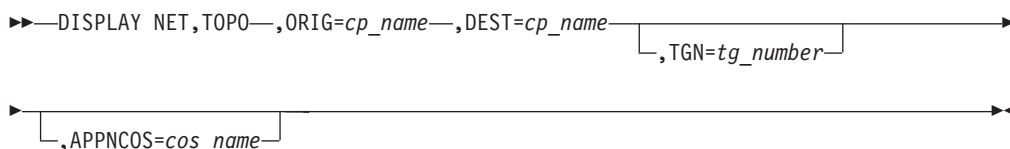
Display all nodes with a specific locsize:



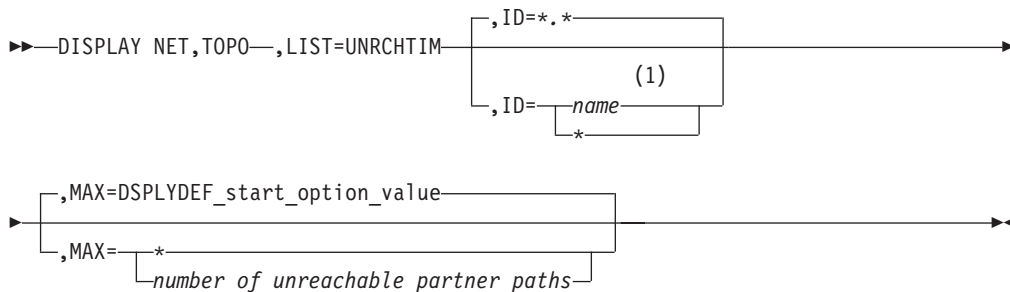
Display TDU statistics information:



Display a specific TG or TGs:



Display unreachable partner information for an Enterprise Extender connection network path:



Notes:

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

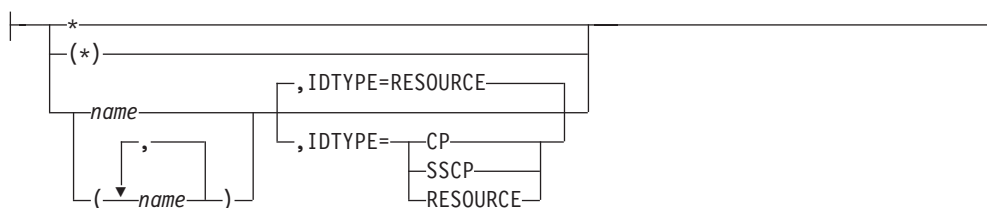
D TRACES

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

Display commands

►► DISPLAY NET,TRACES—,TYPE=NODES—,ID=— | ID values | ►►

ID values:



Display the status of a communication network management trace:

►► DISPLAY NET,TRACES—,TYPE=CNM— ►►

Display the status of the user Exit buffer trace:

►► DISPLAY NET,TRACES—,TYPE=EXIT—,ID=—
 ISEXCAA
 ISEXCCS
 ISEXCDM ►►

Display the status of a module trace:

►► DISPLAY NET,TRACES—,TYPE=MODULE— ►►

Display the status of a network controller line trace:

►► DISPLAY NET,TRACES—,TYPE=NETCTLR—,ID=3710_pu_name ►►

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

►► DISPLAY NET,TRACES—,TYPE=SMS—,ID=VTAMBUF ►►

Display the status of a resource state trace:

►► DISPLAY NET,TRACES—,TYPE=STATE— ►►

Display the status of a TSO user trace:

►► DISPLAY NET,TRACES—,TYPE=TSO—,ID=—
 *
 (*)
 (1)
 user_id
 ,
 (user_id) ►►

Notes:

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

Display the status of the VTAM internal trace:

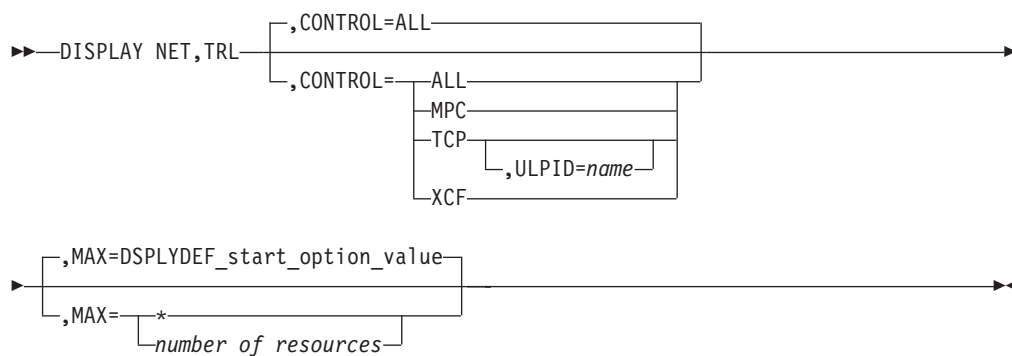


Display the status of all active traces:

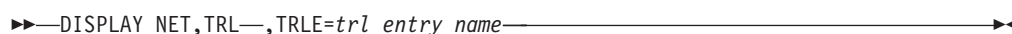


D TRL

Display the entries in the active TRL major nodes:



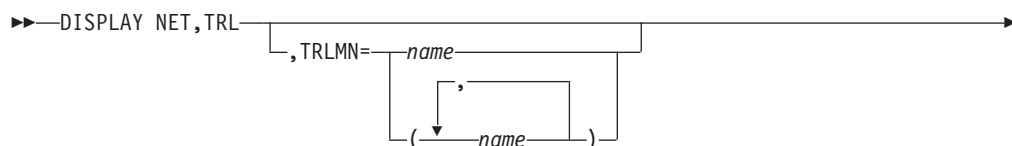
Display information about a specific user-defined TRLE:



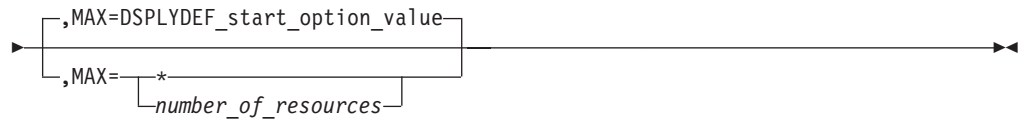
Display information about a dynamic XCF TRLE:



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



Display commands



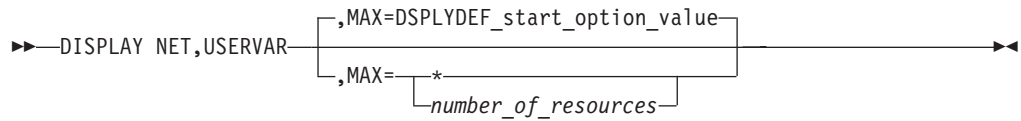
D TSOUSER

Display the status of a TSO user ID:

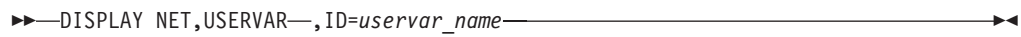


D USERVAR

Display all USERVARs:

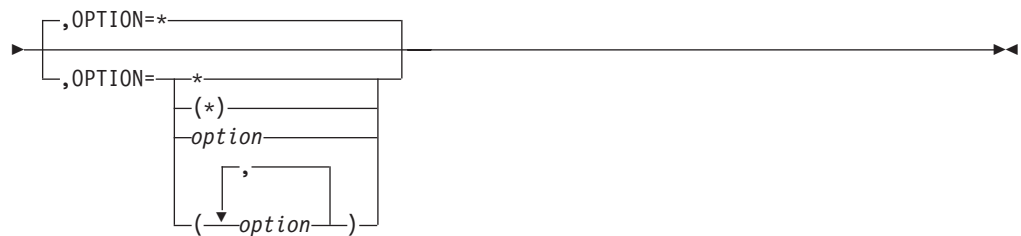
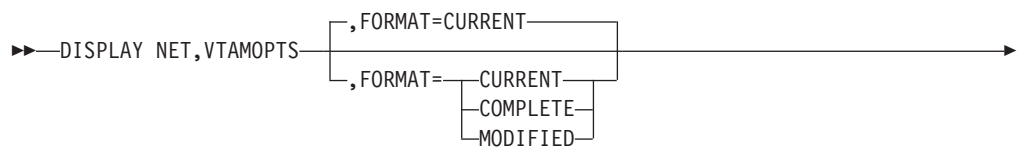


Display a specific USERVAR:

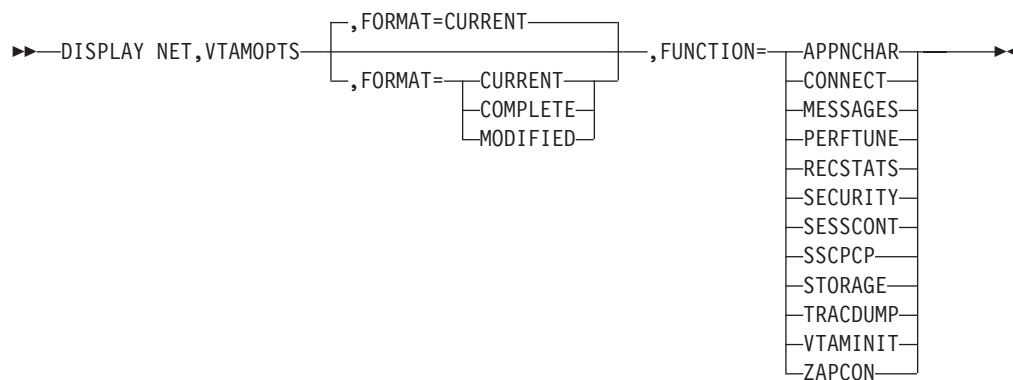


D VTAMOPTS

Display selected start options:

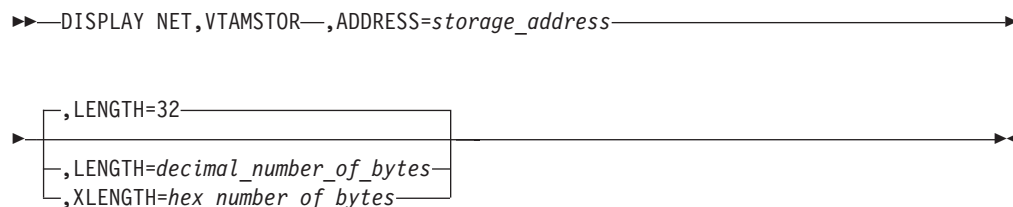


Display a group of related start options:



D VTAMSTOR

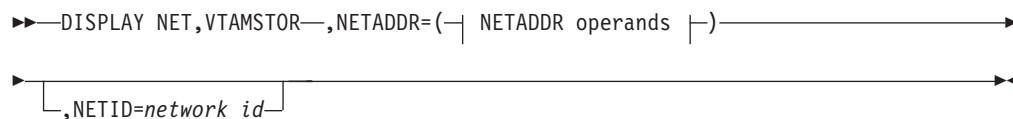
Display storage contents associated with a storage address:



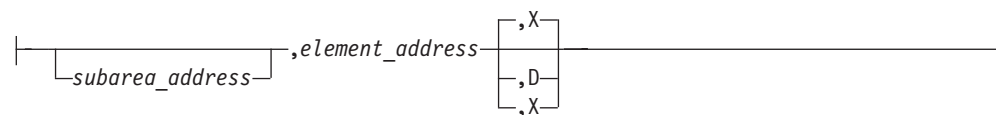
Display storage associated with a module:



Display storage associated with a network address:



NETADDR operands:



Display storage associated with a resource name:

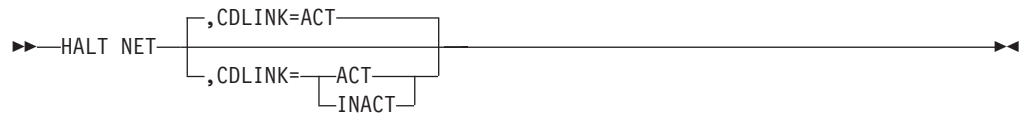


Display commands

Chapter 6. Halt commands

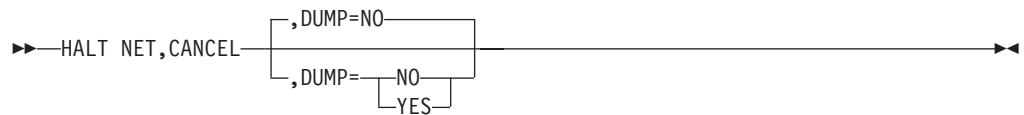
HALT (Z)

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



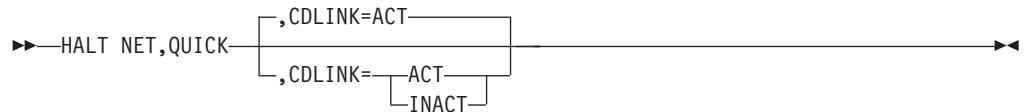
Z CANCEL

Request a halt of VTAM via abend:



Z QUICK

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



Halt commands

Chapter 7. Modify commands

F ALSLIST

Add an entry to an adjacent link station list:

```
►—MODIFY procname,ALSLIST—,ACTION=ADD—,ID= *—————►  
    |——cdrsc_major_node——|  
    |——cdrsc_name——|  
►—,NEWALS=adjacent_link_station_name—————►
```

Delete an entry from an adjacent link station list:

```
►—MODIFY procname,ALSLIST—,ACTION=DELETE—,ID= *—————►  
    |——cdrsc_major_node——|  
    |——cdrsc_name——|  
►—,OLDALS=adjacent_link_station_name—————►
```

Replace an entry in an adjacent link station list:

```
►—MODIFY procname,ALSLIST—,ACTION=REPLACE—,ID= *—————►  
    |——cdrsc_major_node——|  
    |——cdrsc_name——|  
►—,NEWALS=adjacent_link_station_name—,OLDALS=adjacent_link_station_name—————►
```

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

```
►—MODIFY procname,ALSLIST—,ACTION=CREATE—,ID=cdrsc_name—————►  
►—,NEWALS=adjacent_link_station_name—————►
```

F APINGDTP

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

```
►—MODIFY procname,APINGDTP—,INSTANCE=——UNLIMITED—————►  
    |——value——|
```

F APINGTP

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

Modify commands

►► MODIFY *procname*,APINGTP ,INSTANCE=UNLIMITED
value

F BFRUSE

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

►► MODIFY *procname*,BFRUSE, [,BUFFER=IOBUF] ,XPANLIM=*value*
[,BUFFER=I000]
IO

F CDRM

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

►► MODIFY *procname*,CDRM=*new_cdrm*
(*new_cdrm*)
(*new_cdrm*,*old_cdrm*)

►► ,ID=***
[*cdrsc_major_node_name*] [,TYPE=NORM]
[*cdrsc_minor_node_name*] [,TYPE=IMMED]
NORM

F CHKPT

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

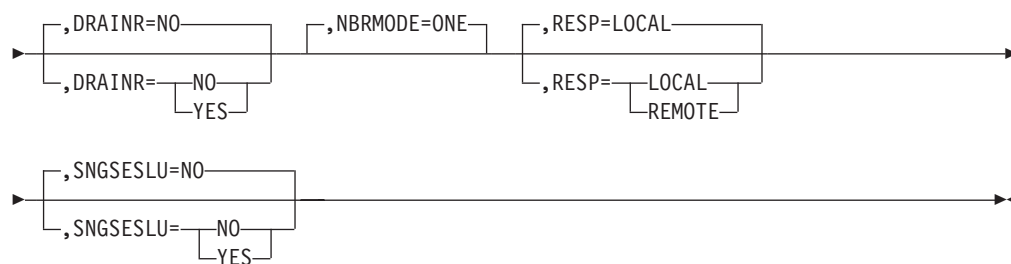
►► MODIFY *procname*,CHKPT [,TYPE=ALL]
[,TYPE=ALL]
DIR
TOPO

F CNOS

Set session limits to zero for one logon mode:

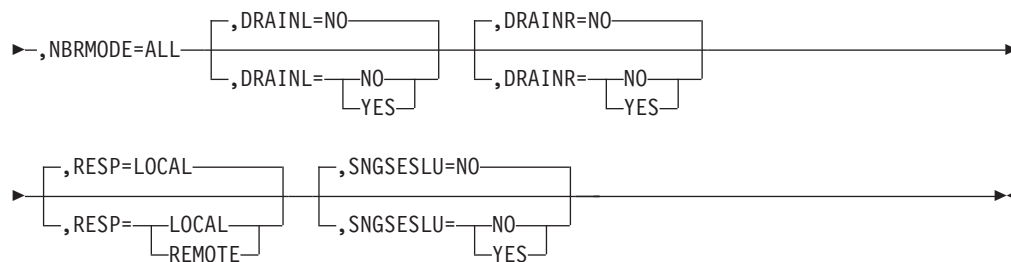
►► MODIFY *procname*,CNOS, ID=*appl_name*, LIMITS=(0,0,0)

►► ,LOGMODE=*logon_mode_name*, LUNAME=*lu_name* [,DRAINL=NO]
[,DRAINL=NO]
YES



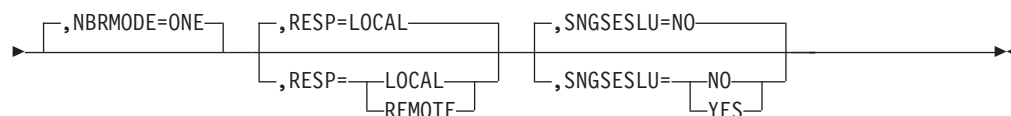
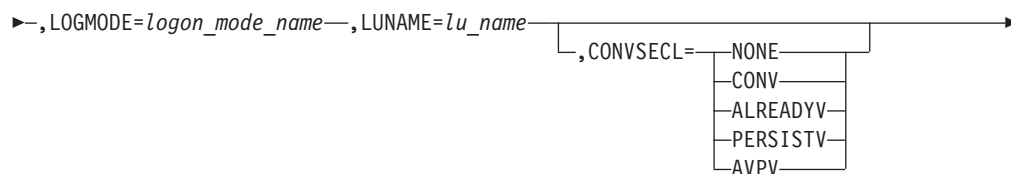
Set session limits to zero for all logon modes:

▶▶ `MODIFY procname, CNOS, ID=appl_name, LIMITS=(0,0,0), LUNAME=lu_name`



Set session limits to nonzero:

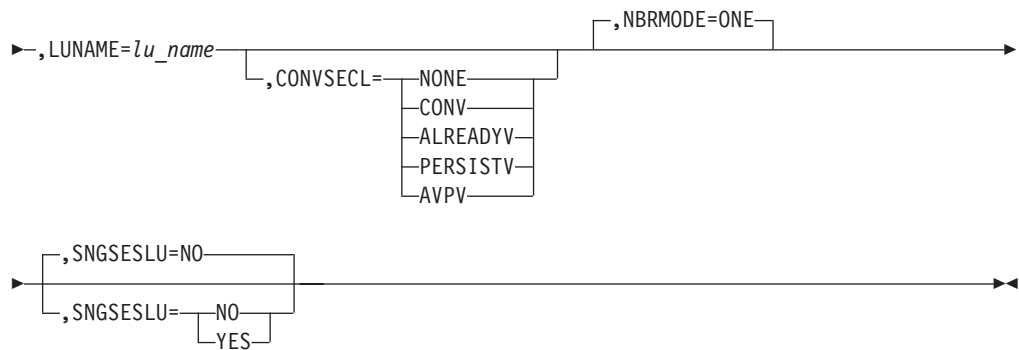
▶▶ `MODIFY procname, CNOS, ID=appl_name, LIMITS=(sesslim, minwinl, minwinr)`



Use existing session limits:

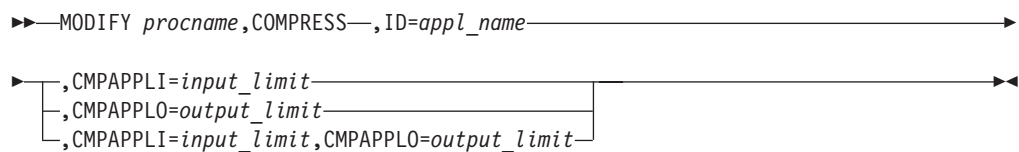
▶▶ `MODIFY procname, CNOS, ID=appl_name, LOGMODE=logon_mode_name`

Modify commands



F COMPRESS

Change the compression levels set by the APPL definition statement:

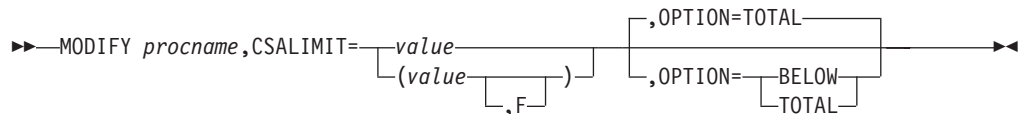


Change the compression level set by start option:



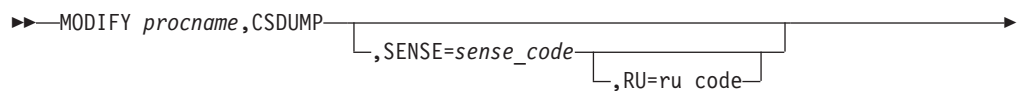
F CSALIMIT

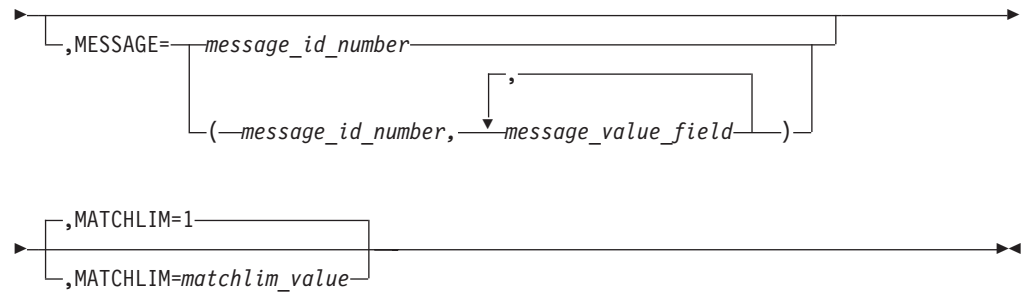
Dynamically change the amount of common service area (CSA) storage that VTAM is allowed to use:



F CSDUMP

Dump the current address space and VIT data space, setup a trigger that will invoke a dump of the current address space and VIT data space when a particular sense code and message are issued:



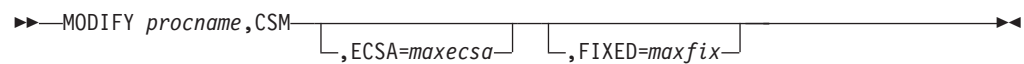


Remove the CSDUMP trigger:

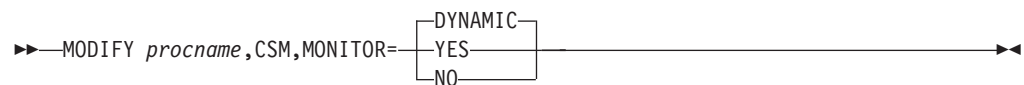


F CSM

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:

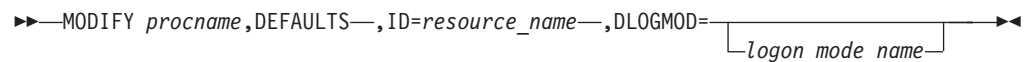


Modify CSM Monitoring as follows:

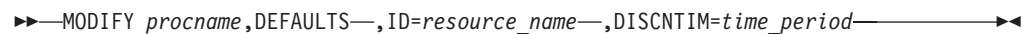


F DEFAULTS

Modify the DLOGMOD value for a resource:

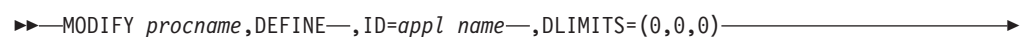


Change the delay timer for disconnection of a switched PU:

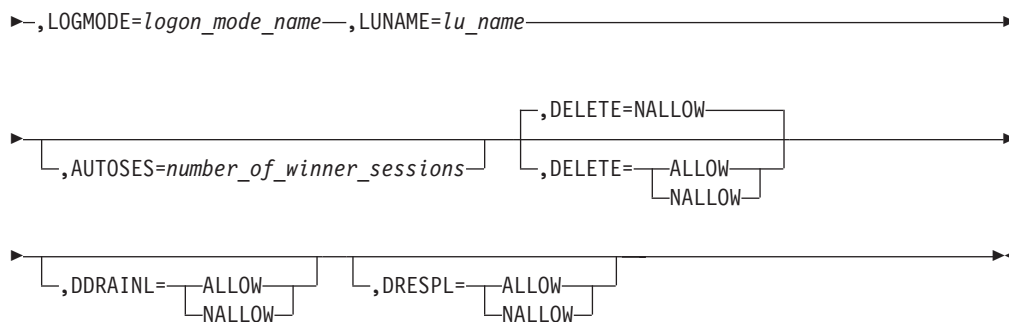


F DEFINE

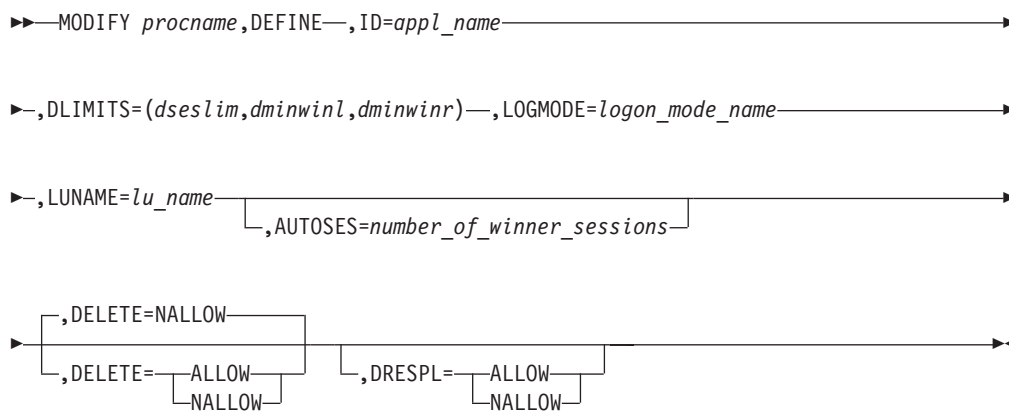
Set session limit to zero:



