z/OS Communications Server

OA49911 - 3270 Intrusion Detection Services (part 1)

Version 2 Release 2

Note:
Links to related publications are from original documents and might not work. The links to publications are included for reference purposes only.

Contents

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Chapter 1. New Function Summary

V2R2 new function summary

Security

The following topics describe enhancements for security:

- AT-TLS certificate processing enhancements
- AT-TLS enablement for DCAS
- IBM® Health Checker for z/OS® MVRSHD RHOSTS DATA
- IBM Health Checker for z/OS SMTPD MAIL RELAY
- IBM Health Checker for z/OS SNMP agent public community name
- Network security enhancements for SNMP
- Simplified access permissions to ICSF cryptographic functions for IPSec
- TCP/IP profile IP security filter enhancements
- TLS security enhancements for Policy Agent
- TLS security enhancements for sendmail
- TLS session reuse support for FTP and AT-TLS applications (AT-TLS)
- TLS session reuse support for FTP and AT-TLS applications (FTP)
- "VTAM 3270 intrusion detection services"

VTAM 3270 intrusion detection services

With APAR OA49911 installed, z/OS V2R2 Communications Server enables 3270 data stream intrusion detection services (IDS) that detect and act on violations of the 3270 data stream protocol.

The 3270 IDS function monitors 3270 data streams for primary logical units (PLUs) that are connected to the z/OS VTAM® instance. Specific types of 3270 sessions can be exempted from IDS monitoring at the VTAM or application major node level if IDS monitoring is not needed for those sessions.

The 3270 IDS function monitors 3270 data streams for any attempt to write past the end of input fields or to modify protected fields. When these types of events are detected, appropriate actions are taken according to the VTAM configuration. The possible actions include logging the event, tracing the relevant inbound and outbound PIUs for later analysis, notifying the PLU of the event with a sense code, and even terminating the SNA session.

The 3270 IDS function writes GTF type F90 records and SMF type 119 (subtype 81) records for each incident.

Restriction: This function is not supported for VTAM's APPCCMD programming interface.

Using VTAM 3270 IDS

VTAM 3270 IDS is disabled by default. To enable this function, perform the appropriate tasks in Table 1 on page 2.

Table 1. VTAM 3270 IDS

Task/Procedure	Reference
Enable 3270 data stream monitoring at the VTAM level by using the DSMONITR VTAM start option.	DSMONITR VTAM start option in z/OS Communications Server: SNA Resource Definition Reference
Optionally enable or disable 3270 data stream monitoring at the application major node level by using the DSMONITR operand of the APPL or GROUP statement.	DSMONITR operand of the APPL and GROUP statements in z/OS Communications Server: SNA Resource Definition Reference
Optionally specify the actions to be taken at the VTAM level when a 3270 data stream protocol violation is detected by using the DSACTION VTAM start option.	DSACTION VTAM start option in z/OS Communications Server: SNA Resource Definition Reference
Optionally specify the actions to be taken at the application major node level when a 3270 data stream protocol violation is detected by using the DSACTION operand of the APPL or GROUP statement.	DSACTION operand of the APPL and GROUP statements in z/OS Communications Server: SNA Resource Definition Reference
Optionally exempt specific types of 3270 traffic from monitoring at the VTAM level by using the DSTRUST VTAM start option.	DSTRUST VTAM start option in z/OS Communications Server: SNA Resource Definition Reference
Optionally exempt specific types of 3270 traffic from monitoring at the application major node level using the DSTRUST operand of the APPL or GROUP statement.	DSTRUST operand of the APPL and GROUP statements in z/OS Communications Server: SNA Resource Definition Reference
Display 3270 IDS configuration settings at the VTAM level.	DISPLAY VTAMOPTS,FUNCTION=SECURITY command in z/OS Communications Server: SNA Operation
Display 3270 IDS configuration settings and statistics at the application level.	DISPLAY ID command in z/OS Communications Server: SNA Operation
Display 3270 IDS statistics at the VTAM level	DISPLAY STATS command in z/OS Communications Server: SNA Operation
Display 3270 IDS statistics for a specific session	DISPLAY SESSION,SID= command in z/OS Communications Server: SNA Operation
Modify the 3270 IDS configuration settings at the VTAM level	MODIFY VTAMOPTS command in z/OS Communications Server: SNA Operation
Enable capture of relevant SNA PIUs to the Generalized Trace Facility (GTF)	• DSCOUNT VTAM start option in z/OS Communications Server: SNA Resource Definition Reference • DSCOUNT operand of the APPL and GROUP statements in z/OS Communications Server: SNA Resource Definition Reference • Using Traces in z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures
Display the 3270 IDS data areas from a dump	VTAMMAP SES or VTAMMAP VTAM command in z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures

Table 1. VTAM 3270 IDS (continued)

Task/Procedure	Reference
Analyze potential 3270 protocol violations	• z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures • z/OS Communications Server: SNA Diagnosis Vol 2, FFST Dumps and the VIT
Update the SMFPRM*xx* member of SYS1.PARMLIB to write SMF type 119 subtype 81 records.	z/OS MVS Initialization and Tuning Reference
Read the SMF type 119 subtype 81 records.	Type 119 SMF records in z/OS Communications Server: IP Programmer's Guide and Reference

To find all related topics about VTAM 3270 IDS, see Table 2.