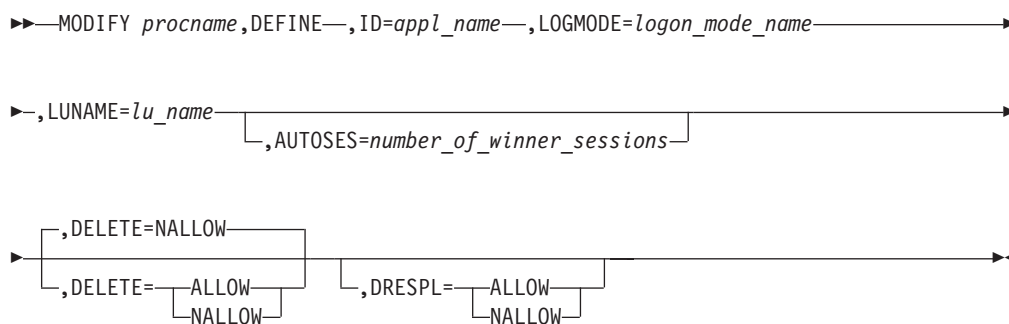
Modify commands



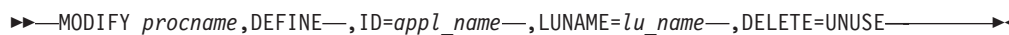
Set session limits to nonzero:



Use existing session limits:



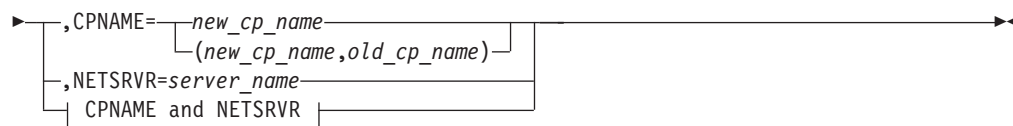
Delete an unusable LU-mode entry:



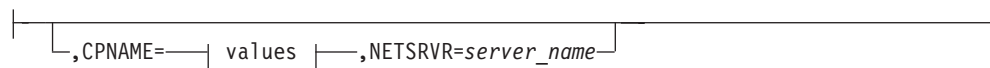
F DIRECTORY

Change the ownership of APPN resources in the directory database:





CPNAME and NETSRVR:



values:

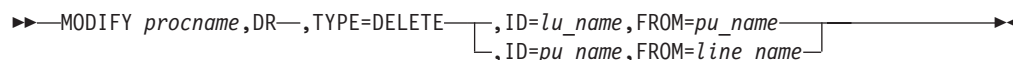


Delete a resource from the directory database:

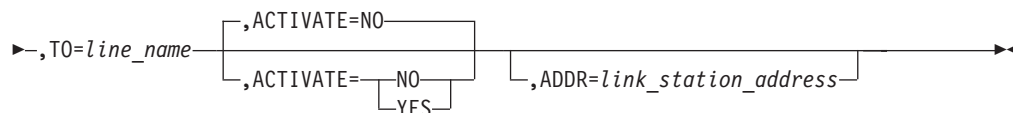


F DR

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

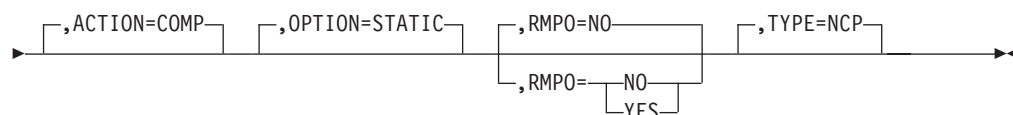


Move a physical unit:



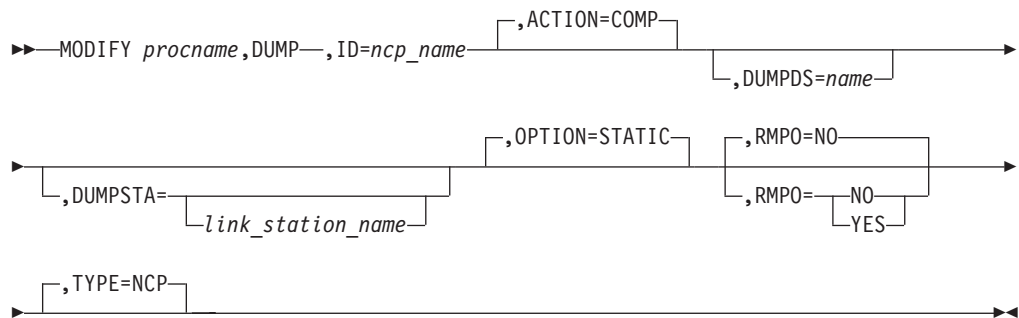
F DUMP

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



Static dump of NCP to host:

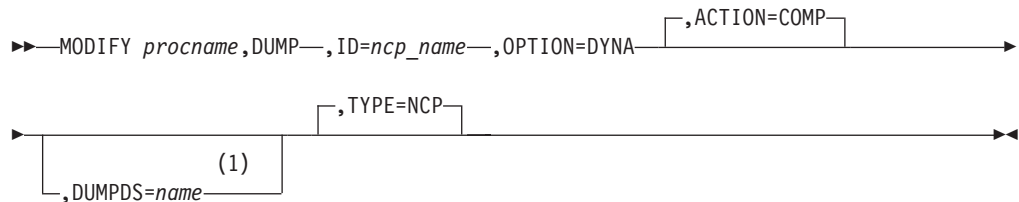
Modify commands



Static dump of NCP to hard disk:



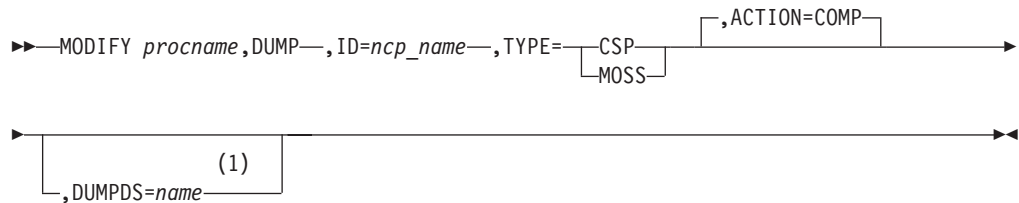
Dynamic dump of NCP to host:



Notes:

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

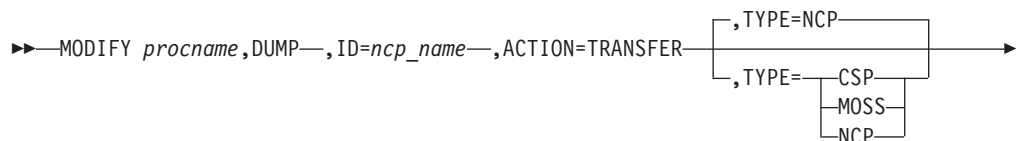
Transfer CSP or MOSS dump from hard disk to host:



Notes:

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

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

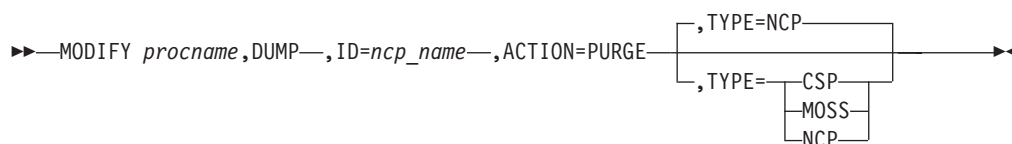




Notes:

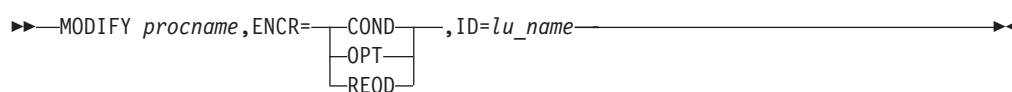
1 If the NCP has been acquired before activation, DUMPDS is required.

Purge dump from hard disk:



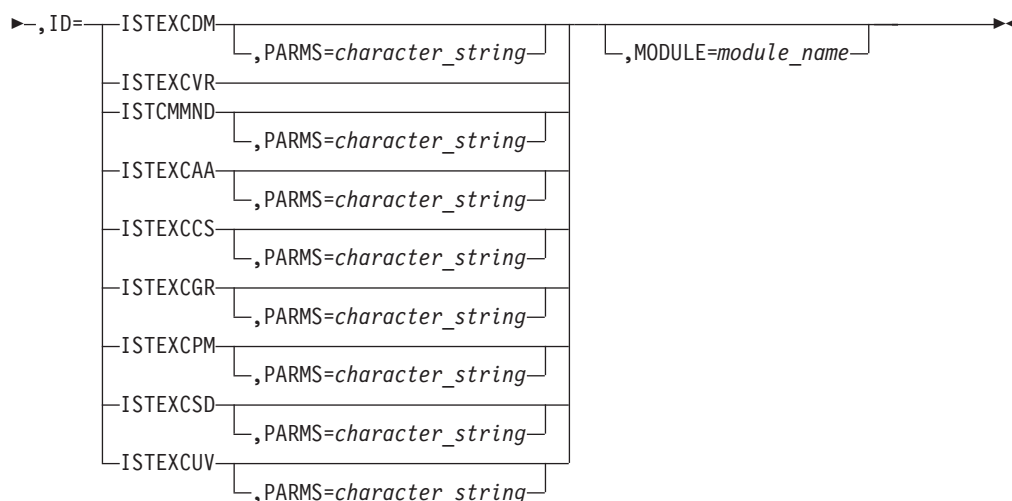
F ENCR

Change the cryptography specifications for logical units:

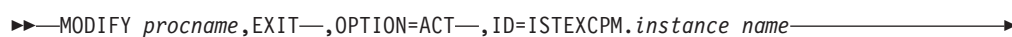


F EXIT

Activate or replace an exit routine:



Activate a multiple instance of ISTEEXCPM:



Modify commands

```
▶ [ ,PARMS=character_string ] ▶▶
```

Replace a multiple instance of ISTEEXCPM:

```
▶▶ MODIFY procname,EXIT—,OPTION=REPL—,ID=ISTEEXCPM.instance_name ▶▶
```

```
▶ [ ,MODULE=module_name ] [ ,PARMS=character_string ] ▶▶
```

Deactivate an exit routine:

```
▶▶ MODIFY procname,EXIT—,OPTION=[ INACT ] [ FORCE ] ▶▶
```

```
▶▶ [ ,ID= ISTEEXCDM [ ,PARMS=character_string ]
ISTEEXCVR
ISTCMMND [ ,PARMS=character_string ]
ISTEXCAA [ ,PARMS=character_string ]
ISTEXCCS [ ,PARMS=character_string ]
ISTEXCGR [ ,PARMS=character_string ]
ISTEEXCPM [ ,PARMS=character_string ]
ISTEXCSD [ ,PARMS=character_string ]
ISTEXCUV [ ,PARMS=character_string ] ] ▶▶
```

Deactivate a multiple instance of ISTEEXCPM:

```
▶▶ MODIFY procname,EXIT—,OPTION=[ INACT ] [ FORCE ],ID=ISTEEXCPM.instance_name ▶▶
```

```
▶ [ ,PARMS=character_string ] ▶▶
```

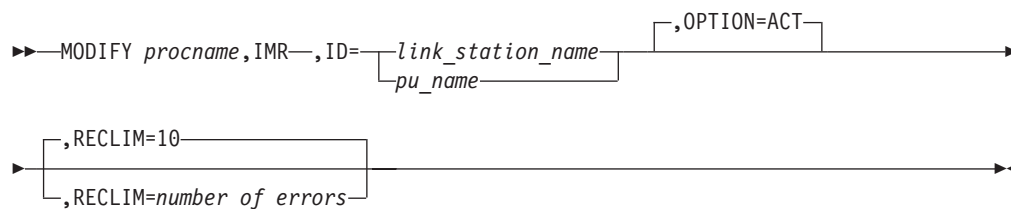
F GR

Delete a generic resource:

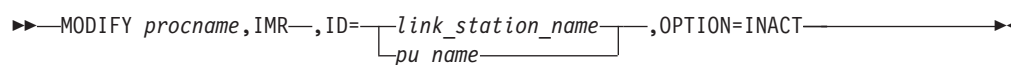
```
▶▶ MODIFY procname,GR—,GNAME=netid.generic_resource—,OPTION=DELETE ▶▶
```

F IMR

Start intensive mode recording:

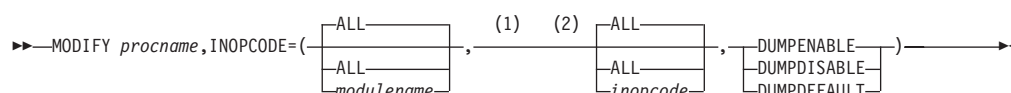


Stop intensive mode recording:



F INOPCODE

Controls the dump attribute of VTAM INOPCODEs:

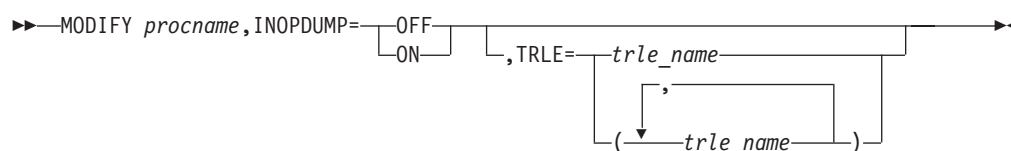


Notes:

- 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.

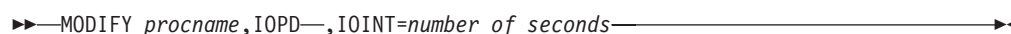
F INOPDUMP

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



F IOPD

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



F IOPURGE

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

Modify commands

►►—MODIFY *procname*,IOPURGE=*timeout_value*—►►

F LINEDEF

Dynamically change the definition of a redefinable line:

►►—MODIFY *procname*,LINEDEF—,ID=*line_name*—,USE=DEFINED
SPARE—►►

F LL2

Start a continuous link level 2 test:

►►—MODIFY *procname*,LL2—,ID=*name*—,OPTION=CONT—►►
 ,DATA=*data*—

,NFRAMES=1—
 ,NFRAMES=*number_of_test_messages*—►►

Start a brief link level 2 test:

►►—MODIFY *procname*,LL2—,ID=*name*—►►
 ,DATA=*data*—

,NFRAMES=1—
 ,NFRAMES=*number_of_test_messages*—
 ,NTRANS=10—
 ,NTRANS=*number_of_test_messages*—►►

Stop a link level 2 test:

►►—MODIFY *procname*,LL2—,ID=*name*—,OPTION=CANCEL—►►

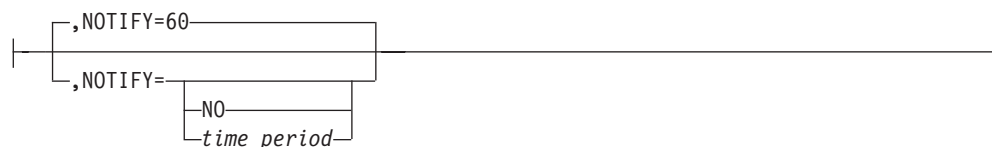
F LOAD

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

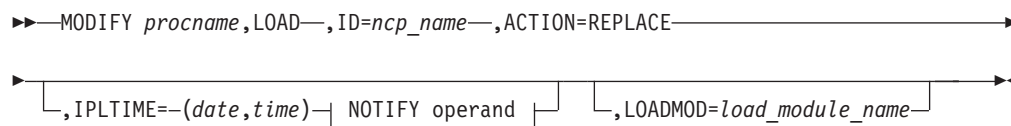
►►—MODIFY *procname*,LOAD—,ID=*ncl_name*— ,ACTION=ADD—►►

,IPLTIME=—(*date,time*)— NOTIFY operand ,LOADMOD=*load_module_name*—►►

NOTIFY operand:



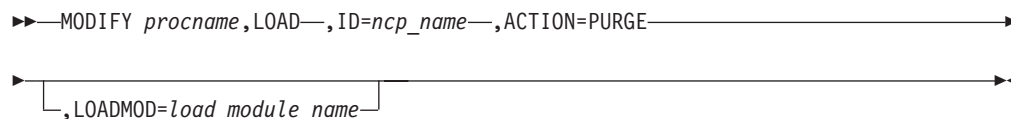
Replace a load module on the hard disk, and optionally for a 3745, schedule an IPL:



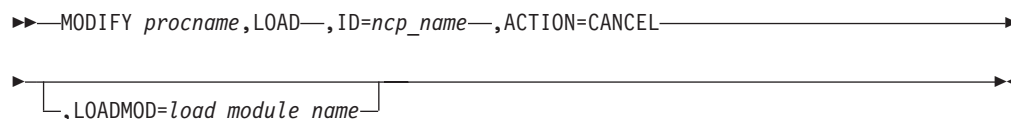
NOTIFY operand:



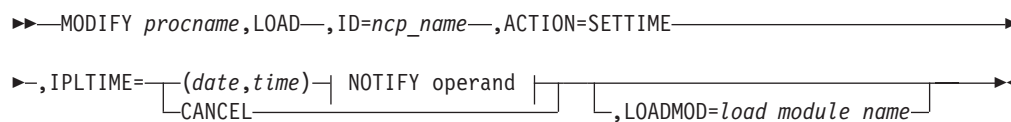
Purge a load module from the hard disk:



Cancel an ADD or REPLACE operation in progress:



Schedule or cancel an automatic IPL for an NCP load module in a 3745:



NOTIFY operand:



Modify commands

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

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

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

F NCP

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 NEG POLL

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

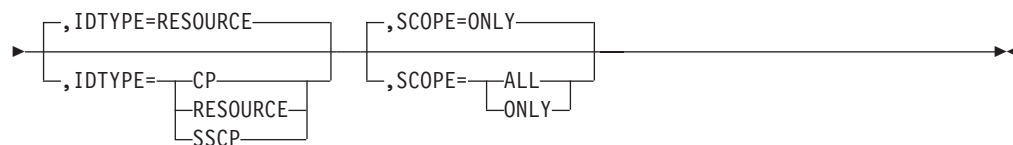
Terminate global or TRLE tuning statistics:

```
►►—MODIFY procname,NOTNSTAT—  
                                  ,TRLE=trle_name—  
                                          ,  
                                          (trle_name)—►►
```

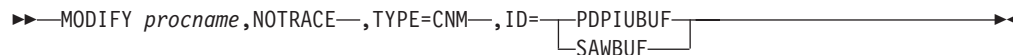
F NOTRACE

Stop a buffer contents trace:

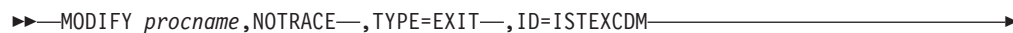
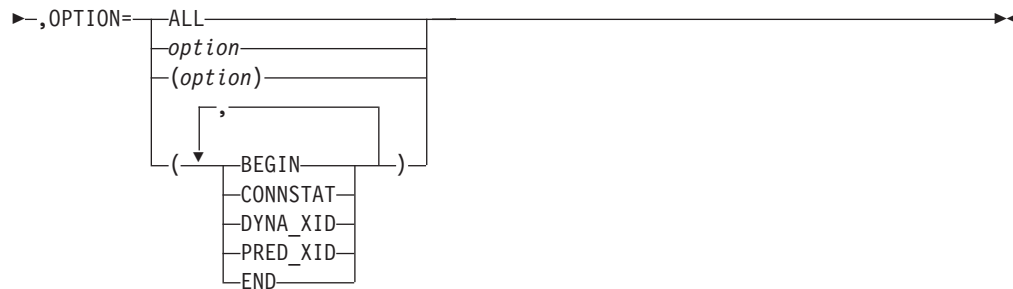
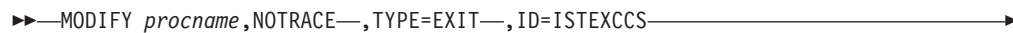
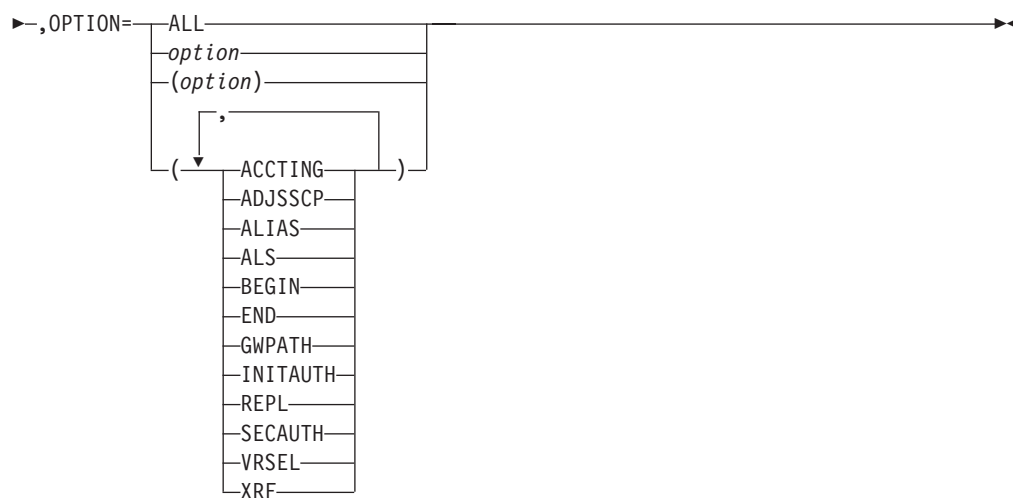
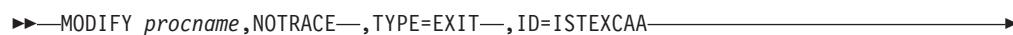
```
►►—MODIFY procname,NOTRACE—,TYPE=BUF—,ID=node_name—►►
```



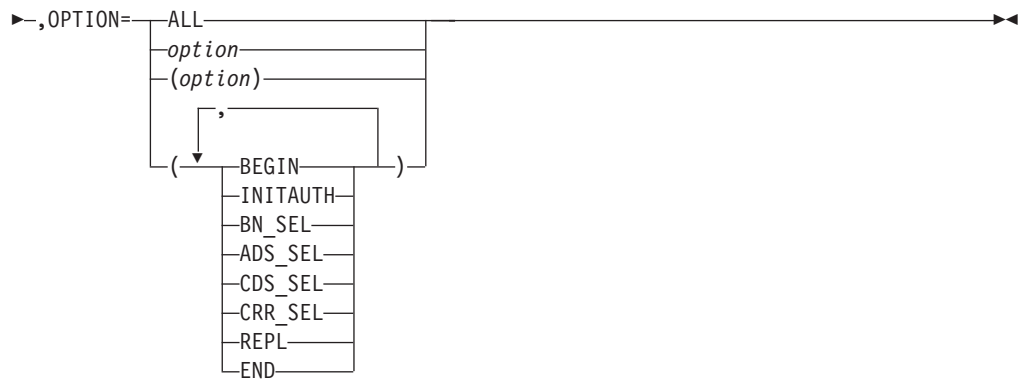
Stop a communication network management trace:



Stop a user Exit buffer trace:

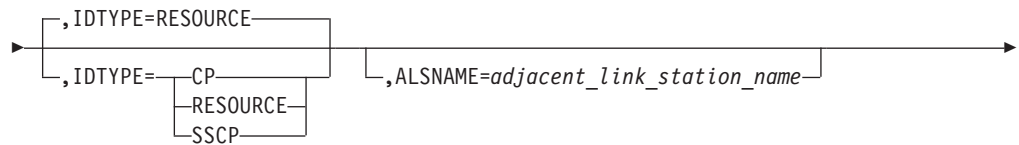


Modify commands



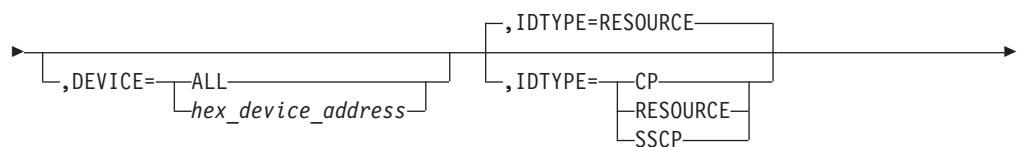
Stop a generalized PIU trace:

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



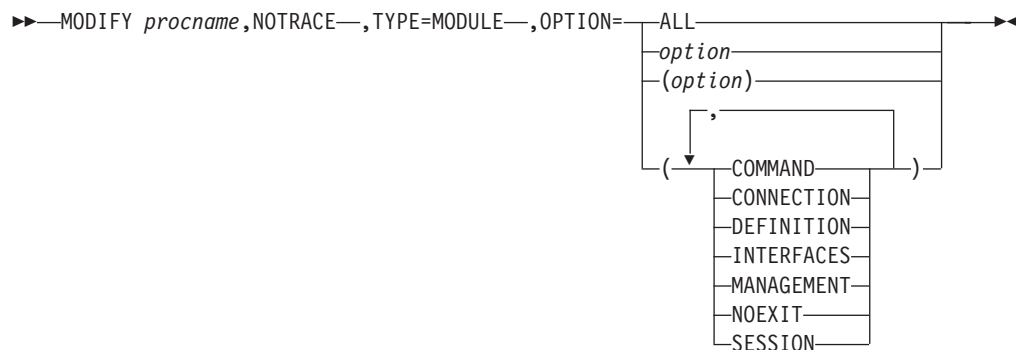
Stop an input/output trace:

►► `MODIFY procname,NOTRACE—,TYPE=IO—,ID=node_name—`



Stop a module trace:

Modify commands



Stop an NCP line trace:

▶▶—MODIFY *procname*,NOTRACE—,TYPE=LINE—,ID=*line_name*—▶▶

Stop a 3710 Network Controller line trace:

▶▶—MODIFY *procname*,NOTRACE—,TYPE=NETCTLR—,ID=*pu_name*—,LINE=*line_name*—▶▶

▶▶—,PU=3710_*pu_name*—▶▶

Stop a scanner interface trace:

▶▶—MODIFY *procname*,NOTRACE—,TYPE=SIT—,ID=*line_name*—▶▶

Stop an SMS (buffer use) trace:

▶▶—MODIFY *procname*,NOTRACE—,TYPE=SMS—,ID=VTAMBUF—▶▶

Stop a resource state trace:

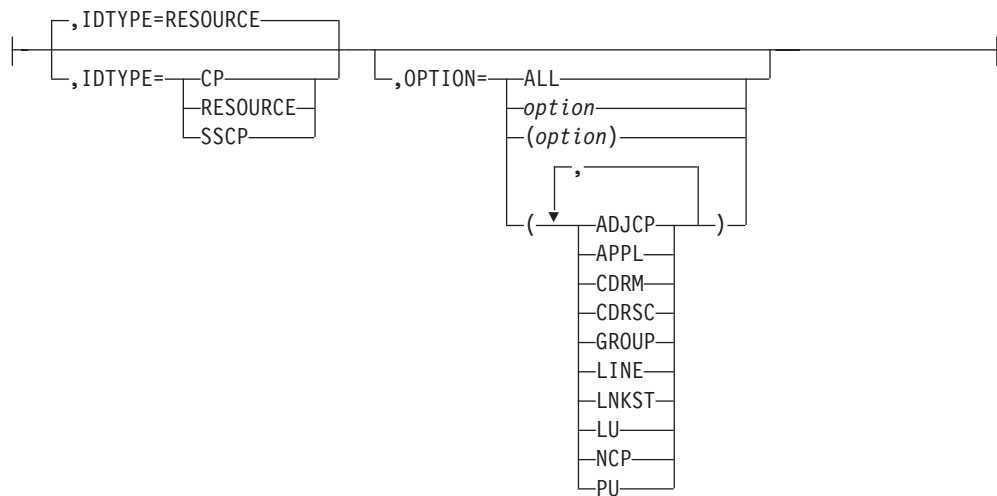
▶▶—MODIFY *procname*,NOTRACE—,TYPE=STATE—▶▶

▶▶—,ID=*node_name*— Operands used with ID

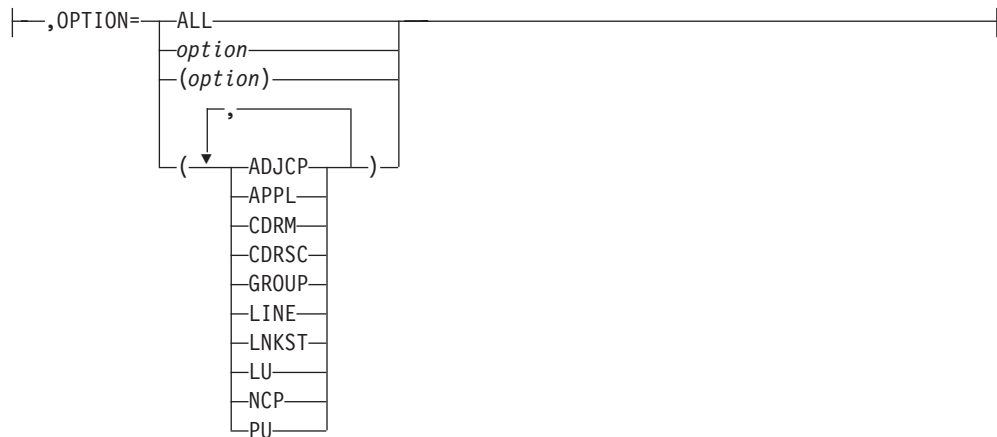
OPTION operand

Operands used with ID:

Modify commands



OPTION operand:



Stop a transmission group trace:

```

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

Stop a TSO user ID trace:

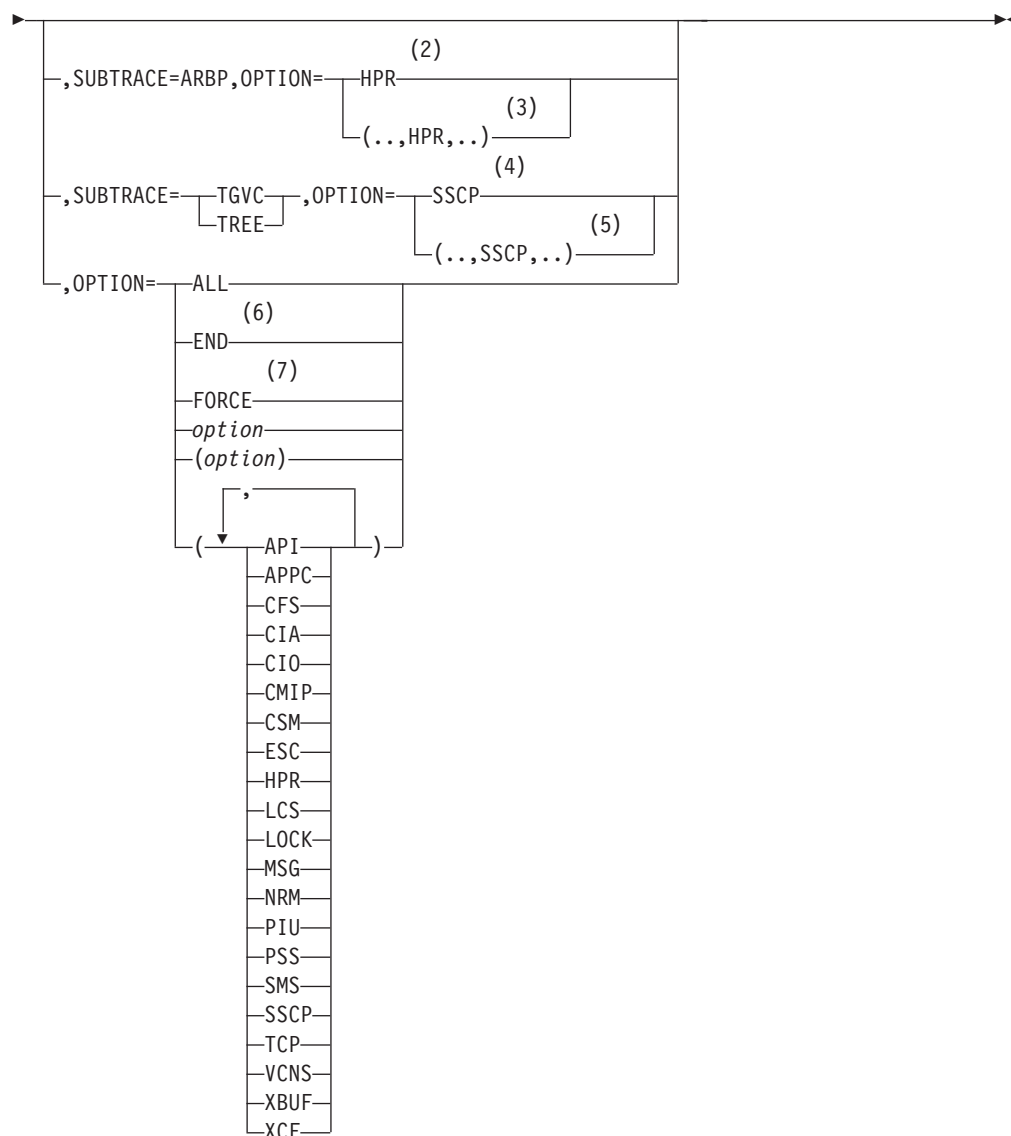
```

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

Stop a VTAM internal trace:

```

  >> MODIFY procname, NOTRACE, TYPE=VTAM, MODE=INT(1)
  <<
  >> MODIFY procname, NOTRACE, TYPE=VTAM, MODE=EXT
  <<
  >> MODIFY procname, NOTRACE, TYPE=VTAM, MODE=INT
  <<
  >> MODIFY procname, NOTRACE, TYPE=VTAM, MODE=EXT
  <<
  
```

Notes:

- 1 If you do not specify the mode, both internal and external recording are stopped. However, any default options that you have stopped are immediately restarted by VTAM and recorded on the internal trace table.
- 2 OPTION=HPR must be specified when SUBTRACE=ARBP is specified.
- 3 If multiple trace options are coded in parentheses, HPR must be one of the options coded inside the parentheses when SUBTRACE=ARBP is coded.
- 4 OPTION=SSCP must be specified when SUBTRACE=TGVC or SUBTRACE=TREE is coded
- 5 If multiple trace options are coded in parentheses, SSCP must be one of the options coded inside the parentheses when SUBTRACE=TGVC or SUBTRACE=TREE is coded.

Modify commands

- 6 To stop external recording with OPTION=END, MODE=EXT must be explicitly specified.
- 7 OPTION=FORCE is not valid when MODE=EXT is specified.

F POLL

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:

```
▶▶—MODIFY procname,POLL=number_of_seconds—,ID=line_name————▶▶
```

F PPOLOG

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————▶▶  
                                  NO
```

F PROFILES

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

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

F RESOURCE

Modify the DLOGMOD value for a resource:

```
▶▶—MODIFY procname,RESOURCE—,ID=resource_name—,DLOGMOD=————▶▶  
                                                                                  logon_mode_name
```

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

```
▶▶—MODIFY procname,RESOURCE—,ID=resource_name—,ADJLIST=list_name————▶▶  
▶—,ACTION=UPDATE————▶▶
```

Delete the ADJLIST value for a cross-domain resource:

```
▶▶—MODIFY procname,RESOURCE—,ID=resource_name—,ADJLIST=list_name————▶▶  
▶—,ACTION=DELETE————▶▶
```

Change the delay timer for disconnection of a switched PU:

```
▶▶—MODIFY procname,RESOURCE—,ID=resource_name—,DISCNTIM=time_period————▶▶
```

Modify commands

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—————►►
```

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

```
►►—MODIFY procname,RESOURCE—,ID=resource_name—,SIRFMSG=—►►  
|—OLUSSCP—|  
|—ALLSSCP—|  
|—STARTOPT—|  
|—NONE—|
```

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 ASRCVLM value for an application program:

```
►►—MODIFY procname,RESOURCE—,ID=resource_name—,ASRCVLM=amount_of_storage—————►►
```

Modify the MODSRCH value for an 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—|
```

Modify commands

F RTP

Request that VTAM search for the best high performance routing (HPR) route, based on transmission group weight, between the two endpoints of a rapid transport protocol (RTP) connection:

►►—MODIFY *procname*,RTP—,ID=*rtp_pu_name*—►►

F SECURITY

Increase the cryptography specification for an LU:

►►—MODIFY *procname*,SECURITY—,ID=*lu_name*—,ENCR=—
┌—COND—
├—OPT—
└—REQD—

(1)
┌—ENCRTYPE=DES—
└—ENCRTYPE=TDDES24—

Notes:

- 1 ENCRTYPE can not be downleveled. If the current value is TDDES24, MODIFY SECURITY ENCRTYPE=DES will not be allowed.

Modify which cryptographic key name is used for an LU:

►►—MODIFY *procname*,SECURITY—,ID=*lu_name*—,CKEY=—
┌—ALTERNATE—
└—PRIMARY—

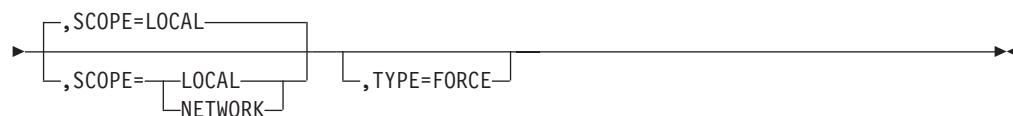
Initiate SLU authentication for an LU:

►►—MODIFY *procname*,SECURITY—,ID=*lu_name*—,CERTIFY=YES—►►

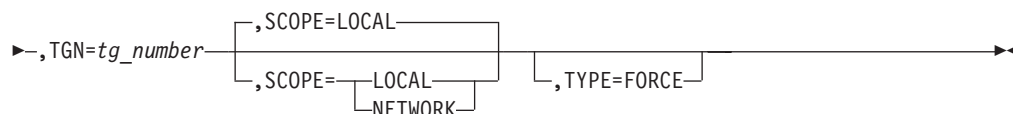
Increase the message authentication specification for an LU:

►►—MODIFY *procname*,SECURITY—,ID=*lu_name*—,MAC=—
┌—COND—
└—REQD—

┌—,MACTYPE=—
├—CRC—
├—,MACLNTH=—
├—2—
├—4—
├—DES—
├—,MACLNTH=—
├—4—
├—6—
├—8—



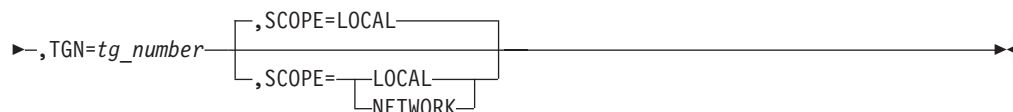
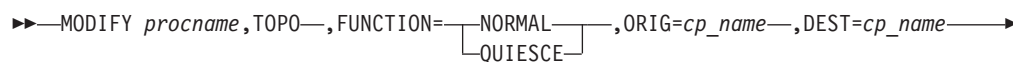
Delete a transmission group:



Modify the status of a node for route calculation:



Modify the status a transmission group for route calculation:



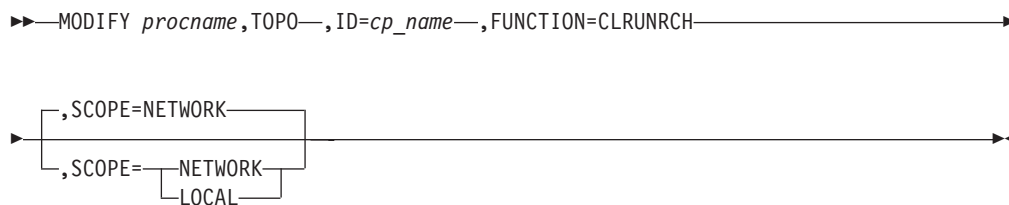
Clear unreachable partner information for an Enterprise Extender virtual node or end node on a network node:



The *cp_name* represents either an Enterprise Extender virtual node name or the name of an end node connected to an Enterprise Extender virtual node.

Clearing unreachable partner information on an end node:

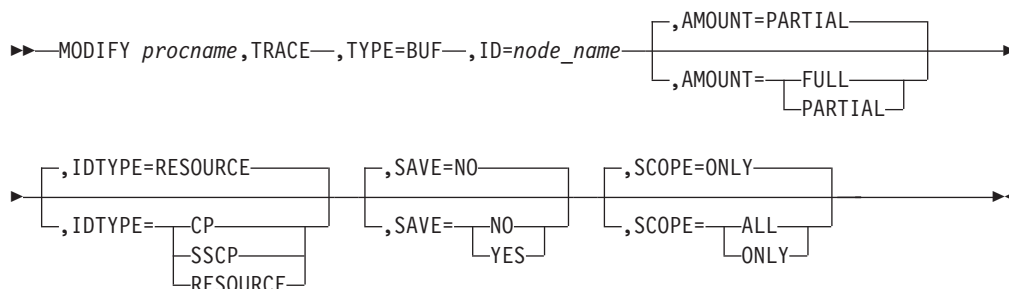
Modify commands



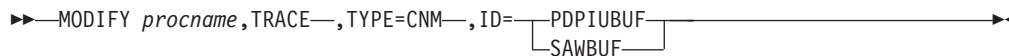
The *cp_name* represents the name of the host end node, which is connected to an Enterprise Extender virtual node, where the command is issued.

F TRACE

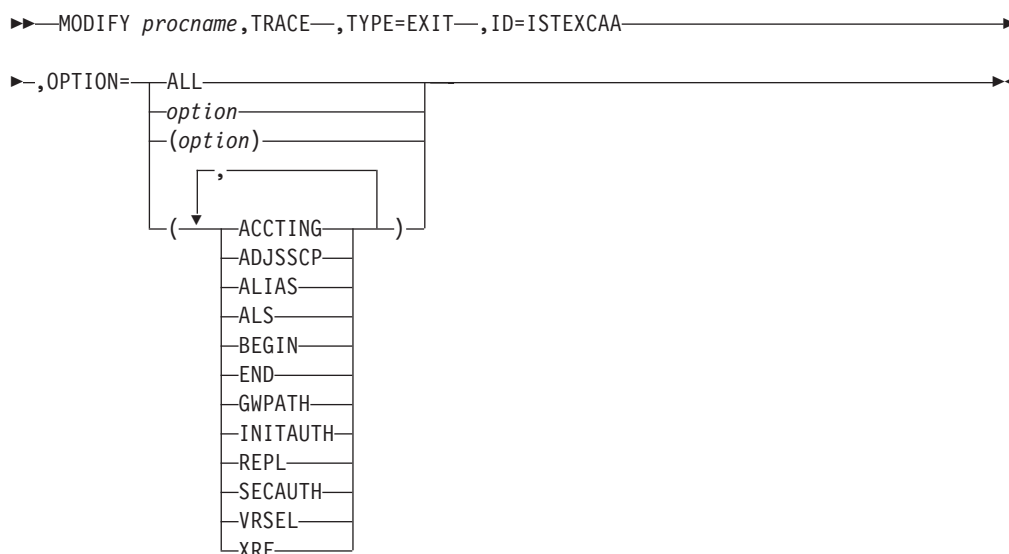
Start or modify a buffer contents trace:



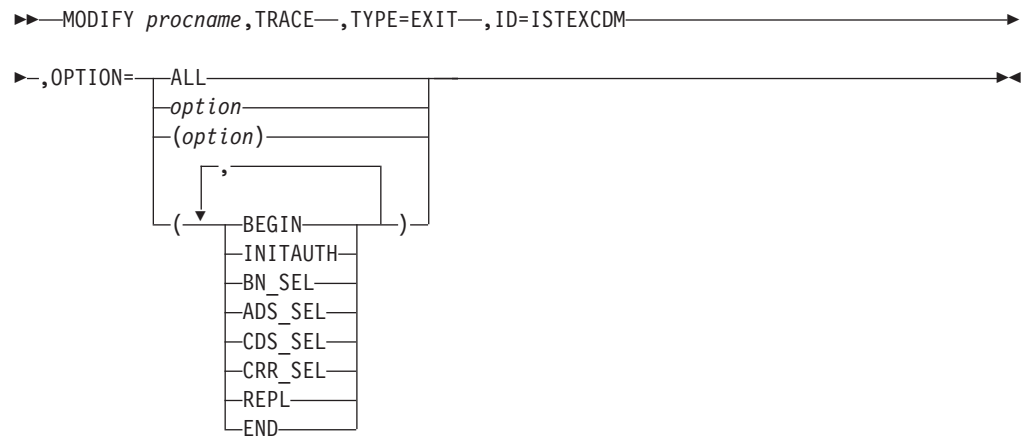
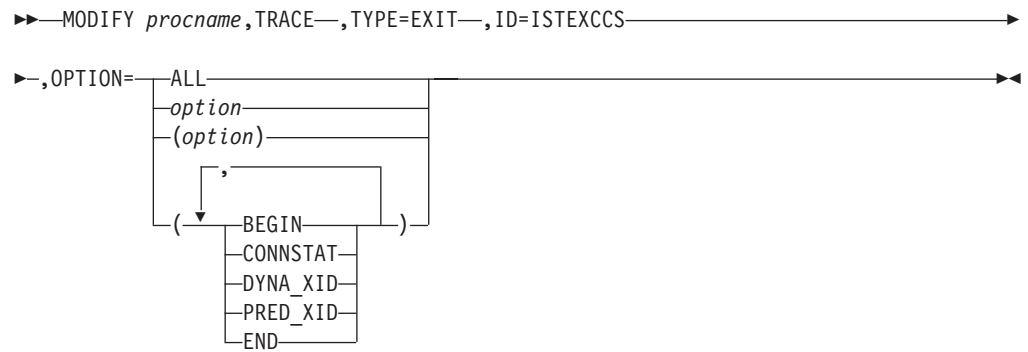
Start or modify a communication network management trace:



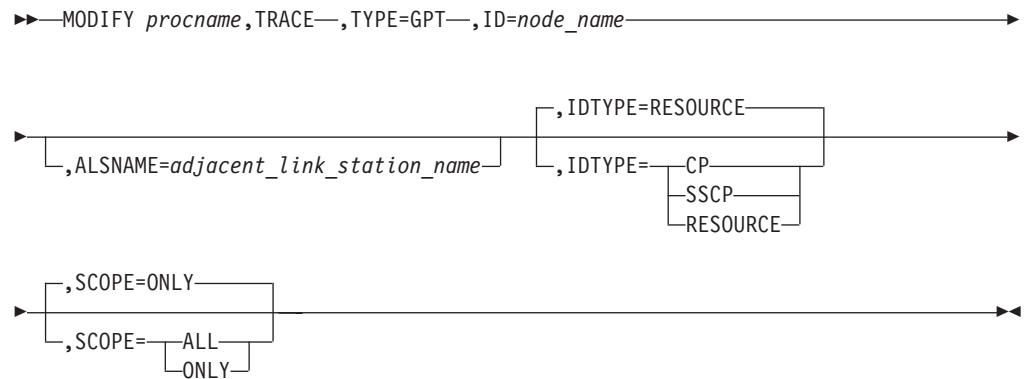
Start or modify a user Exit buffer trace:



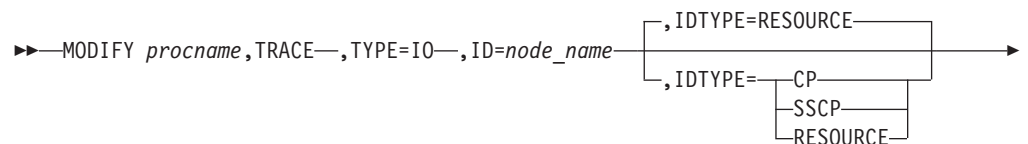
Modify commands



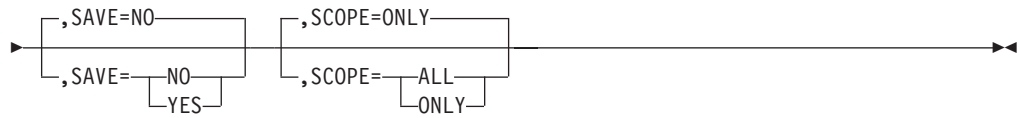
Start or modify a generalized PIU trace:



Start or modify an input/output trace:

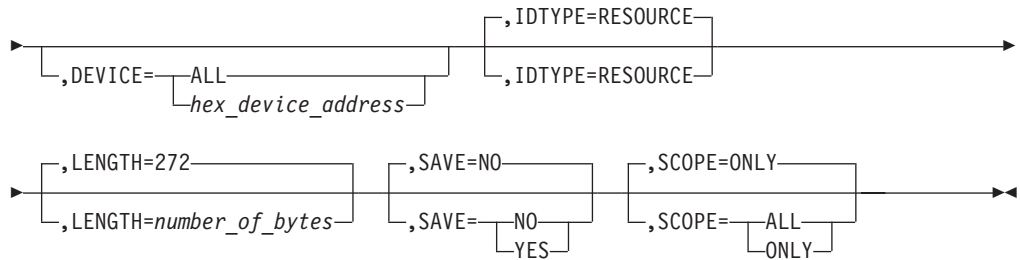


Modify commands



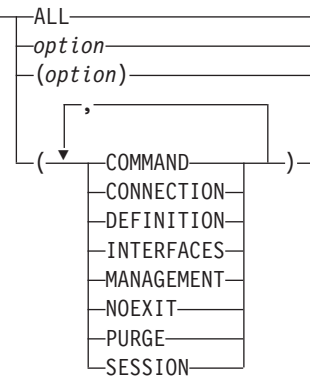
Start or modify an input/output trace for a TRLE with the DATAPATH operand coded:

►► `MODIFY procname,TRACE—,TYPE=IO—,ID=trle_name—`



Start or modify a module trace:

►► `MODIFY procname,TRACE—,TYPE=MODULE—,OPTION=`



Start or modify an NCP line trace:

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

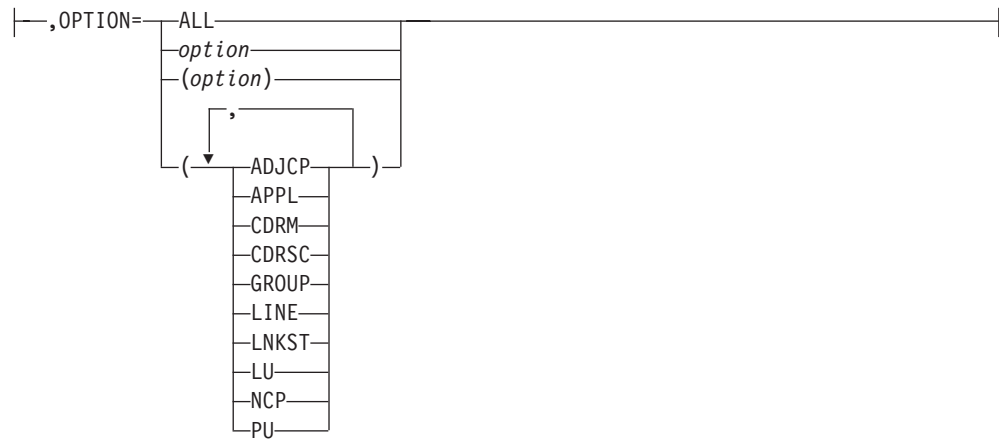


Start or modify a 3710 Network Controller line trace:

►► `MODIFY procname,TRACE—,TYPE=NETCTLR—,ID=pu_name—,LINE=line_name—`

Modify commands

OPTION operand:



Start or modify a transmission group trace:

►► MODIFY *procname*,TRACE—,TYPE=TG—,ID=*line_name*—————►►

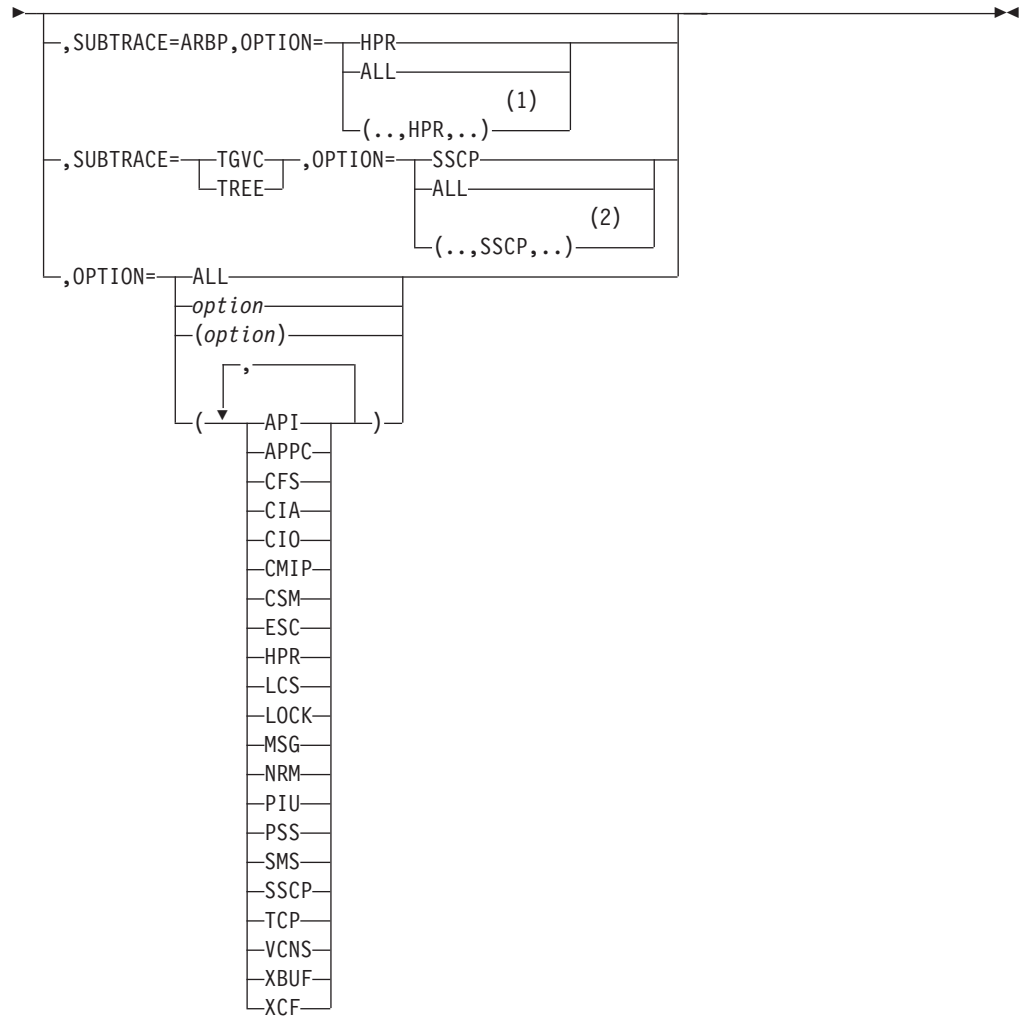
Start or modify a TSO user ID trace:

►► MODIFY *procname*,TRACE—,TYPE=TSO—,ID=*tso_user_id*—————►►

Start or modify the VTAM internal trace:

►► MODIFY *procname*,TRACE—,TYPE=VTAM—————►►

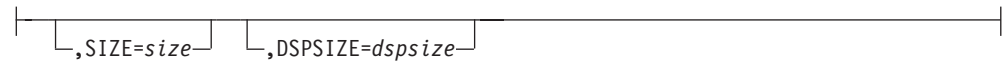
└─,MODE=┬─EXT─┬─ EXT operands ┬─┐
 └─INT─┬─ INT operands ┬─┐



EXT operands:



INT operands:



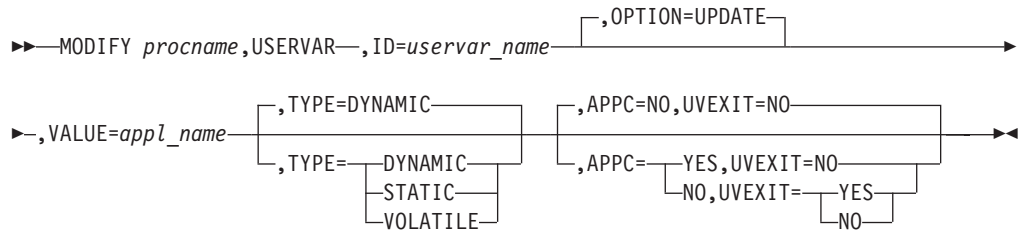
Notes:

- 1 If multiple trace options are coded in parentheses, HPR must be one of the options coded inside the parentheses when `SUBTRACE=ARBP` is coded.
- 2 If multiple trace options are coded in parentheses, SSCP must be one of the options coded inside the parentheses when `SUBTRACE=TGVC` or `SUBTRACE=TREE` is coded.

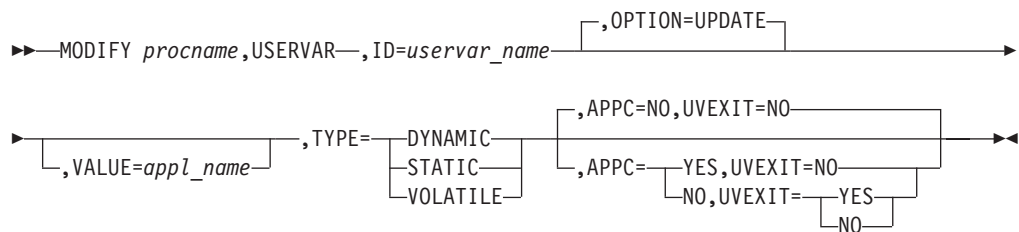
Modify commands

F USERVAR

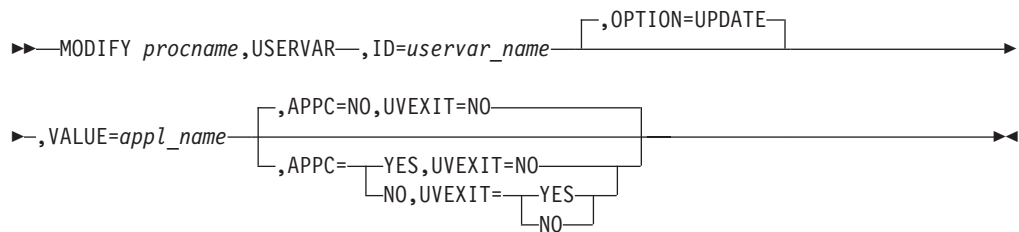
Create a new USERVAR:



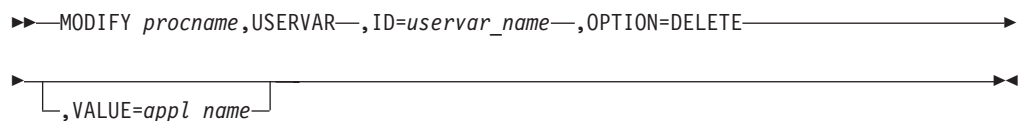
Update an existing USERVAR and change the TYPE:



Update an existing USERVAR, leaving the TYPE unchanged:

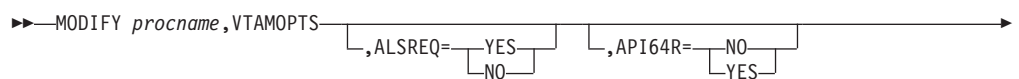


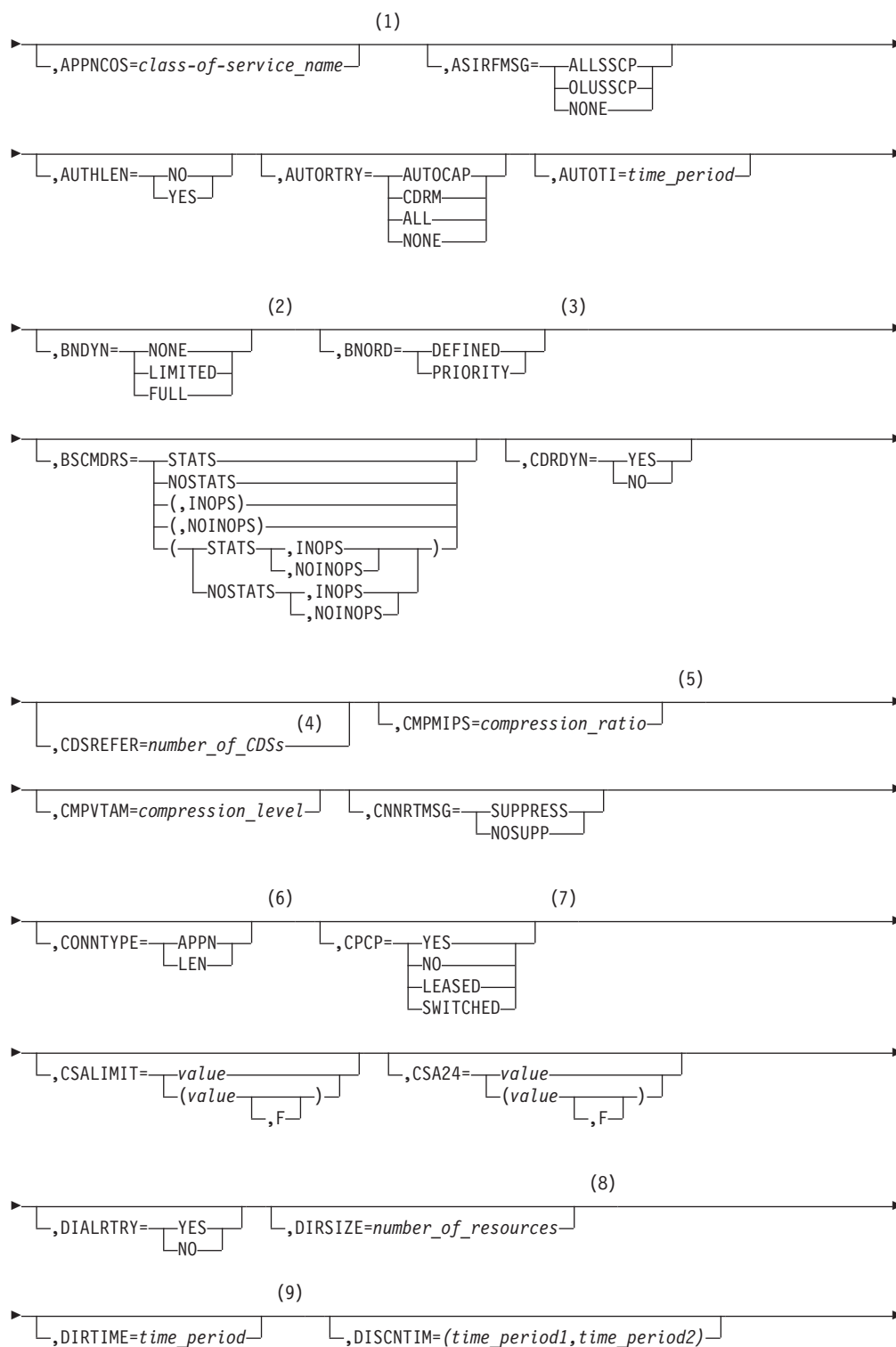
Delete a USERVAR:



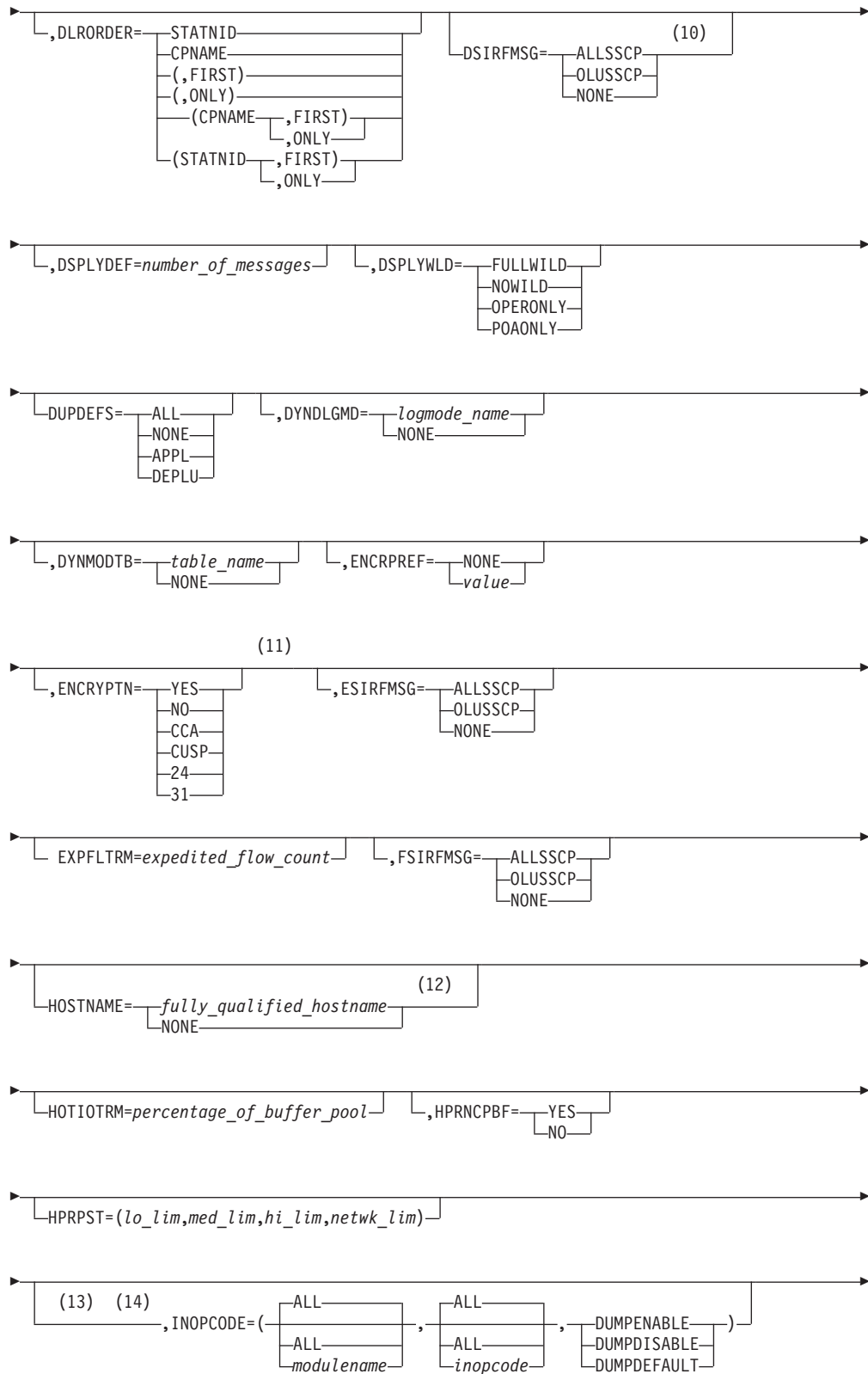
F VTAMOPTS

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

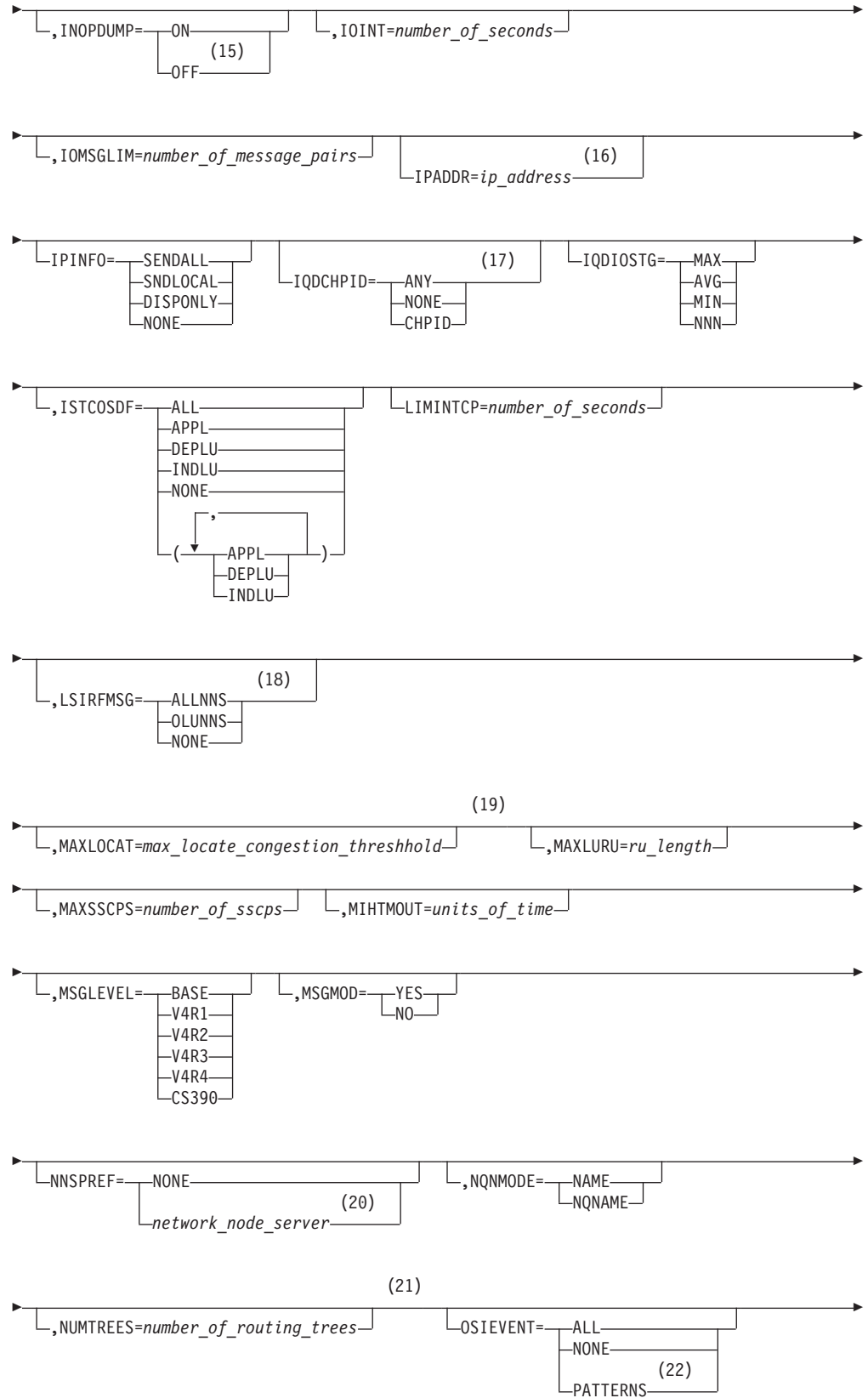




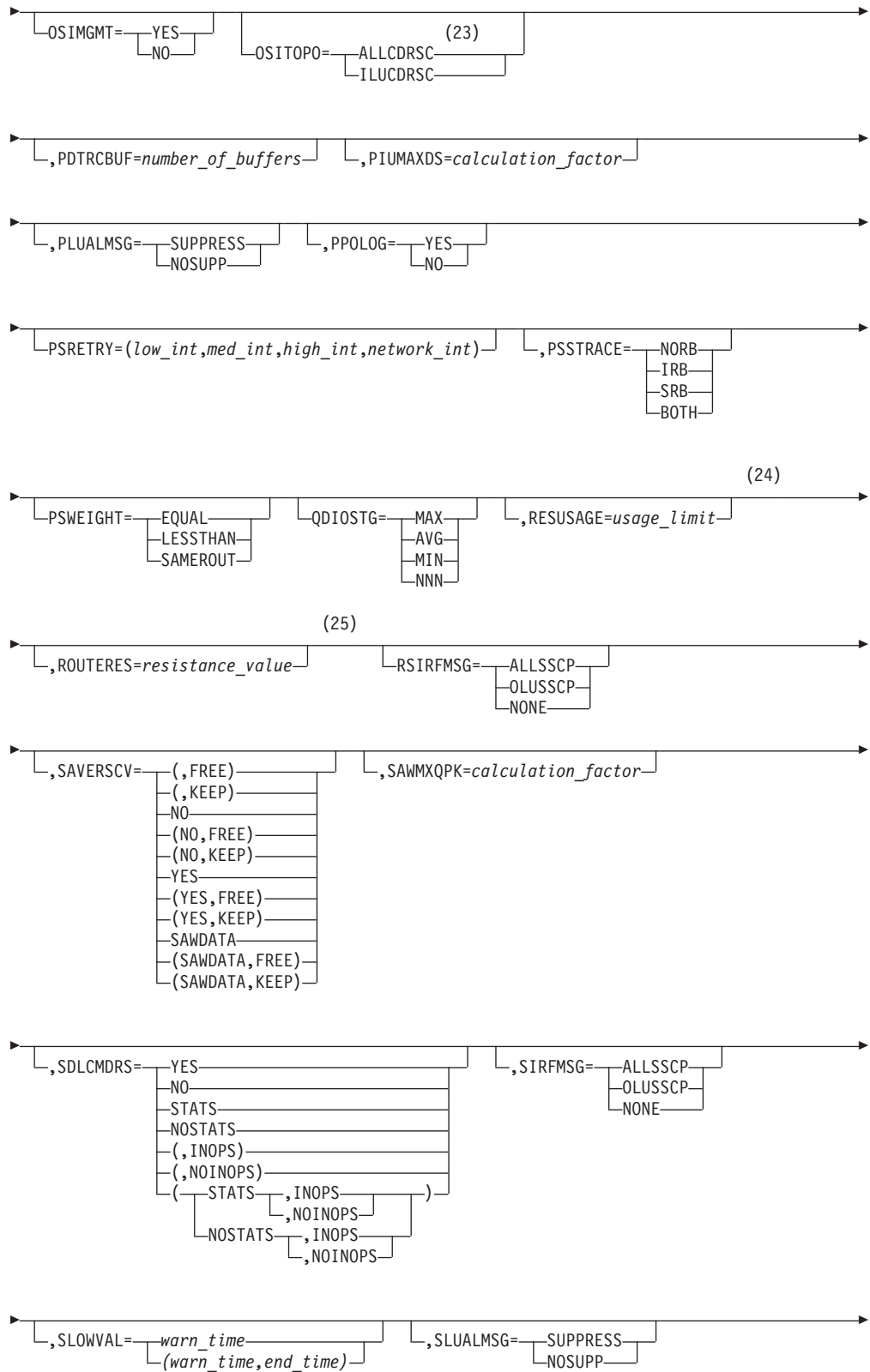
Modify commands

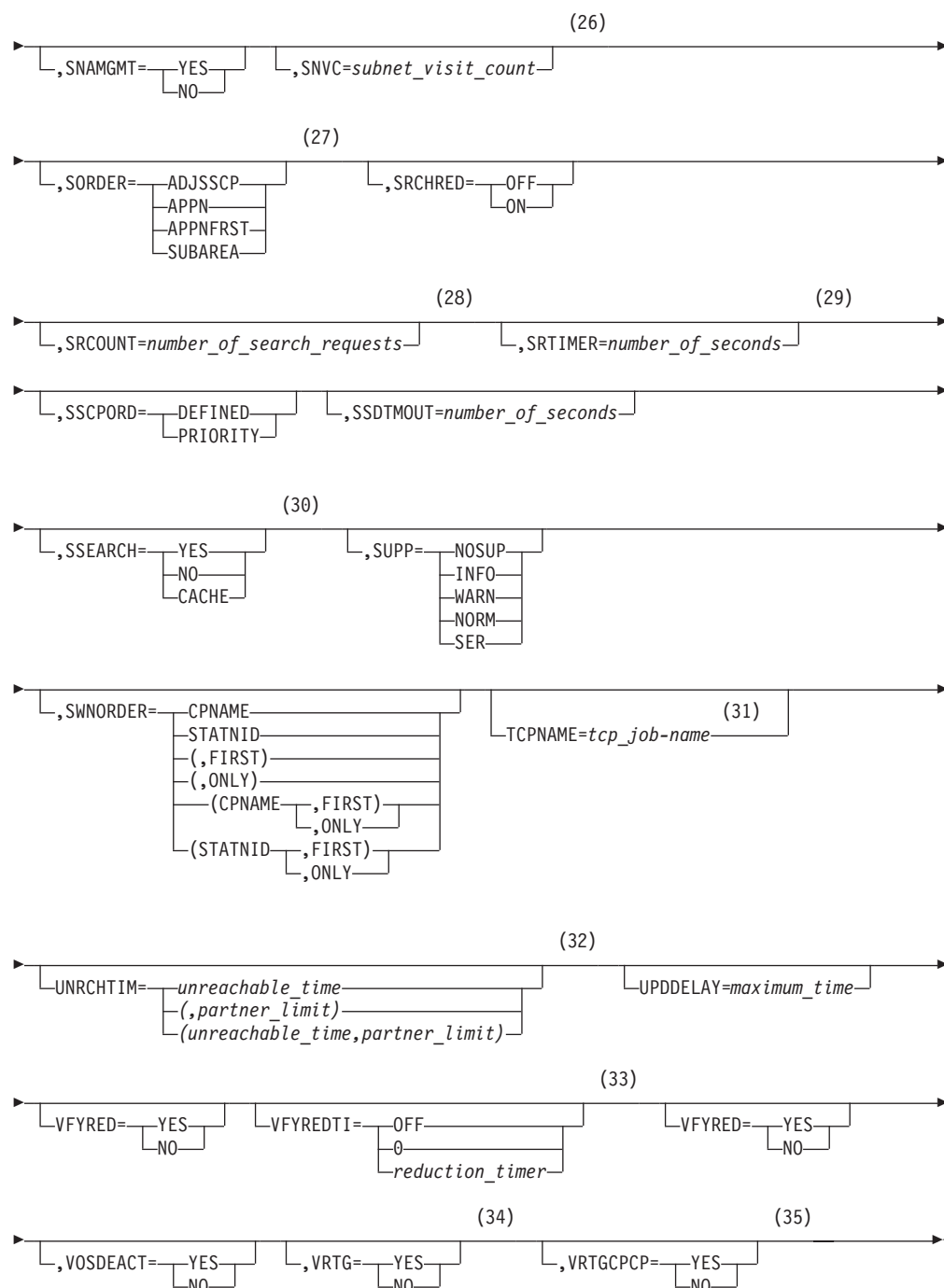


Modify commands



Modify commands





Notes:

- 1 APPNCP can be modified only if NODETYPE was specified during VTAM START processing.
- 2 BNDYN can be modified only if BN=YES was specified during VTAM START processing.
- 3 BNORD can be modified only if BN=YES was specified during VTAM START processing.
- 4 CDSREFER can be modified only if NODETYPE=NN and CDSERVER=NO were specified during VTAM START processing.

Modify commands

- 5 CPMPIPS is meaningful only if the value for CMPVTAM is greater than 1.
- 6 CONNTYPE can be modified only if NODETYPE was specified during VTAM START processing.
- 7 CPCP can be modified only if NODETYPE was specified during VTAM START processing.
- 8 DIRSIZE can be modified only if NODETYPE=NN was specified during VTAM START processing.
- 9 DIRTIME can be modified only if NODETYPE=NN was specified during VTAM START processing.
- 10 Due to the volume of messages that can be generated, it is not recommended that this option be enabled during normal operation. Instead, it is recommended that this option be enabled (using the MODIFY VTAMOPTS command) on all necessary hosts only when trying to diagnose specific problems. Once the problem has been diagnosed or documentation has been collected, this option should be disabled once again (using the MODIFY VTAMOPTS command).
- 11 The ENCRYPTN start option cannot be modified if ENCRYPTN=NO was specified during VTAM START processing.
- 12 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.
- 13 When specifying an InOpCode for the second parameter, always specify three digits by including any leading zeros.
- 14 If an InOpCode is specified for the second parameter, the first parameter cannot be ALL.
- 15 When altering the INOPDUMP VTAM start option, the resulting INOPDUMP status is propagated to all TRLEs in the TRL major node and becomes the default status for any subsequently activated TRLEs.
- 16 IPADDR can be modified only if NODETYPE was specified during VTAM START processing. The new value will not be used until all lines, defined with or defaulting to the old value of the IPADDR start option, in the XCA major node used for Enterprise Extender are inactive. However, displays of VTAM start options will show the new value immediately. Any subsequent line activation from the Enterprise Extender XCA major node, whose GROUP definition statement does not specify the IPADDR operand, will make use of the new IPADDR start option value. The HOSTNAME start option, if it is in effect at the time when the MODIFY VTAMOPTS,IPADDR=*ip_address* is specified, will be reset (that is, set to a value of NONE) as part of the

MODIFY processing. The value of 0.0.0.0 can be used to clear the setting of the IPADDR start option. HOSTNAME and IPADDR cannot be modified using one MODIFY VTAMOPTS command. If both start options are specified on the same MODIFY command, they will each be ignored and message IST1917I will be generated.

- 17 The IQDCHPID option controls which IQD CHPID (and related subchannel devices) VTAM selects to dynamically build the iQDIO (IUTIQDIO) MPC group. The IUTIQDIO MPC group is used for TCP/IP dynamic XCF communications within this zSeries system. Although this option can be modified (and the modification will immediately be displayed) while the IUTIQDIO MPC group is currently active, any modifications will have the following effects:

- modified from ANY (or CHPID) to NONE — no effect on current usage but blocks subsequent activations
- modified from NONE to ANY (or CHPID) — no effect on current usage but allows subsequent activations
- modified from CHPID_X to CHPID_Y — no effect on current usage

Note: VTAM only uses the CHPID value when building the IUTIQDIO MPC group. To change CHPIDs for an active MPC group, the following must be done:

1. All TCP/IP iQDIO devices must be stopped.
2. Make any necessary HCD/IOCDS changes.
3. Verify that new subchannel devices are varied online.
4. Verify that the MPC group has deactivated (with no usage, it times out after approximately two minutes).
5. Modify IQDCHPID=CHPID (to new CHPID).
6. Restart the TCP/IP iQDIO device or devices.

Note: In order to use iQDIO communications, the processor must have the necessary hardware support. If the processor does not support iQDIO communications, then modifications to this start option will not be accepted and the IQDCHPID option will not be displayed (displayed as ***NA***).

- 18 Due to the volume of messages that can be generated, it is not recommended that this option be enabled during normal operation. Instead, it is recommended that this option be enabled (using the MODIFY VTAMOPTS command) on all necessary hosts only when trying to diagnose specific problems. Once the problem has been diagnosed or documentation has been collected, this option should be disabled once again (using the MODIFY VTAMOPTS command).
- 19 MAXLOCAT can be modified only if NODETYPE was specified during VTAM START processing.
- 20 NNSPREF can be specified only if NODETYPE=EN is specified during VTAM START processing.
- 21 NUMTREES can be modified only if NODETYPE=NN was specified during VTAM START processing.
- 22 OSIEVENT=PATTERNS is not valid when OSIMGMT=YES.
- 23 OSITOP0=ALLCDRSC is not valid when OSIMGMT=YES.

Modify commands

- 24 RESUSAGE can be modified only if NODETYPE=NN was specified during VTAM START processing.
- 25 ROUTERES can be modified only if NODETYPE=NN was specified during VTAM START processing.
- 26 SNVC can be modified only if BN=YES was specified during VTAM START processing.
- 27 SORDER can be modified only if VTAM has been started as an interchange node or a migration data host.
- 28 SRCOUNT is meaningful only when SRCHRED=ON.
- 29 SRTIMER is meaningful only when SRCHRED=ON.
- 30 SSEARCH can be modified only if NODETYPE=NN was specified during VTAM START processing.
- 31 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.
- 32 UNRCHTIM is meaningful only if the NODETYPE start option is also used.
- 33 VFYREDTI can be modified only if NODETYPE=NN was specified during VTAM START processing.
- 34 VRTG can be modified only if NODETYPE and HOSTSA are specified.
- 35 VRTGCPCP can be modified only if NODETYPE and HOSTSA are specified.

Chapter 8. Starting VTAM

START

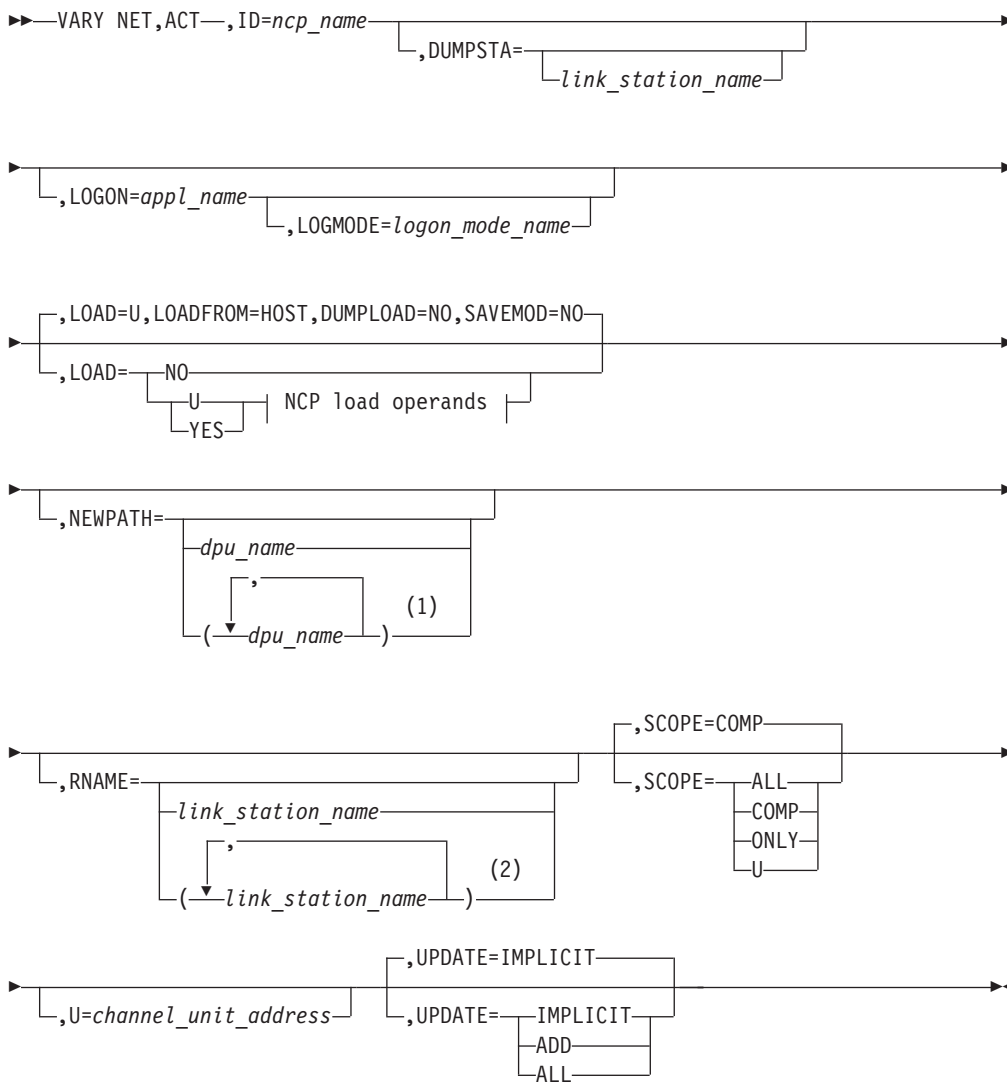
▶▶—START *procname*,,,(—| Options |—)————▶▶

For the syntax of the start options that you can specify on this command, see Chapter 10, “Start options,” on page 183.

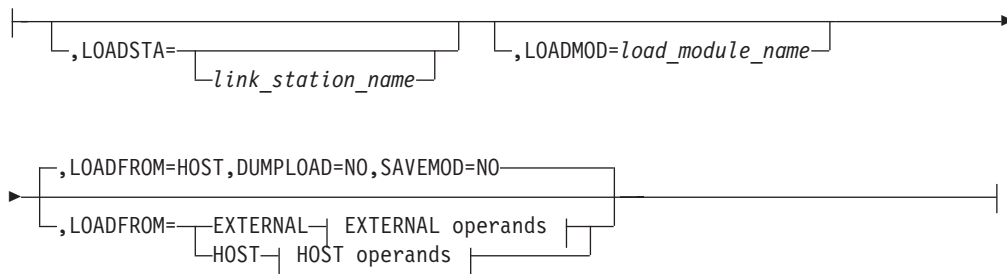
Starting VTAM

V ACT

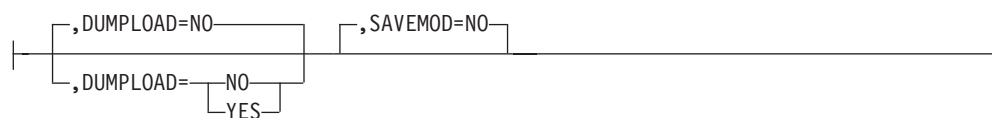
Activate an NCP major node:



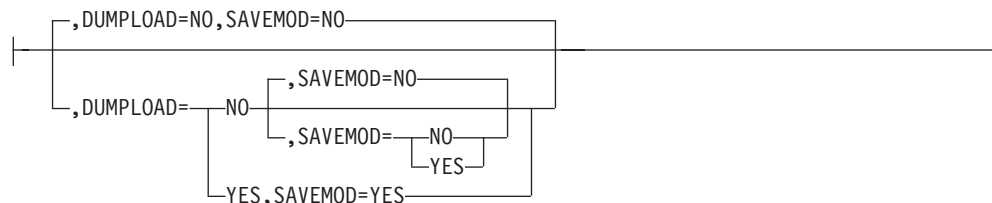
NCP LOAD operands:



EXTERNAL operands:



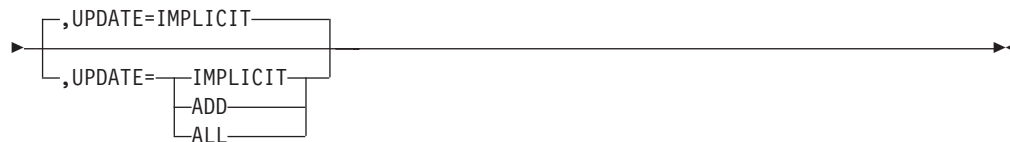
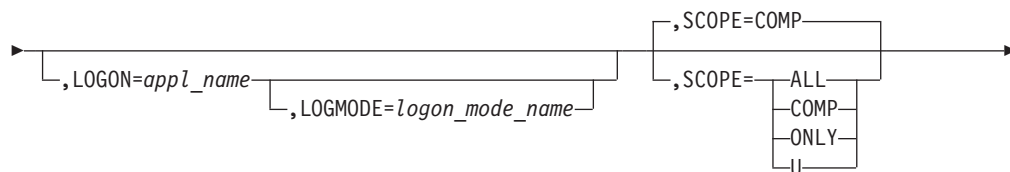
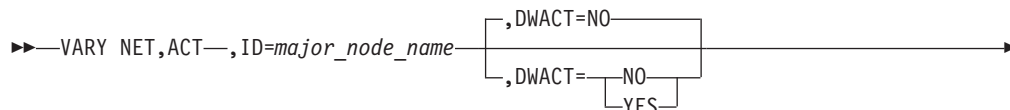
HOST operands:



Notes:

- 1 You can specify up to three dynamic path update member names on the NEWPATH operand.
- 2 You can specify up to 13 link station names on the RNAME operand.

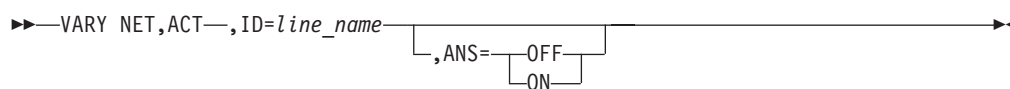
Activate a switched major node:



Activate the dynamic XCF local SNA major node:

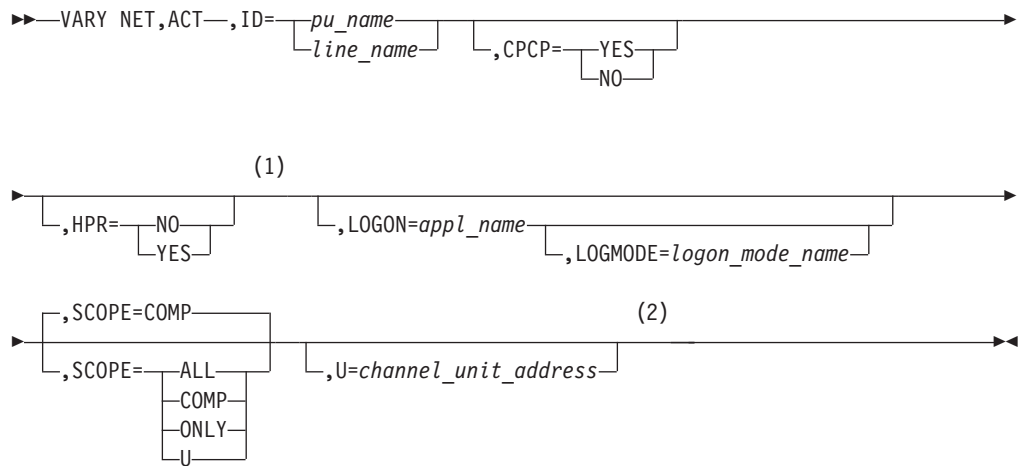


Activate a switched line:



Activate a type 2.1 PU (adjacent link station) or a nonswitched line under an NCP:

Vary commands



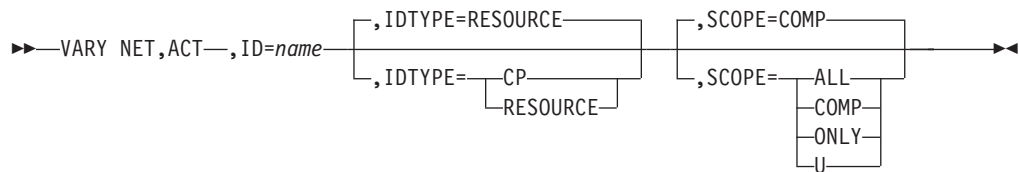
Notes:

- 1 The HPR operand is valid for HPR-capable resources only.
- 2 The U operand is valid for a local SNA PU only.

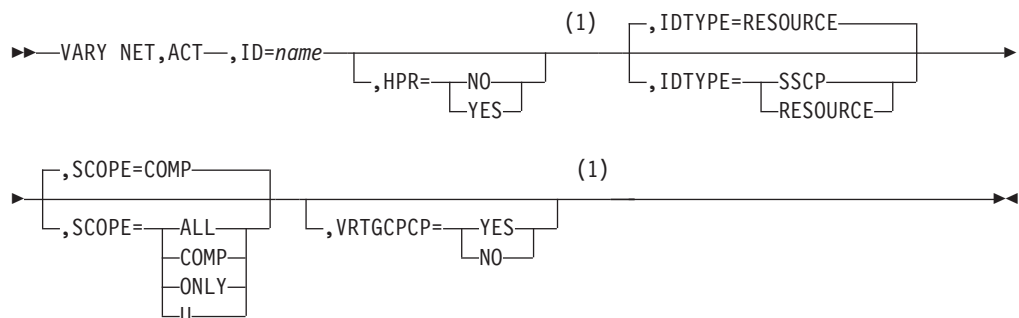
Activate a dynamic XCF local SNA PU:



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



Activate an SSCP (CDRM minor node):



Notes:

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

Warm start a major node:

►► VARY NET,ACT—,ID=*major_node_name*—,WARM—►►

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

►► VARY NET,ACT—,ID=*major_node_name*—►►

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

►► VARY NET,ACT—,ID=*major_node_name*—,SCOPE=SYNTAX—►►

►► [,LOADMOD=*load_module_name*] —►►

Dynamically reconfigure resources in a major node:

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

►► VARY NET,ACT—,ID=*major_node_name*— [,SCOPE=COMP] —►►

[,SCOPE=] ALL
COMP
ONLY
U

[,UPDATE=IMPLICIT] —►►

[,UPDATE=] IMPLICIT
ADD
ALL

Dynamically reconfigure TRLEs in a TRL major node:

►► VARY NET,ACT—,ID=*trl_major_node_name*— [,UPDATE=ADD] —►►

[,UPDATE=] (1) IMPLICIT
ADD
ALL

Notes:

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

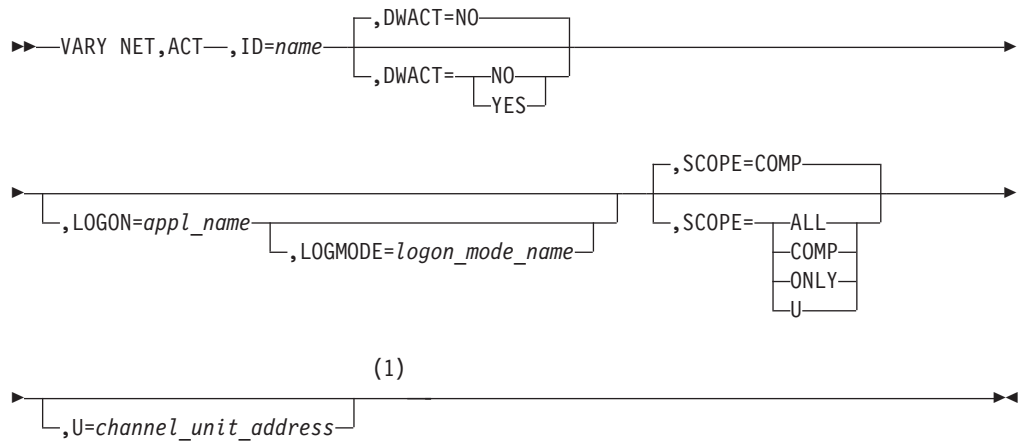
Activate a group under an Enterprise Extender XCA major node:

►► VARY NET,ACT—,ID=*group_name*— [,SCOPE=COMP] —►►

[,SCOPE=ALL]
[,SCOPE=COMP]
[,SCOPE=ONLY]
[,SCOPE=U]

Vary commands

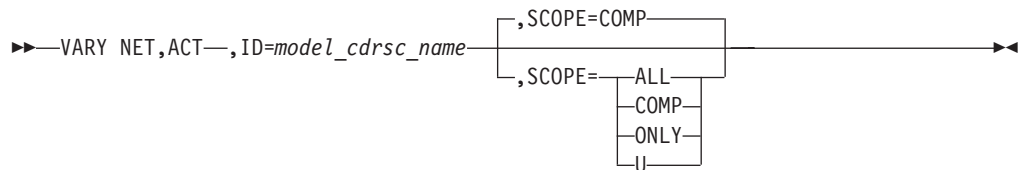
Activate other resources:



Notes:

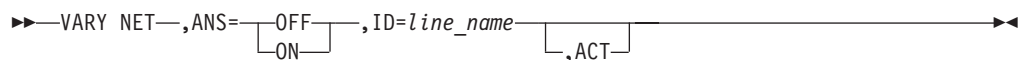
1 The U operand is valid for a local SNA PU or a channel link.

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



V ANS

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:



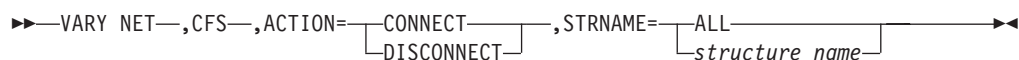
V AUTOLOG

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



V CFS

Connect or disconnect from a VTAM coupling facility structure:



V DIAL

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—|
                                     |———|
                                     |NO—|
  
```

V DRDS

Dynamically reconfigure an NCP or a nonswitched peripheral node:

```

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

V HANGUP

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

Deactivate an NCP major node:

```

>>—VARY NET,INACT—,ID=ncp_name—————>>>
                                     |,CDLINK=ACT——|
                                     |———|
                                     |,CDLINK=—ACT—|
                                     |———|
                                     |———|
                                     |———|
                                     |INACT—|
                                     |———|
                                     |,RMPO=NO———|
                                     |———|
                                     |,RMPO=—NO——|
                                     |———|
                                     |———|
                                     |———|
                                     |YES—|
                                     |———|
>>—VARY NET,INACT—,ID=ncp_name—————>>>
                                     |,TYPE=—FORCE—|
                                     |———|
                                     |———|
                                     |———|
                                     |———|
                                     |IMMED—|
                                     |———|
                                     |———|
                                     |———|
                                     |REACT—|
                                     |———|
                                     |———|
                                     |UNCOND—|
                                     |———|
  
```

Deactivate an NCP line:

```

>>—VARY NET,INACT—,ID=line_name—————>>>
                                     |,TYPE=—FORCE—|
                                     |———|
                                     |———|
                                     |———|
                                     |GIVEBACK—|
                                     |———|
                                     |IMMED—|
                                     |———|
                                     |UNCOND—|
                                     |———|
  
```

Deactivate a CDRM major node:

Vary commands

►►—VARY NET, INACT—, ID=*node_name*—
└─, SAVESESS—┐
└─, TYPE=—┐
└─FORCE—┐
└─IMMED—┐
└─UNCOND—┐

Deactivate a CDRM minor node:

►►—VARY NET, INACT—, ID=*node_name*—
└─, IDTYPE=SSCP—┐
└─, SAVESESS—┐

└─, TYPE=—┐
└─FORCE—┐
└─IMMED—┐
└─UNCOND—┐

Deactivate a CDRSC minor node:

►►—VARY NET, INACT—, ID=*node_name*—
└─, DELETE=NO—┐
└─, DELETE=—┐
└─NO—┐
└─YES—┐
└─, IDTYPE=CP—┐

└─, TYPE=—┐
└─FORCE—┐
└─IMMED—┐
└─UNCOND—┐

Deactivate the dynamic XCF local SNA major node:

►►—VARY NET, INACT—, ID=ISTLSXCF—
└─, TYPE=—┐
└─FORCE—┐
└─IMMED—┐
└─UNCOND—┐

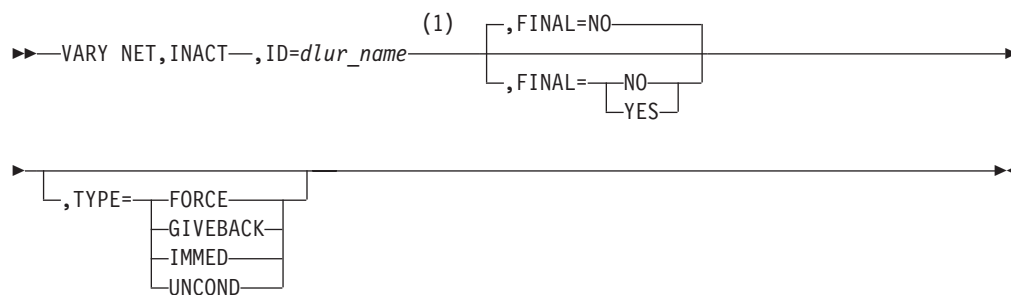
Deactivate a dynamic XCF local SNA PU:

►►—VARY NET, INACT—, ID=*name*—
└─, IDTYPE=XCFCP—┐
└─, TYPE=—┐
└─FORCE—┐
└─IMMED—┐
└─UNCOND—┐

Deactivate a dynamic switched PU:

►►—VARY NET, INACT—, ID=*pu_name*—
└─, TYPE=—┐
└─FORCE—┐
└─IMMED—┐
└─UNCOND—┐

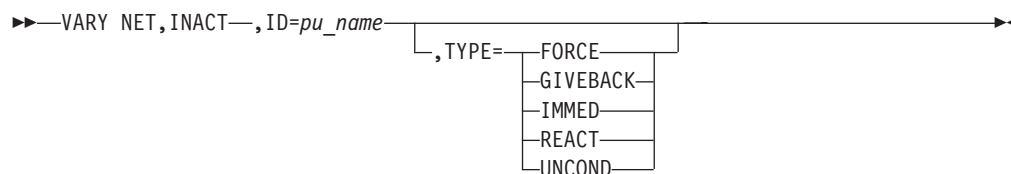
Deactivate a dependent LU requester (DLUR):



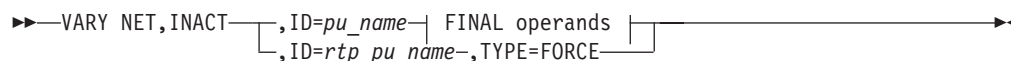
Notes:

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

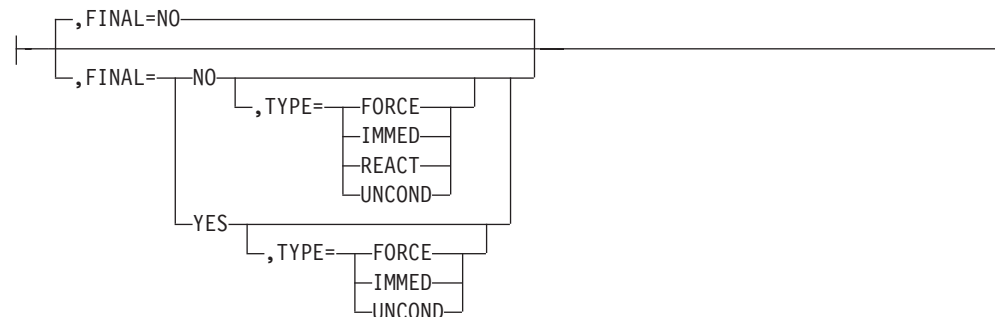
Deactivate a PU supported by a DLUR:



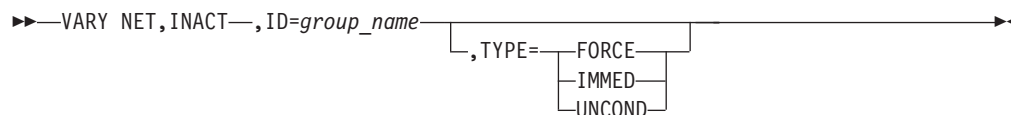
Deactivate other PUs:



FINAL operands:

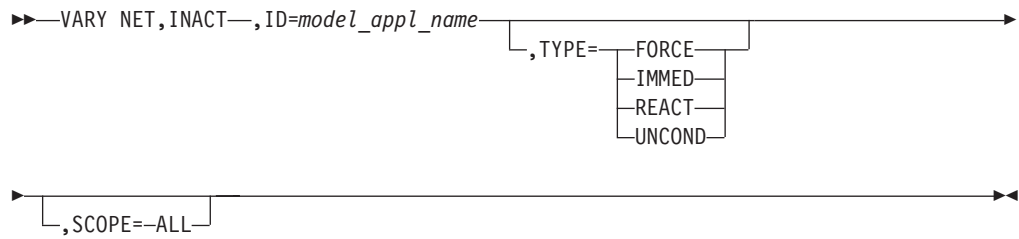


Deactivate a group under an XCA major node for EE:

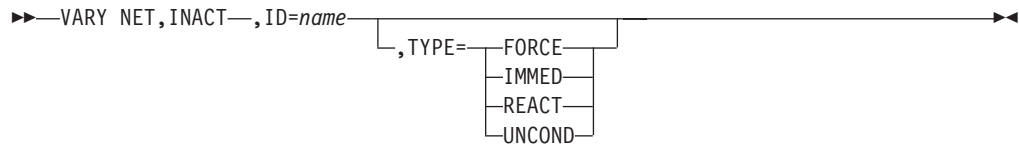


Deactivate a model application and all the APPLs created from it:

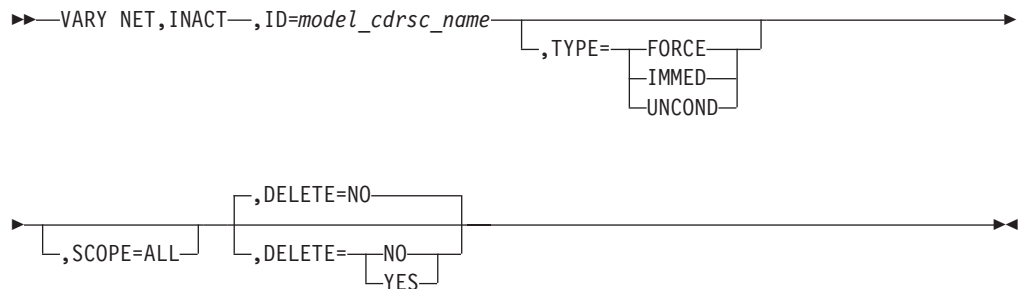
Vary commands



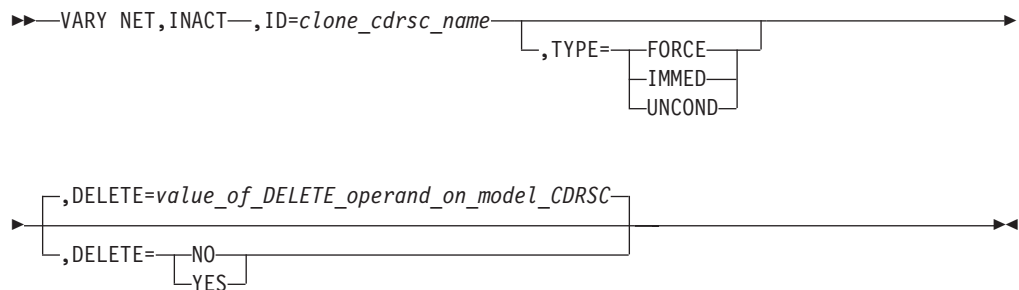
Deactivate other resources:



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

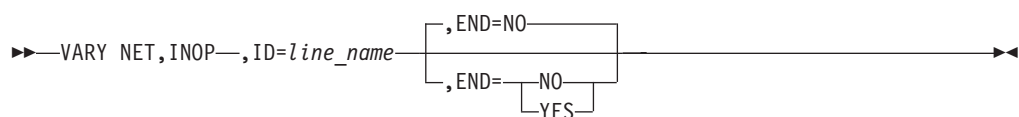


Deactivate a clone CDRSC:



V INOP

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



V LOGON

Create or change an automatic logon specification:

```

>> VARY NET, LOGON=appl_name, ID=slu_name
      , LOGMODE=logon_mode_name
>>>>
>> , ACT
>>>>
  
```

V NOLOGON

Delete an existing automatic logon specification:

```

>> VARY NET, NOLOGON=*
      , ID=slu_name
      , cdrsc_name
      , plu_name
      , uservar_name
>>>>
  
```

V PATH

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
      , GID=group_id, ID=switched_major_node_name
      , PID=path_id, ID=switched_pu_name
>>>>
>> USE
>>>>
  
```

V REL

Release a previously acquired NCP:

```

>> VARY NET, REL, ID=ncp_name
      , OWNER=host_name
      , CDLINK=ACT
      , CDLINK=ACT
      , CDLINK=INACT
>>>>
>> , TYPE=GIVEBACK
>> , TYPE=IMMED
>>>>
  
```

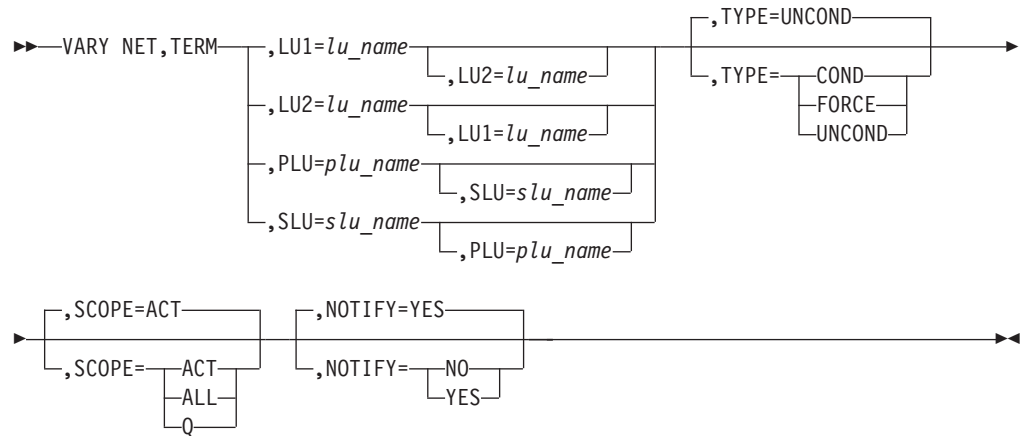
Release a PU:

```

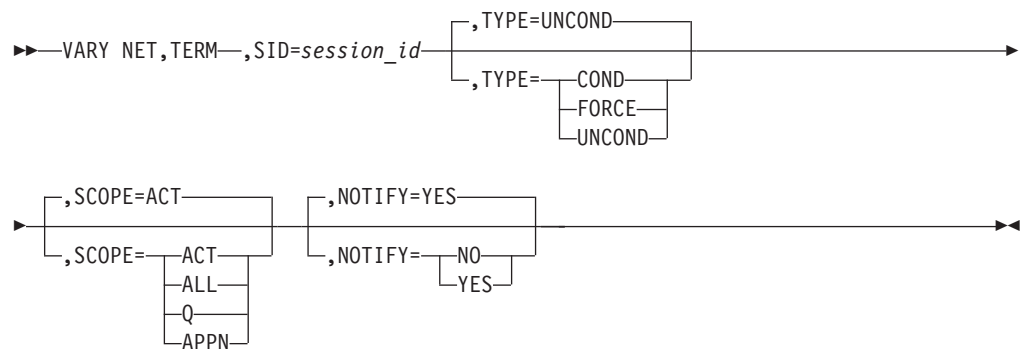
>> VARY NET, REL, ID=pu_name
      , OWNER=host_name
      , FINAL=NO
      , FINAL=NO
      , FINAL=YES
>>>>
>> , TYPE=IMMED
>>>>
  
```

V TERM

VARY TERM command using name or name pair:



VARY TERM command using session ID:



Chapter 10. Start options

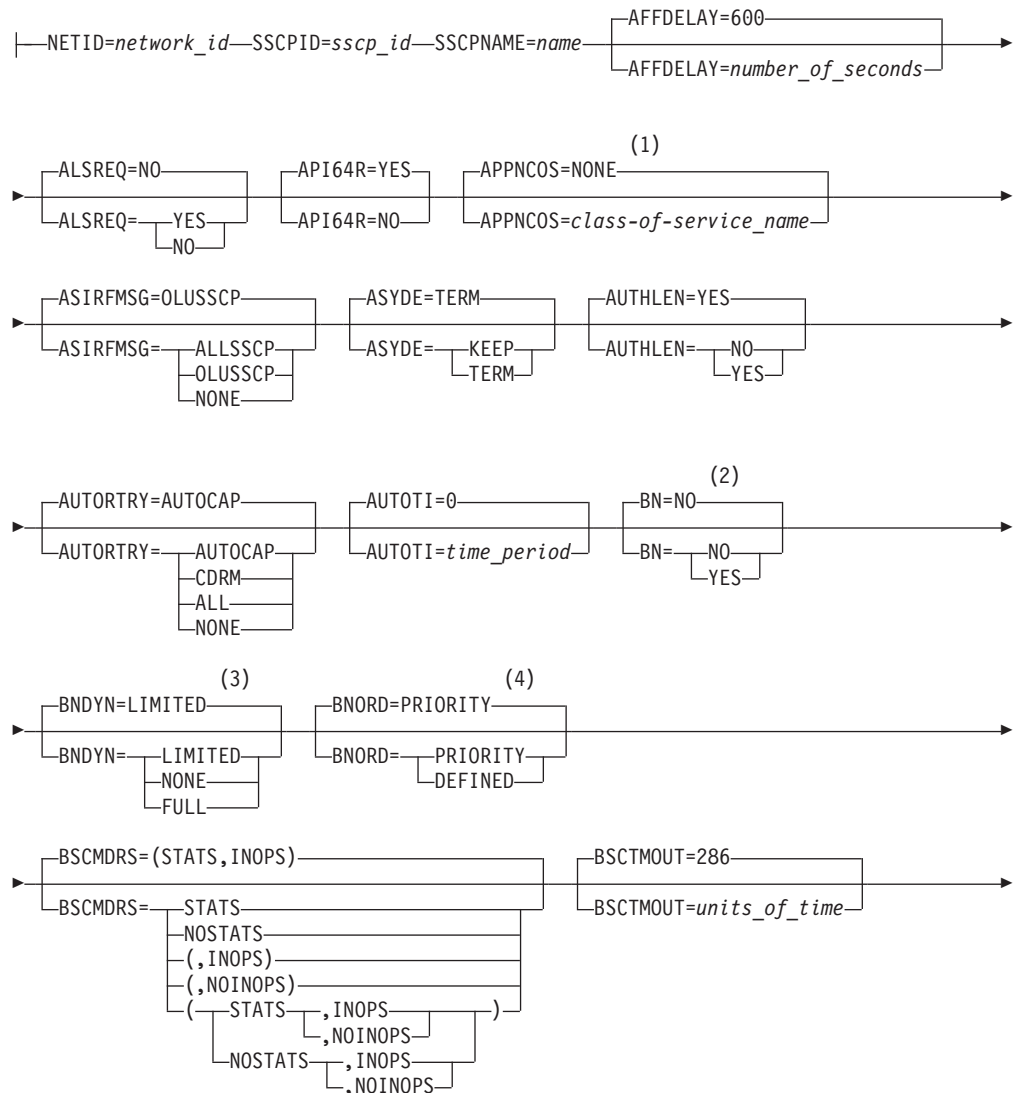
Start options are listed in this section alphabetically; however, you can code them in any order.

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

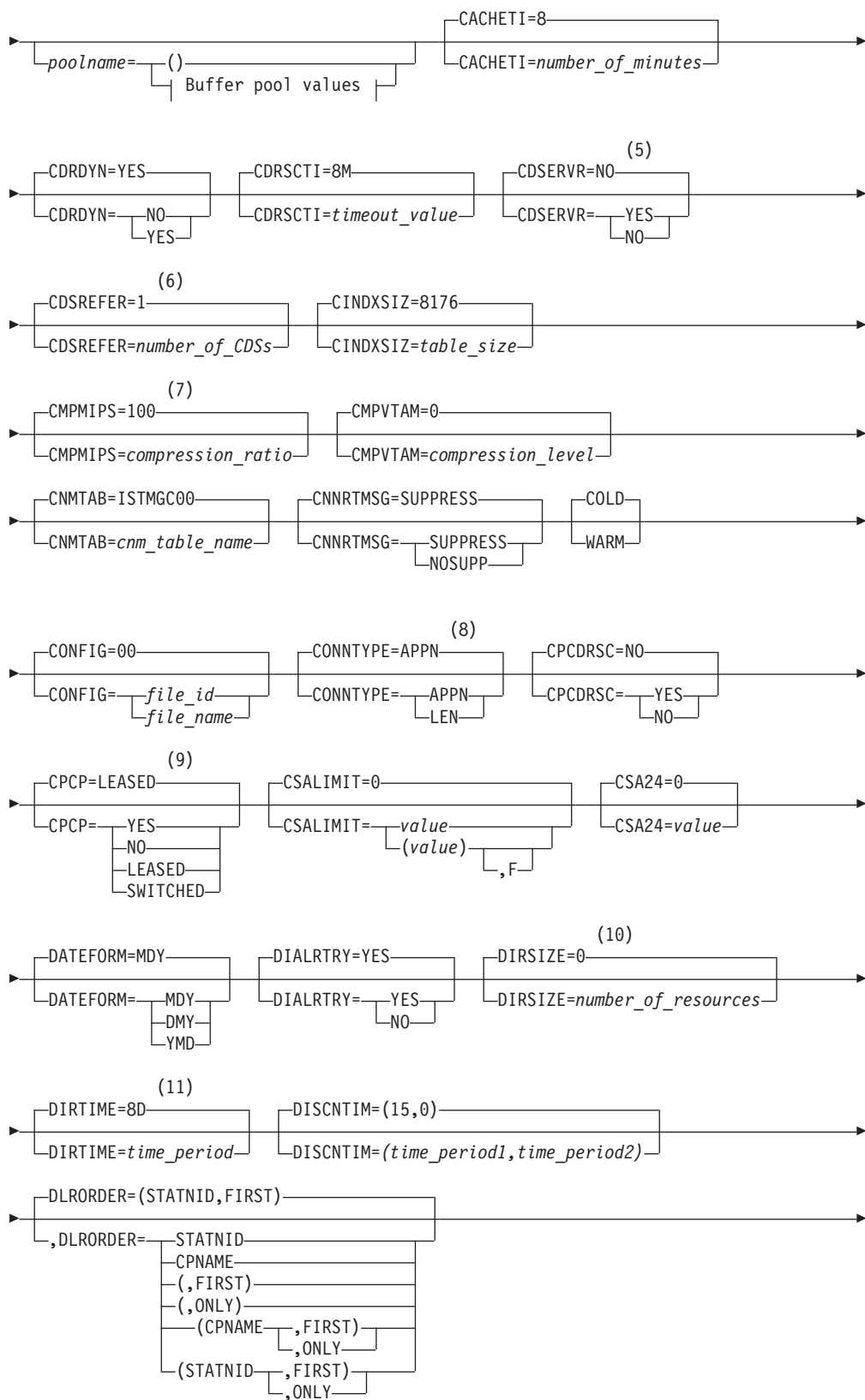
Start options that are entered on the START command must be separated by commas. Do not leave any blanks between options.

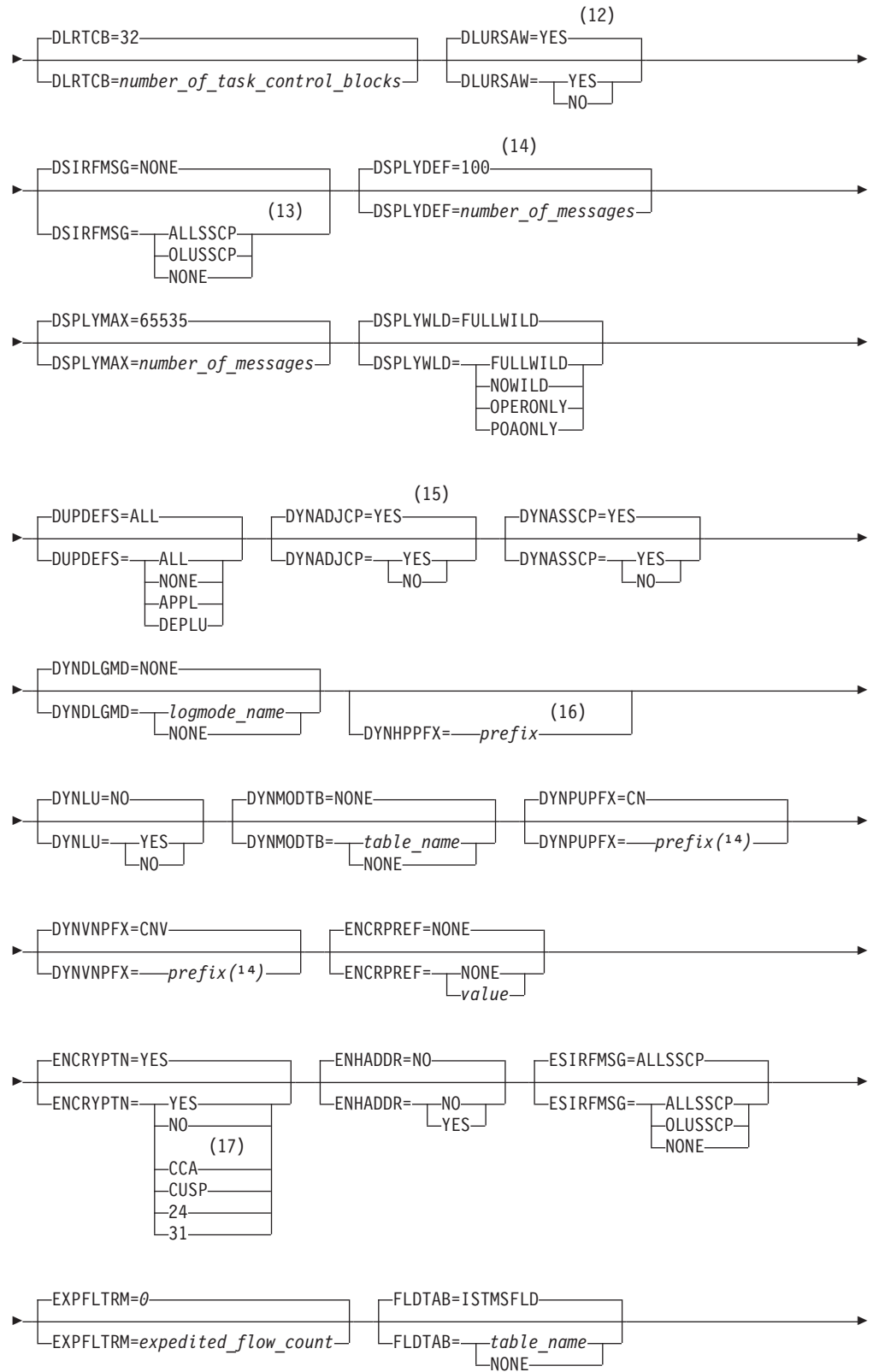
For more information on the START command, refer to *z/OS Communications Server: SNA Operation*.

Options:

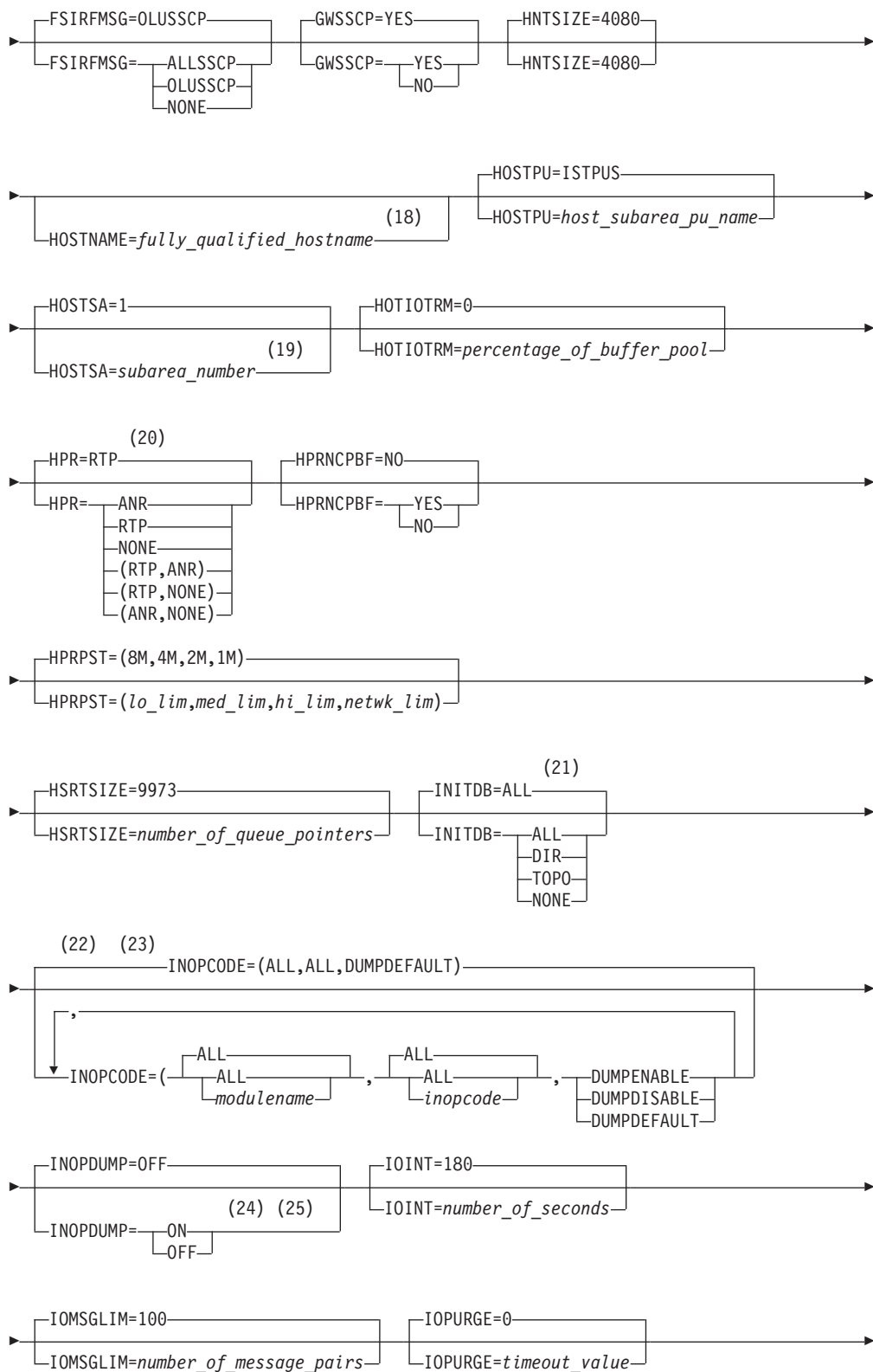


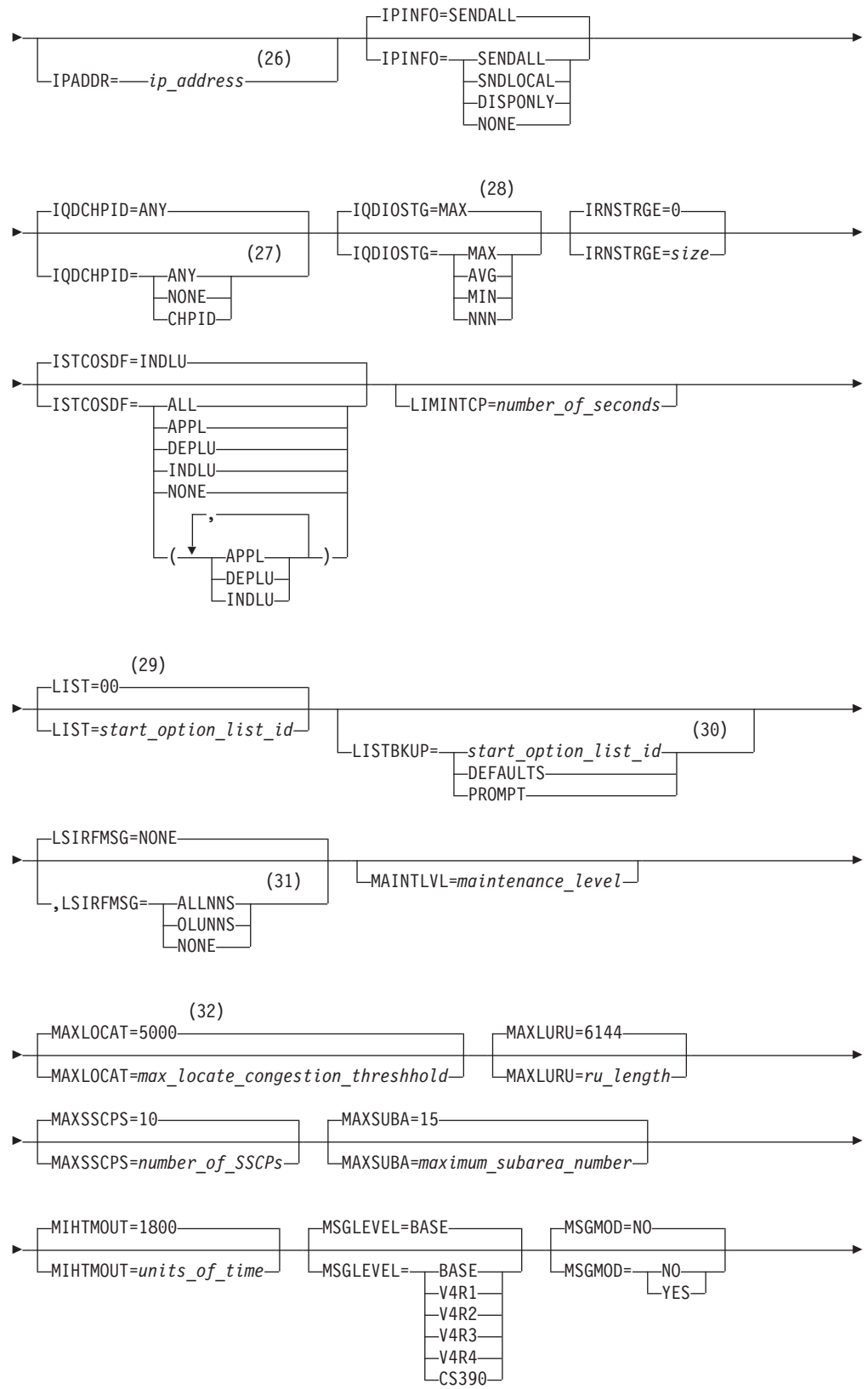
Start options



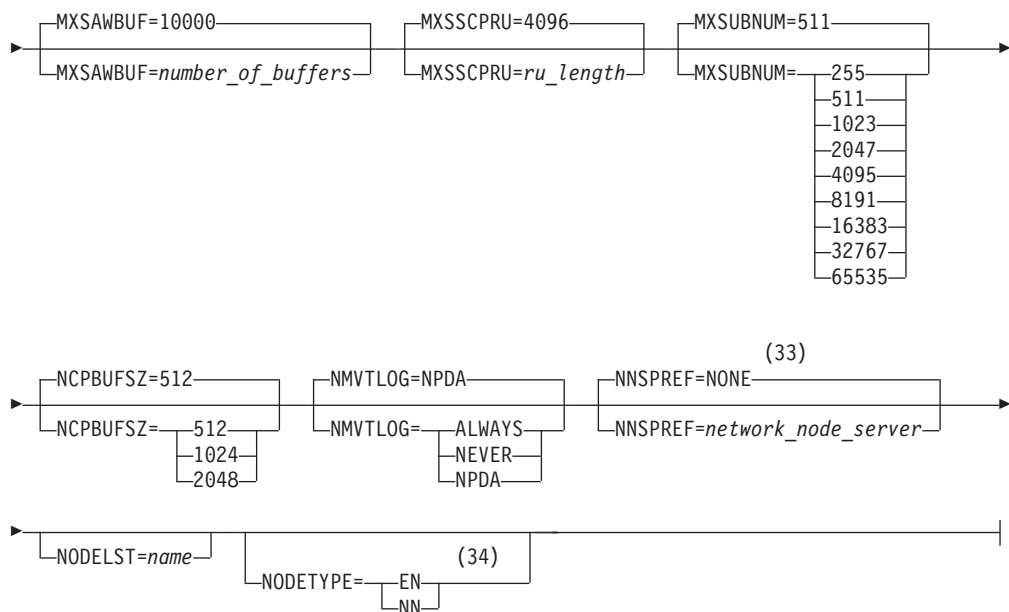


Start options





Start options



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 DIRSIZE is meaningful only if the NODETYPE=NN start option is also used.
- 11 DIRTIME is meaningful only if the NODETYPE=NN start option is also used.
- 12 DLURSAW is meaningful only if the NODETYPE=NN start option is also used.
- 13 Due to the volume of messages that can be generated, it is not recommended that this option be enabled during normal operation. Instead, it is recommended that this option be enabled (using the MODIFY VTAMOPTS command) on all necessary hosts only when trying to diagnose specific problems. Once the problem has been diagnosed or documentation has been collected, this option should be disabled once again (using the MODIFY VTAMOPTS command).
- 14 If the DSPYMAX start option value is less than 100, that value is the default for DSPYDEF.

- 15 DYNADJCP is meaningful only if the NODETYPE start option is also used.
- 16 Two character prefix.
- 17 ENCRYPTN=CCA needs to be coded when Triple Des Encryption is desired.
- 18 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.
- 19 HOSTSA specifies the subarea number of this VTAM. If HOSTSA is not coded, then a default subarea number of 1 is used.
- 20 HPR is meaningful only if NODETYPE is also used.
- 21 INITDB is meaningful only if the NODETYPE=NN start option is also used.
- 22 When specifying an InOpCode for the second parameter, always specify three digits by including any leading zeros.
- 23 If an InOpCode is specified for the second parameter, the first parameter cannot be ALL.
- 24 INOPDUMP status is propagated to resources that are defined within a transport resource list entry when the entry is activated and the TRLE InOpDump status has not been explicitly set.
- 25 The INOPCODE start option provides more granular control of the INOPDUMP function. Refer to the INOPCODE in this section and the DISPLAY INOPCODE command in *z/OS Communications Server: SNA Operation* for additional details.
- 26 IPADDR is meaningful only if the NODETYPE start option is also used. If neither IPADDR nor HOSTNAME is specified on any of the GROUP definition statements within the Enterprise Extender XCA major node, then either the HOSTNAME, TCPNAME, or IPADDR start option must be specified in order to activate an Enterprise Extender link. The IPADDR start option specifies the default IPv4 static VIPA address to be used when activating an Enterprise Extender connection. If HOSTNAME is specified along with IPADDR on the START command, the IPADDR value is ignored.
- 27 The IQDCHPID option controls which IQD CHPID (and related subchannel devices) VTAM selects to dynamically build the iQDIO (IUTIQDIO) MPC group. The IUTIQDIO MPC group is used for TCP/IP dynamic XCF communications within this zSeries system. Although this option can be modified (and the modification will immediately be displayed) while the IUTIQDIO MPC group is currently active, any modifications will have the following effects:
 - Modified from ANY (or CHPID) to NONE — no effect on current usage but blocks subsequent activations
 - Modified from NONE to ANY (or CHPID) — no effect on current usage but allows subsequent activations
 - Modified from CHPID_X to CHPID_Y — no effect on current usage

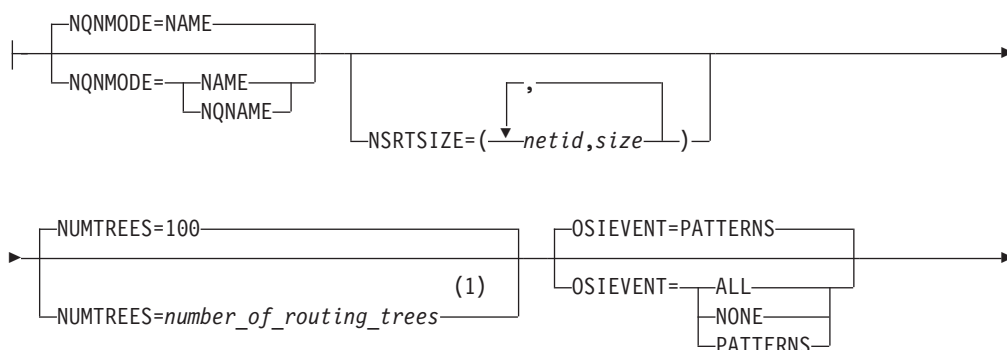
Start options

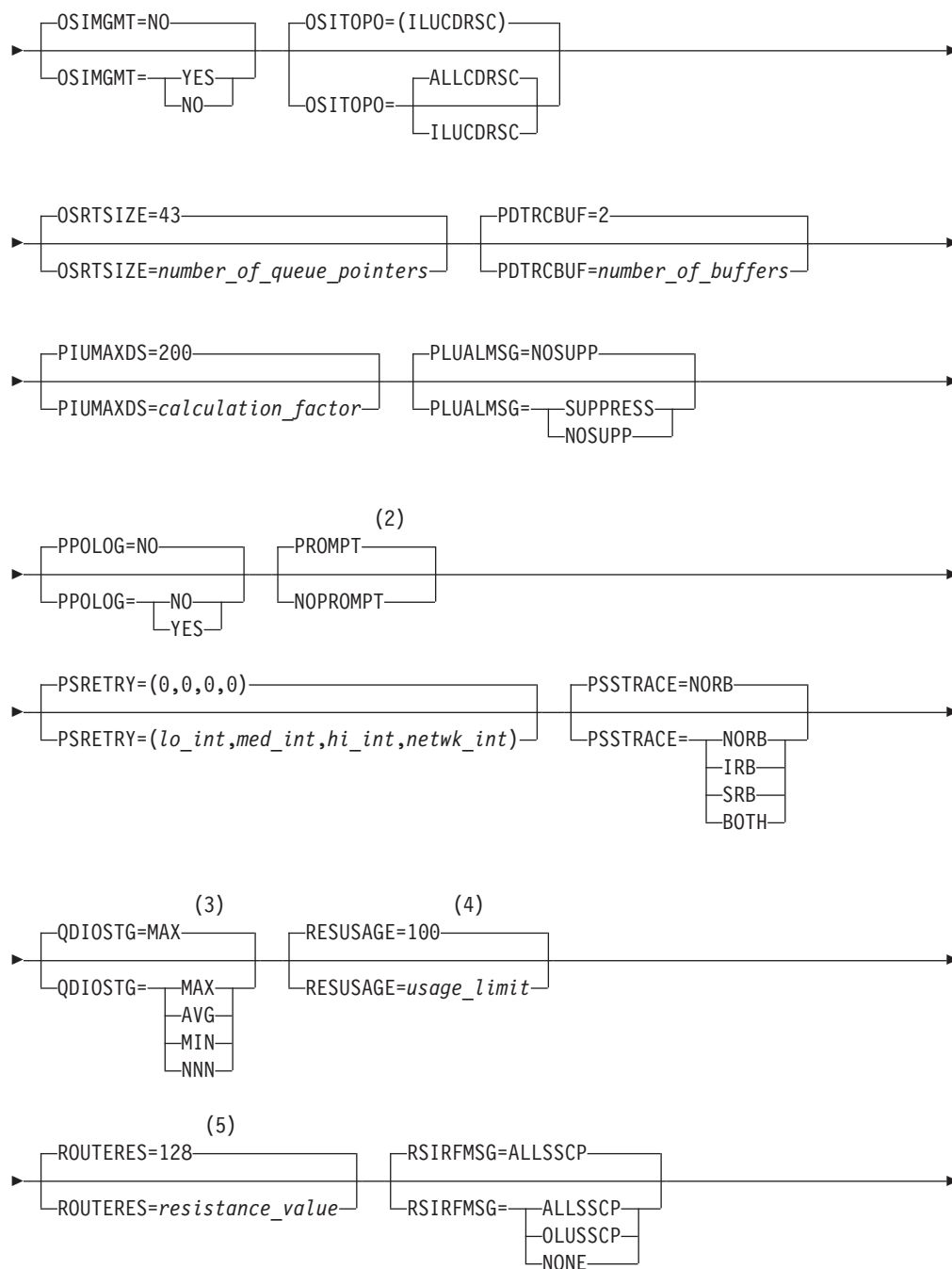
Note: VTAM only uses the CHPID value when building the IUTIQDIO MPC group. To change CHPIDs for an active MPC group, the following must be done:

1. All TCP/IP iQDIO (HiperSockets™) devices must be stopped.
2. Make any necessary HCD/IOCDS changes.
3. Verify that new subchannel devices are varied online.
4. Verify that the MPC group has deactivated (with no usage, it times out after approximately two minutes).
5. Modify IQDCHPID=CHPID (to new CHPID).
6. Restart the TCP/IP iQDIO device or devices.

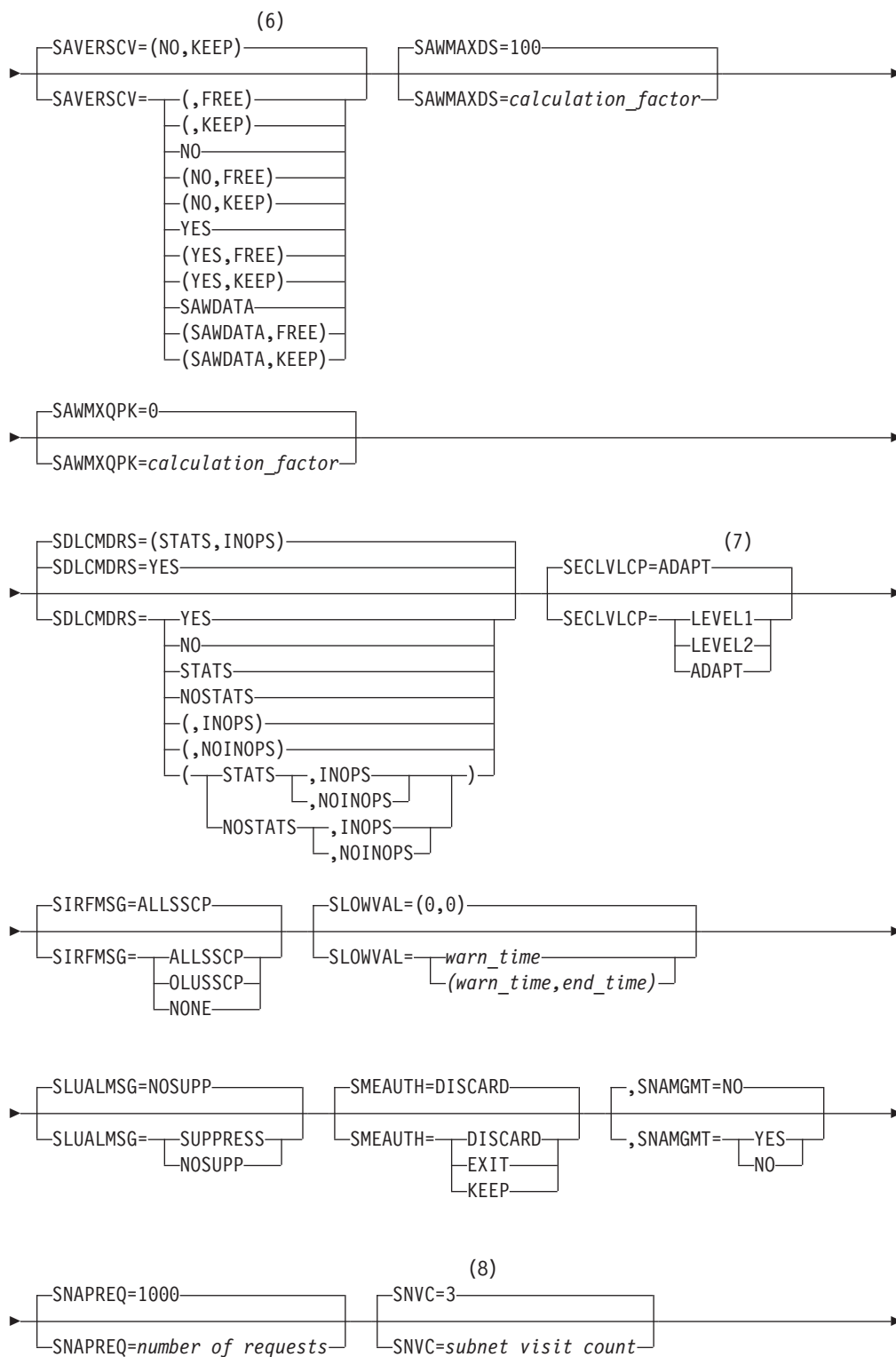
Note: In order to use iQDIO communications, the processor must have the necessary hardware support. If the processor does not support iQDIO communications, then modifications to this start option will not be accepted and the IQDCHPID option will not be displayed (displayed as ***NA***).

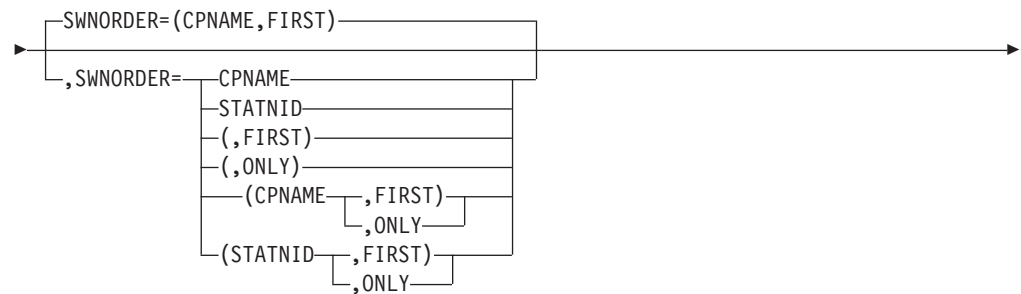
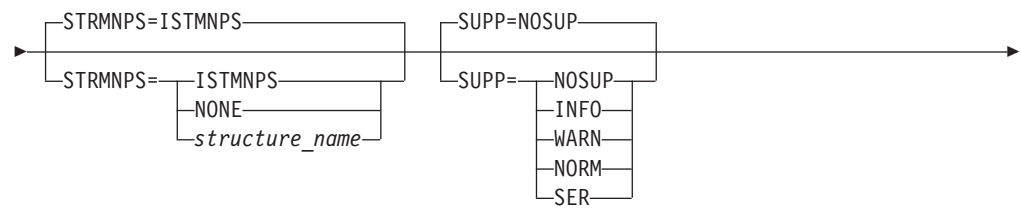
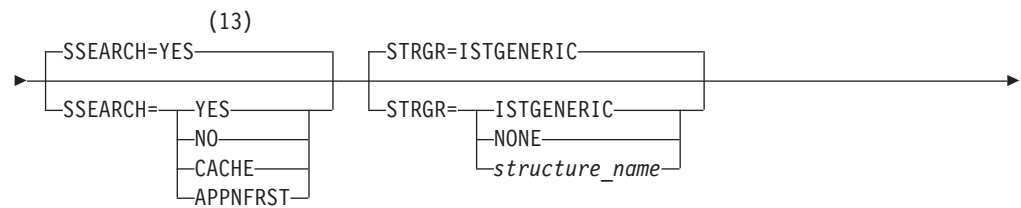
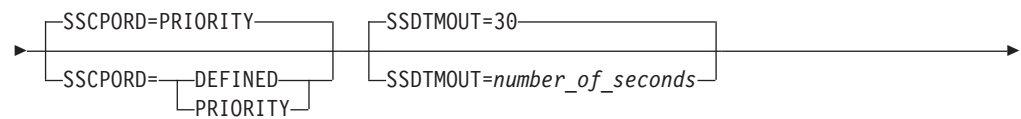
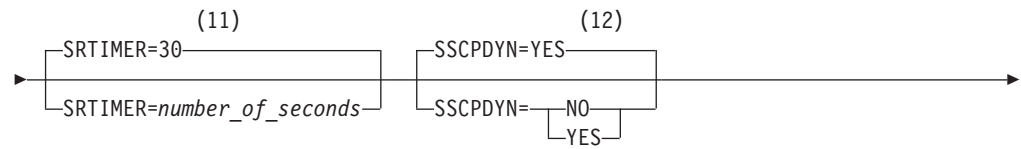
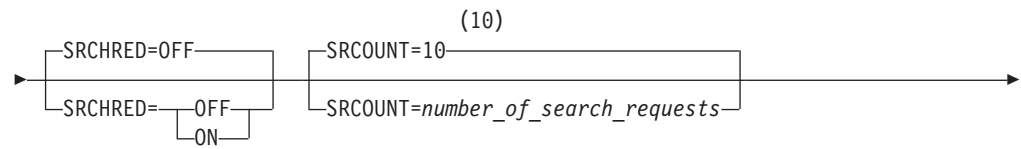
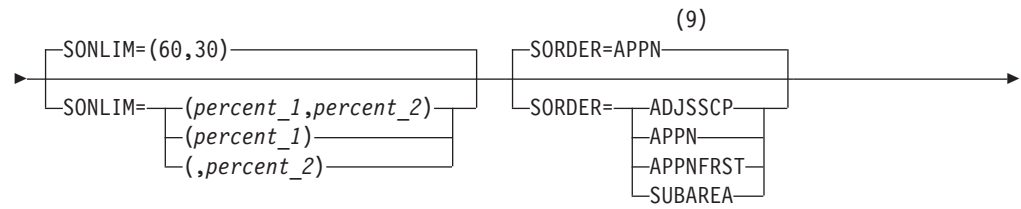
- 28 This option only affects iQDIO devices that use a MFS of 64k. The smaller frame sizes will always use 126 SBALs.
- 29 LIST can be entered by a VTAM operator only. If LIST is coded in an ATCSTRxx file, it is considered to be an error and is ignored.
- 30 LISTBKUP can only be coded in a start option file. If you enter it on the START command or at an operator prompt, VTAM will ignore it.
- 31 Due to the volume of messages that can be generated, it is not recommended that this option be enabled during normal operation. Instead, it is recommended that this option be enabled (using the MODIFY VTAMOPTS command) on all necessary hosts only when trying to diagnose specific problems. Once the problem has been diagnosed or documentation has been collected, this option should be disabled once again (using the MODIFY VTAMOPTS command).
- 32 MAXLOCAT is meaningful only if NODETYPE is specified.
- 33 NNSPREF can be specified only if NODETYPE=EN is specified during VTAM START processing.
- 34 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).



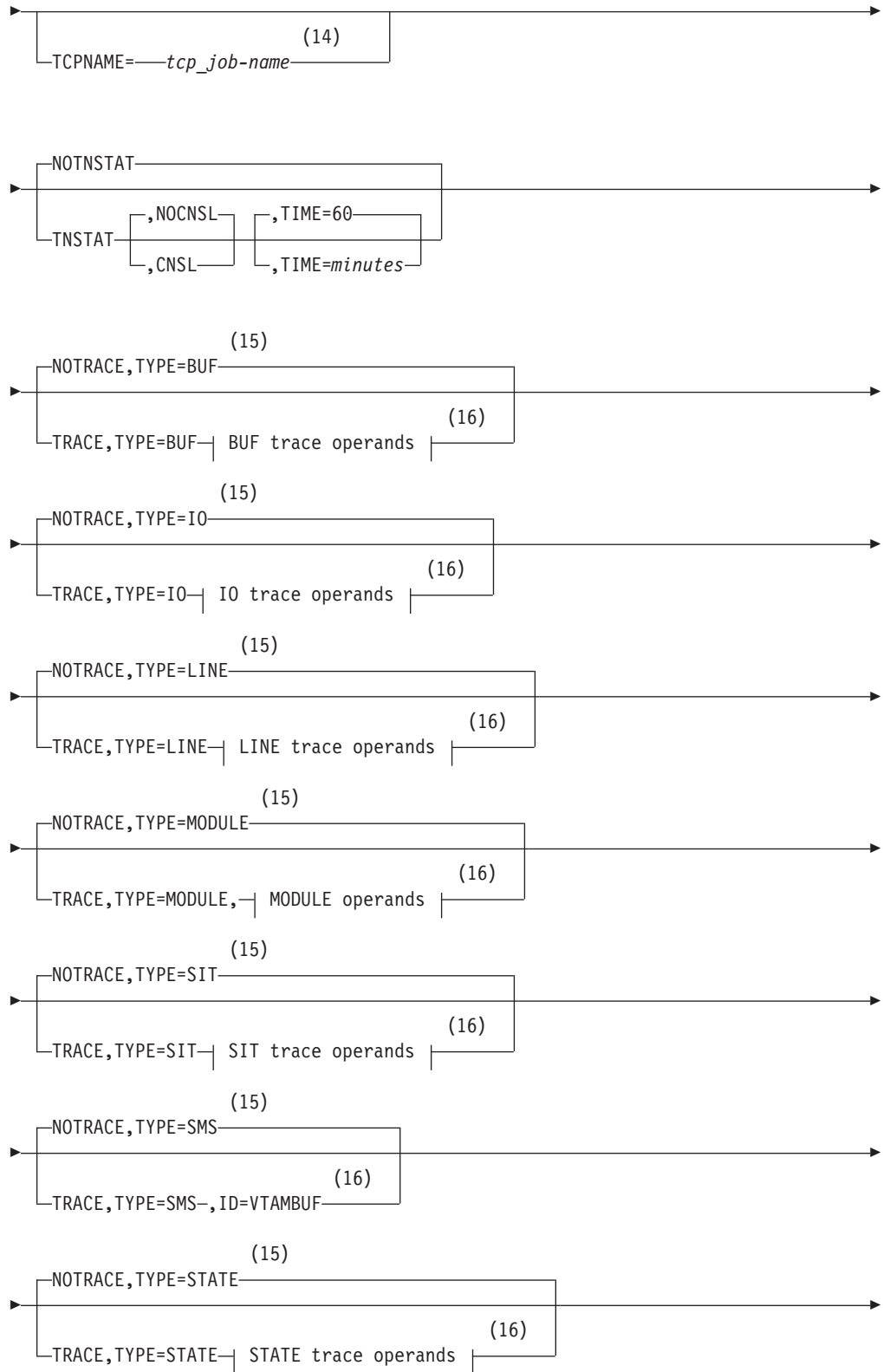


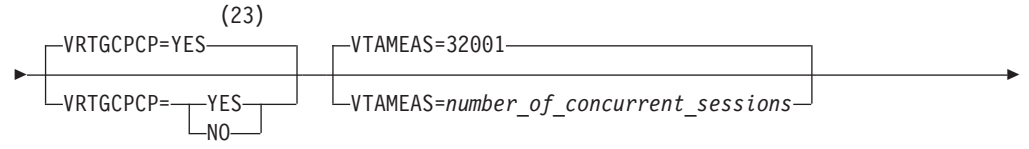
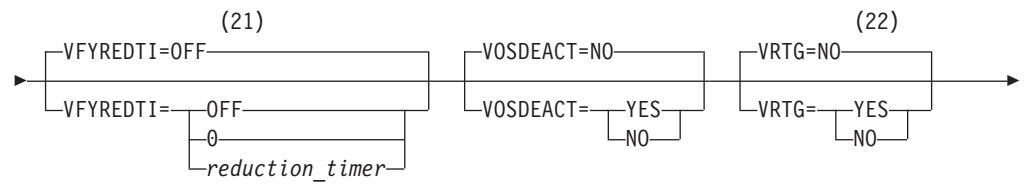
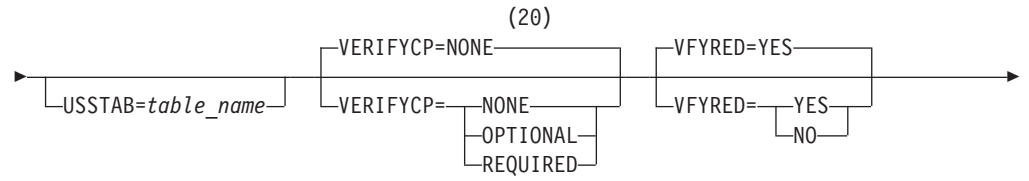
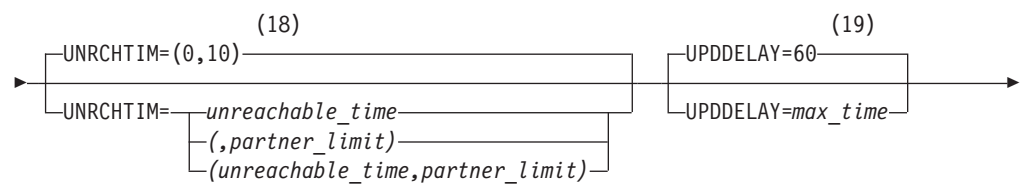
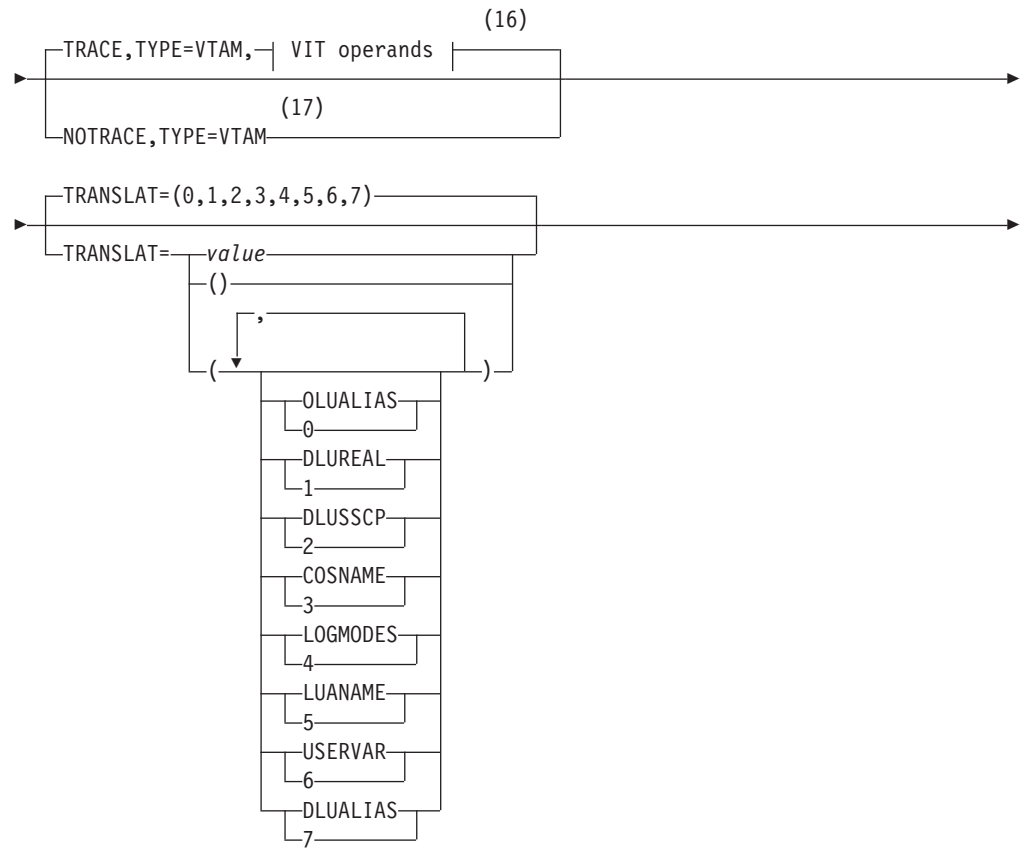
Start options



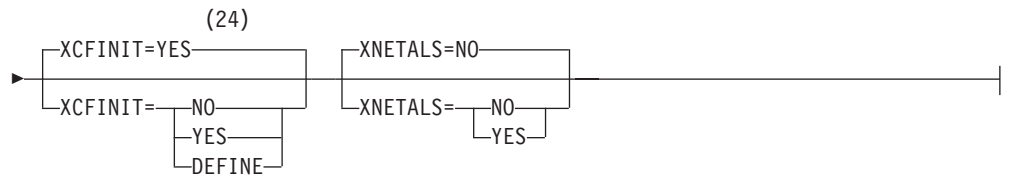


Start options

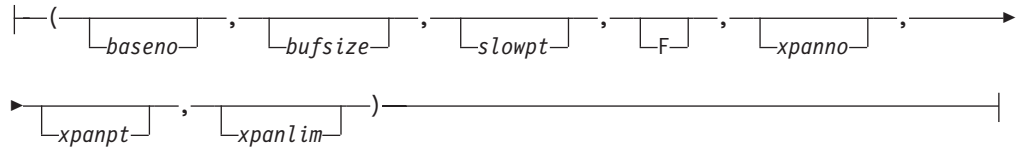




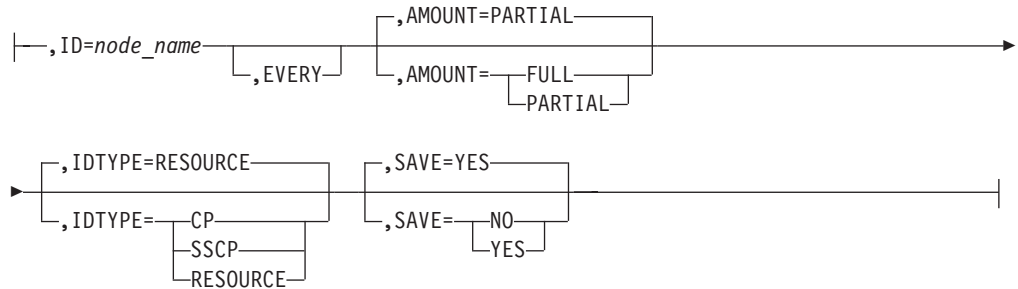
Start options



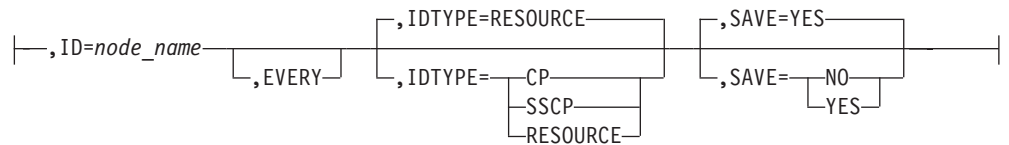
Buffer pool values:



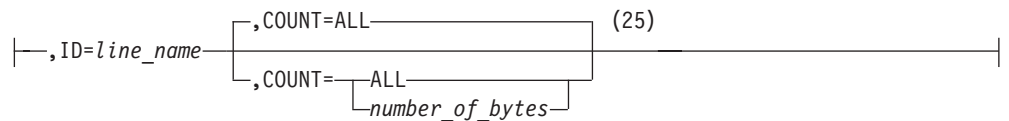
BUF trace operands:



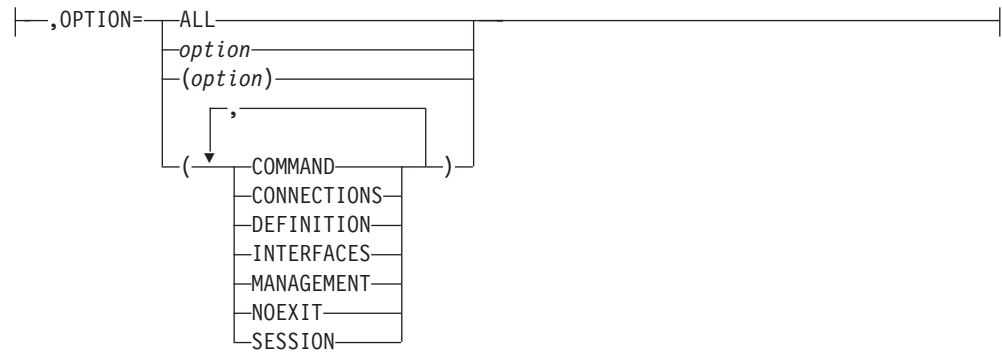
IO trace operands:



LINE trace operands:



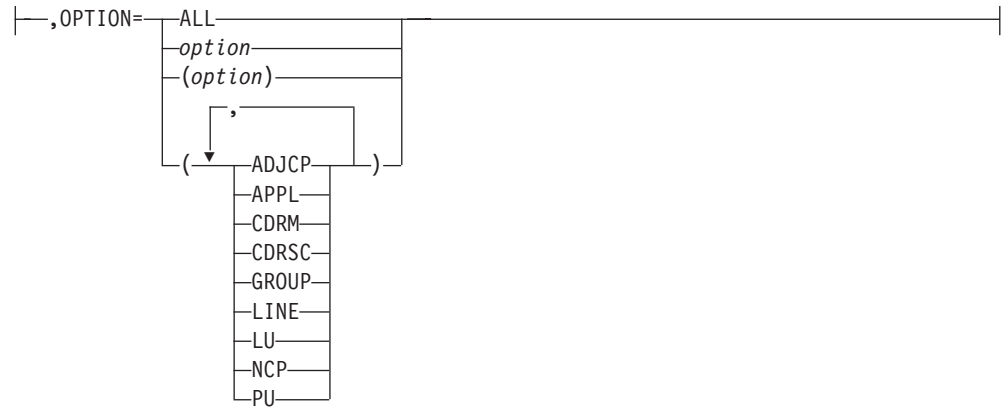
MODULE operands:



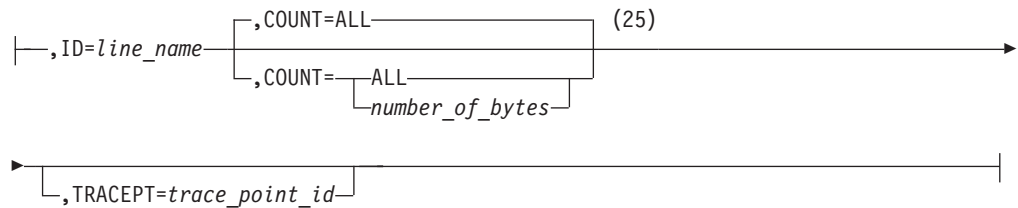
Operands used with ID:



OPTION operand:



SIT trace operands:

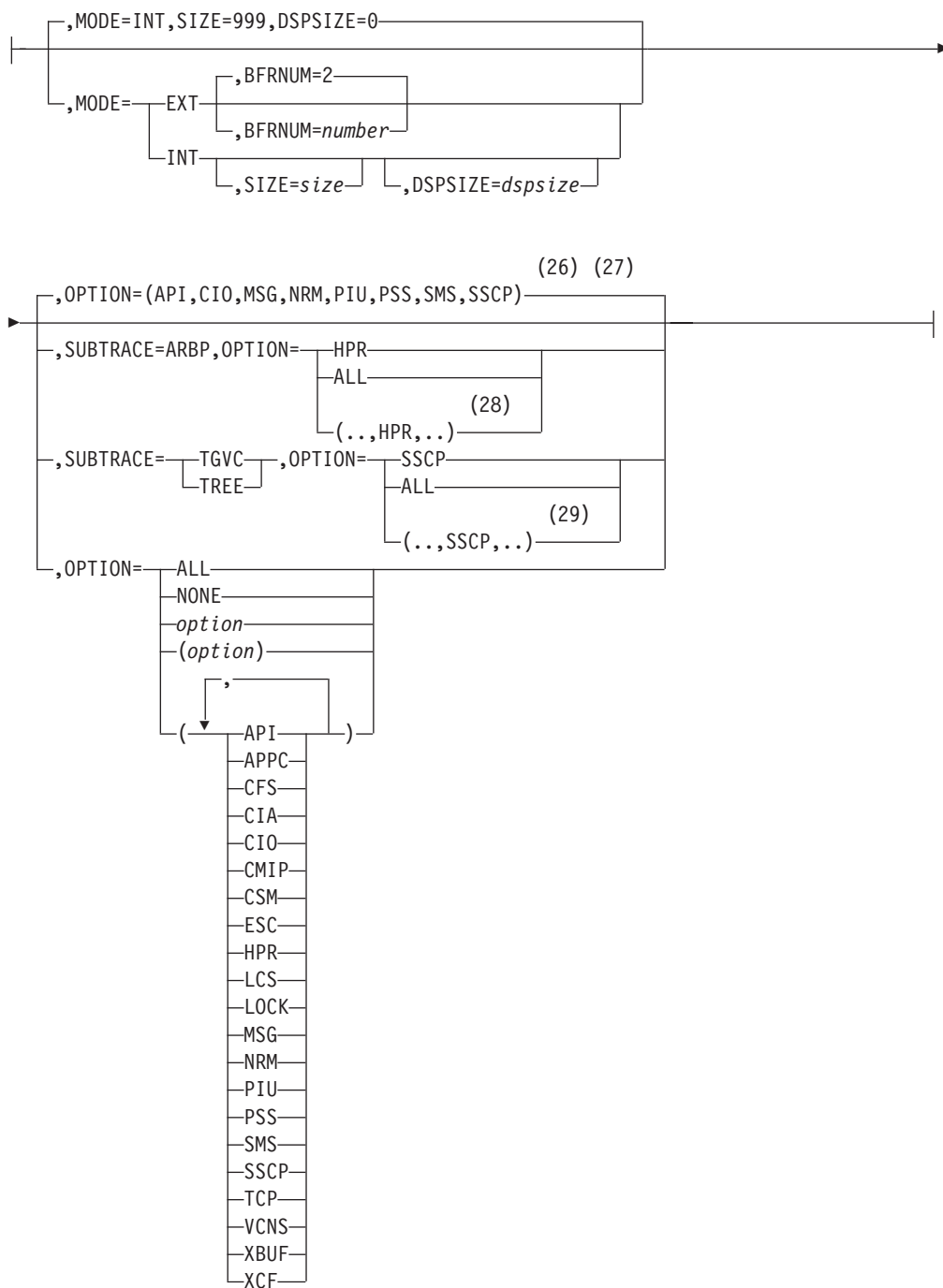


STATE trace operands:



Start options

VIT operands:



Notes:

- 1 NUMTREES is meaningful only if the NODETYPE=NN start option is also used.
- 2 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.

- 3 QDIOSTG defaults to MAX for 64-bit (z/Architecture) machines and MIN for non 64-bit machines.
- 4 RESUSAGE is meaningful only if the NODETYPE=NN start option is also used.
- 5 ROUTERES is meaningful only if the NODETYPE=NN start option is also used.
- 6 SAVERSCV is meaningful only if NODETYPE is also used.
- 7 The SECLVLCPC start option is meaningful only if the NODETYPE and VERIFYCP start options are also used.
- 8 SNVC is meaningful only if the BN=YES start option is also used.
- 9 SORDER is meaningful only in an interchange node or a migration data host.
- 10 SRCOUNT is meaningful only if the SRCHRED=ON start option is also used.
- 11 SRTIMER is meaningful only if the SRCHRED=ON start option is also used.
- 12 The SSCPDYN start option applies only for interconnected networks (that is, GWSSCP=YES is used).
- 13 SSEARCH is meaningful only if the NODETYPE=NN start option is also used.
- 14 HOSTNAME 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.
- 15 Do not use NOTRACE when starting VTAM, except to override a TRACE start option coded in a predefined list.
- 16 Code TRACE and its qualifiers on one line. Code the TYPE qualifier immediately following TRACE.
- 17 NOTRACE,TYPE=VTAM is accepted but ignored. Tracing is started with the default trace table size and the default options.
- 18 UNRCHTIM is meaningful only if the NODETYPE start option is also used.
- 19 UPDDELAY is meaningful only if the OSIMGMT=YES start option is also used.
- 20 The VERIFYCP start option is meaningful only if the NODETYPE start option is also used.
- 21 VFYREDTI is meaningful only if the NODETYPE=NN start option is also used.
- 22 VRTG is meaningful only if the NODETYPE and HOSTSA start options are also used.
- 23 VRTGCPCP is meaningful only if the NODETYPE and HOSTSA start options are also used.
- 24 XCFINIT=YES is the default if VTAM is started as an APPN node (that is, the NODETYPE start option has been specified). XCFINIT=YES is not allowed for pure subarea nodes. XCFINIT=DEFINE is the default if VTAM is started as a pure subarea node (the NODETYPE start option has not been specified).
- 25 COUNT applies only to the IBM 3720 and 3745 Communication Controllers.

Start options

- 26 The default options apply only to MODE=INT.
- 27 PSS and SMS can be turned off.
- 28 If multiple trace options are coded in parentheses, HPR must be one of the options coded inside the parentheses when SUBTRACE=ARBP is coded.
- 29 If multiple trace options are coded in parentheses, SSCP must be one of the options coded inside the parentheses when SUBTRACE=TGVC or SUBTRACE=TREE is coded.

Chapter 11. Other VTAM codes and commands

Table 2. Other VTAM codes and commands

Command type	Reference
Status Codes	Refer to <i>z/OS Communications Server: IP and SNA Codes</i> .
Dump Analysis Tool Commands	Refer to <i>z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures</i> .

VTAM commands

Part 3. Appendixes

Appendix. Accessibility

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

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

Using assistive technologies

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

Keyboard navigation of the user interface

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

z/OS information

| z/OS information is accessible using screen readers with the BookServer/Library
| Server versions of z/OS books in the Internet library at:

| www.ibm.com/servers/eserver/zseries/zos/bkserv/

Notices

IBM may not offer all of the products, services, or features discussed in this document. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A.

For license inquiries regarding double-byte (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

IBM World Trade Asia Corporation
Licensing
2-31 Roppongi 3-chome, Minato-ku
Tokyo 106, Japan

The following paragraph does not apply to the United Kingdom or any other country where such provisions are inconsistent with local law:

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

This information could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Any references in this information to non-IBM Web sites are provided for convenience only and do not in any manner serve as an endorsement of those Web sites. The materials at those Web sites are not part of the materials for this IBM product and use of those Web sites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

Licenses of this program who wish to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact:

Site Counsel
IBM Corporation
P.O. Box 12195
3039 Cornwallis Road
Research Triangle Park, North Carolina 27709-2195
U.S.A

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this information and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Program License Agreement, or any equivalent agreement between us.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurement may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

All statements regarding IBM's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

All IBM prices shown are IBM's suggested retail prices, are current and are subject to change without notice. Dealer prices may vary.

This information is for planning purposes only. The information herein is subject to change before the products described become available.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

COPYRIGHT LICENSE:

This information contains sample application programs in source language, which illustrates programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application

programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. You may copy, modify, and distribute these sample programs in any form without payment to IBM for the purposes of developing, using, marketing, or distributing application programs conforming to IBM's application programming interfaces.

Each copy or any portion of these sample programs or any derivative work must include a copyright notice as follows:

© (your company name) (year). Portions of this code are derived from IBM Corp. Sample Programs. © Copyright IBM Corp. _enter the year or years_. All rights reserved.

IBM is required to include the following statements in order to distribute portions of this document and the software described herein to which contributions have been made by The University of California. Portions herein © Copyright 1979, 1980, 1983, 1986, Regents of the University of California. Reproduced by permission. Portions herein were developed at the Electrical Engineering and Computer Sciences Department at the Berkeley campus of the University of California under the auspices of the Regents of the University of California.

Portions of this publication relating to RPC are Copyright © Sun Microsystems, Inc., 1988, 1989.

Some portions of this publication relating to X Window System** are Copyright © 1987, 1988 by Digital Equipment Corporation, Maynard, Massachusetts, and the Massachusetts Institute Of Technology, Cambridge, Massachusetts. All Rights Reserved.

Some portions of this publication relating to X Window System are Copyright © 1986, 1987, 1988 by Hewlett-Packard Corporation.

Permission to use, copy, modify, and distribute the M.I.T., Digital Equipment Corporation, and Hewlett-Packard Corporation portions of this software and its documentation for any purpose without fee is hereby granted, provided that the above copyright notice appears in all copies and that both that copyright notice and this permission notice appear in supporting documentation, and that the names of M.I.T., Digital, and Hewlett-Packard not be used in advertising or publicity pertaining to distribution of the software without specific, written prior permission. M.I.T., Digital, and Hewlett-Packard make no representation about the suitability of this software for any purpose. It is provided "as is" without express or implied warranty.

Copyright © 1983, 1995-1997 Eric P. Allman

Copyright © 1988, 1993 The Regents of the University of California. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software must display the following acknowledgement:
This product includes software developed by the University of California, Berkeley and its contributors.
4. Neither the name of the University nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This software program contains code, and/or derivatives or modifications of code originating from the software program "Popper." Popper is Copyright ©1989-1991 The Regents of the University of California, All Rights Reserved. Popper was created by Austin Shelton, Information Systems and Technology, University of California, Berkeley.

Permission from the Regents of the University of California to use, copy, modify, and distribute the "Popper" software contained herein for any purpose, without fee, and without a written agreement is hereby granted, provided that the above copyright notice and this paragraph and the following two paragraphs appear in all copies. HOWEVER, ADDITIONAL PERMISSIONS MAY BE NECESSARY FROM OTHER PERSONS OR ENTITIES, TO USE DERIVATIVES OR MODIFICATIONS OF POPPER.

IN NO EVENT SHALL THE UNIVERSITY OF CALIFORNIA BE LIABLE TO ANY PARTY FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING LOST PROFITS, ARISING OUT OF THE USE OF THE POPPER SOFTWARE, OR ITS DERIVATIVES OR MODIFICATIONS, AND ITS DOCUMENTATION, EVEN IF THE UNIVERSITY OF CALIFORNIA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

THE UNIVERSITY OF CALIFORNIA SPECIFICALLY DISCLAIMS ANY WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE POPPER SOFTWARE PROVIDED HEREUNDER IS ON AN "AS IS" BASIS, AND THE UNIVERSITY OF CALIFORNIA HAS NO OBLIGATIONS TO PROVIDE MAINTENANCE, SUPPORT, UPDATES, ENHANCEMENTS, OR MODIFICATIONS.

Copyright © 1983 The Regents of the University of California. All rights reserved.

Redistribution and use in source and binary forms are permitted provided that the above copyright notice and this paragraph are duplicated in all such forms and that any documentation, advertising materials, and other materials related to such distribution and use acknowledge that the software was developed by the University of California, Berkeley. The name of the University may not be used to endorse or promote products derived from this software without specific prior written permission. THIS SOFTWARE IS PROVIDED ``AS IS'' AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Copyright © 1991, 1993 The Regents of the University of California. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software must display the following acknowledgement:

This product includes software developed by the University of California, Berkeley and its contributors.

4. Neither the name of the University nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Copyright © 1990 by the Massachusetts Institute of Technology

Export of this software from the United States of America may require a specific license from the United States Government. It is the responsibility of any person or organization contemplating export to obtain such a license before exporting.

WITHIN THAT CONSTRAINT, permission to use, copy, modify, and distribute this software and its documentation for any purpose and without fee is hereby granted, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation, and that the name of M.I.T. not be used in advertising or publicity pertaining to distribution of the software without specific, written prior permission. Furthermore

if you modify this software you must label your software as modified software and not distribute it in such a fashion that it might be confused with the original M.I.T. software. M.I.T. makes no representations about the suitability of this software for any purpose. It is provided "as is" without express or implied warranty.

Copyright © 1998 by the FundsXpress, INC. All rights reserved.

Export of this software from the United States of America may require a specific license from the United States Government. It is the responsibility of any person or organization contemplating export to obtain such a license before exporting.

WITHIN THAT CONSTRAINT, permission to use, copy, modify, and distribute this software and its documentation for any purpose and without fee is hereby granted, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation, and that the name of FundsXpress not be used in advertising or publicity pertaining to distribution of the software without specific, written prior permission. FundsXpress makes no representations about the suitability of this software for any purpose. It is provided "as is" without express or implied warranty.

THIS SOFTWARE IS PROVIDED "AS IS" AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Copyright © 1999, 2000 Internet Software Consortium.

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND INTERNET SOFTWARE CONSORTIUM DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL INTERNET SOFTWARE CONSORTIUM BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Copyright © 1995-1998 Eric Young (eay@cryptsoft.com) All rights reserved.

This package is an SSL implementation written by Eric Young (eay@cryptsoft.com). The implementation was written so as to conform with Netscape's SSL.

This library is free for commercial and non-commercial use as long as the following conditions are adhered to. The following conditions apply to all code found in this distribution, be it the RC4, RSA, lhash, DES, etc., code; not just the SSL code. The SSL documentation included with this distribution is covered by the same copyright terms except that the holder is Tim Hudson (tjh@cryptsoft.com).

Copyright remains Eric Young's, and as such any Copyright notices in the code are not to be removed. If this package is used in a product, Eric Young should be

given attribution as the author of the parts of the library used. This can be in the form of a textual message at program startup or in documentation (online or textual) provided with the package.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software must display the following acknowledgement: "This product includes cryptographic software written by Eric Young (eay@cryptsoft.com)". The word 'cryptographic' can be left out if the routines from the library being used are not cryptographic related.
4. If you include any Windows specific code (or a derivative thereof) from the apps directory (application code) you must include acknowledgement:
"This product includes software written by Tim Hudson (tjh@cryptsoft.com)"

THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The license and distribution terms for any publicly available version or derivative of this code cannot be changed. i.e. this code cannot simply be copied and put under another distribution license [including the GNU Public License.]

This product includes cryptographic software written by Eric Young.

Copyright © 1999, 2000 Internet Software Consortium.

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND INTERNET SOFTWARE CONSORTIUM DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL INTERNET SOFTWARE CONSORTIUM BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Copyright © 2004 IBM Corporation and its licensors, including Sendmail, Inc., and the Regents of the University of California. All rights reserved.

Copyright © 1999,2000,2001 Compaq Computer Corporation

Copyright © 1999,2000,2001 Hewlett-Packard Company

Copyright © 1999,2000,2001 IBM Corporation

Copyright © 1999,2000,2001 Hummingbird Communications Ltd.

Copyright © 1999,2000,2001 Silicon Graphics, Inc.

Copyright © 1999,2000,2001 Sun Microsystems, Inc.

Copyright © 1999,2000,2001 The Open Group

All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, provided that the above copyright notice(s) and this permission notice appear in all copies of the Software and that both the above copyright notice(s) and this permission notice appear in supporting documentation.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization of the copyright holder.

X Window System is a trademark of The Open Group.

If you are viewing this information softcopy, photographs and color illustrations may not appear.

You can obtain softcopy from the z/OS Collection (SK3T-4269), which contains BookManager[®] and PDF formats of unlicensed books and the z/OS Licensed Product Library (LK3T-4307), which contains BookManager and PDF formats of licensed books.

Trademarks

The following terms are trademarks of the IBM Corporation in the United States or other countries or both:

Advanced Peer-to-Peer Networking	MVS/XA
AFP	NetView
AD/Cycle	Network Station
AIX	Nways
AIX/ESA	Notes
AnyNet	OfficeVision/MVS
APL2	OfficeVision/VM
AS/400	Open Class
AT	OS/2
BookManager	OS/390
BookMaster	OS/400
C/370	Parallel Sysplex
CICS	PR/SM
CICS/ESA	PROFS
C/MVS	PS/2
Common User Access	RACF
C Set ++	Redbooks
CT	Resource Link
CUA	RETAIN
DB2	RISC System/6000
DFSMSdfp	RMF
DFSMShsm	RS/6000
DFSMS/MVS	S/370
DPI	S/390
Domino	S/390 Parallel Enterprise Server
DRDA	SAA
Enterprise Systems Architecture/370	SecureWay
ESCON	SP
eServer	SP2
ES/3090	SQL/DS
ES/9000	System/360
ES/9370	System/370
EtherStreamer	System/390
Extended Services	SystemView
FFST	Tivoli
FFST/2	TURBOWAYS
First Failure Support Technology	VM/ESA
GDDM	VSE/ESA
IBM	VTAM
IBMLink	WebSphere
IMS	XT
IMS/ESA	z/Architecture
HiperSockets	z/OS
Language Environment	zSeries
LANStreamer	z/VM
Library Reader	400
LPDA	3090
Micro Channel	3890
Multiprise	
MVS	
MVS/DFP	
MVS/ESA	
MVS/SP	

DB2 and NetView are registered trademarks of International Business Machines Corporation or Tivoli Systems Inc. in the U.S., other countries, or both.

The following terms are trademarks of other companies:

ATM is a trademark of Adobe Systems, Incorporated.

BSC is a trademark of BusiSoft Corporation.

CSA is a trademark of Canadian Standards Association.

DCE is a trademark of The Open Software Foundation.

HYPERchannel is a trademark of Network Systems Corporation.

| Java and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the
| United States, other countries, or both.

| Linux is a trademark of Linus Torvalds in the United States, other countries, or
| both.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

| Intel is a registered trademark of Intel Corporation or its subsidiaries in the United
| States and other countries.

Other company, product, and service names may be trademarks or service marks of others.



Program Number: 5694-A01 and 5655-G52

Printed in USA

SX75-0124-05



Spine information:



z/OS Communications Server

z/OS V1R7.0 Comm Svr: Quick Reference

Version 1 Release 7