Table 2. All related topics about VTAM 3270 IDS

Book name	Topics
z/OS Communications Server: IP Programmer's Guide and Reference	• SMF 119 record subtypes • Common TCP/IP identification section • SNA 3270 Intrusion Detection Service record (subtype 81)
z/OS Communications Server: IP and SNA Codes	• Sense code 082B • Session status modifiers (positions 6-8)
z/OS Communications Server: SNA Operation	• DISPLAY ID command • DISPLAY SESSIONS command • DISPLAY STATS command • DISPLAY STORUSE command • DISPLAY VTAMOPTS command • MODIFY VTAMOPTS command
z/OS Communications Server: SNA Network Implementation Guide	3270 Intrusion Detection Services
z/OS Communications Server: SNA Diagnosis Vol 1, Techniques and Procedures	• Missing VTAM trace records • SPANC • STORAGE • Traces provided by VTAM – Formatting and printing trace records – Using IPCS with the GTF trace option – VTAM trace record formats – Buffer contents trace for 3270 IDS incidents – 3270 data stream formatting

Table 2. All related topics about VTAM 3270 IDS (continued)

Book name	Topics
z/OS Communications Server: SNA Diagnosis Vol 2, FFST Dumps and the VIT	• Trace options for the VIT • FB64 entry for FREEB64 macro • GB64 entry for GetB64 macro • 3270 entry for 3270 Intrusion Detection Services • 3271 entry for 3270 Intrusion Detection Services
z/OS Communications Server: SNA Resource Definition Reference	• APPL (Application program major node full syntax) • Application program major node operand descriptions – DSACTION – DSCOUNT – DSMONITR – DSTRUST • Start options syntax diagrams • Session security start options • DSACTION start option • DSCOUNT start option • DSMONITR start option • DSTRUST start option
z/OS Communications Server: Quick Reference	F VTAMOPTS command
z/OS Communications Server: SNA Messages	• IST879I • IST1242I • IST1244I • IST1345I • IST2424I • IST2425I • IST2426I • IST2427I • IST2428I • IST2429I • IST2430I • IST2431I • IST2432I • IST2433I • IST2434I • IST2435I • IST2436I • IST2437I • IST2438I • IST2439I • IST2440I • IST2441I

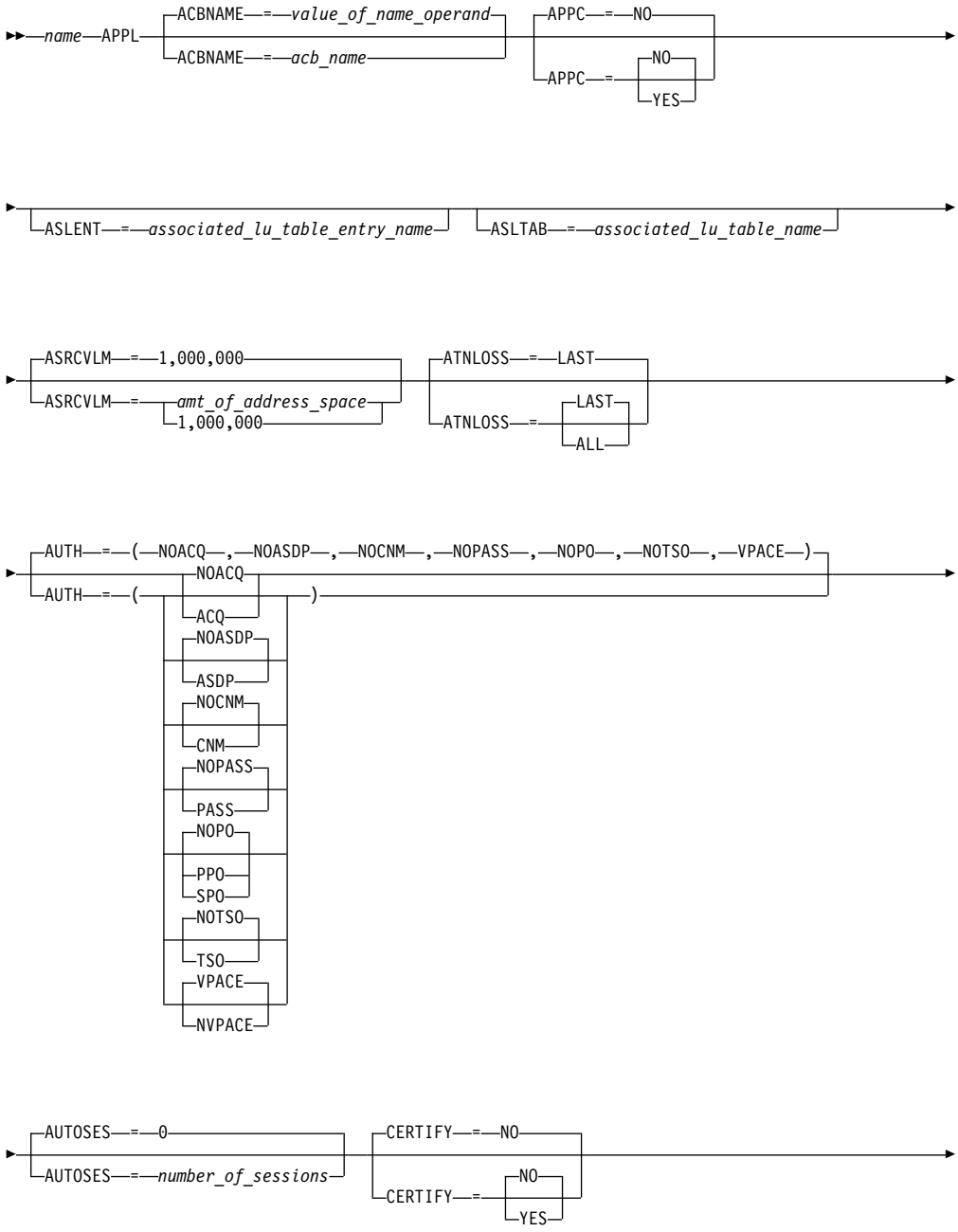
Table 2. All related topics about VTAM 3270 IDS (continued)

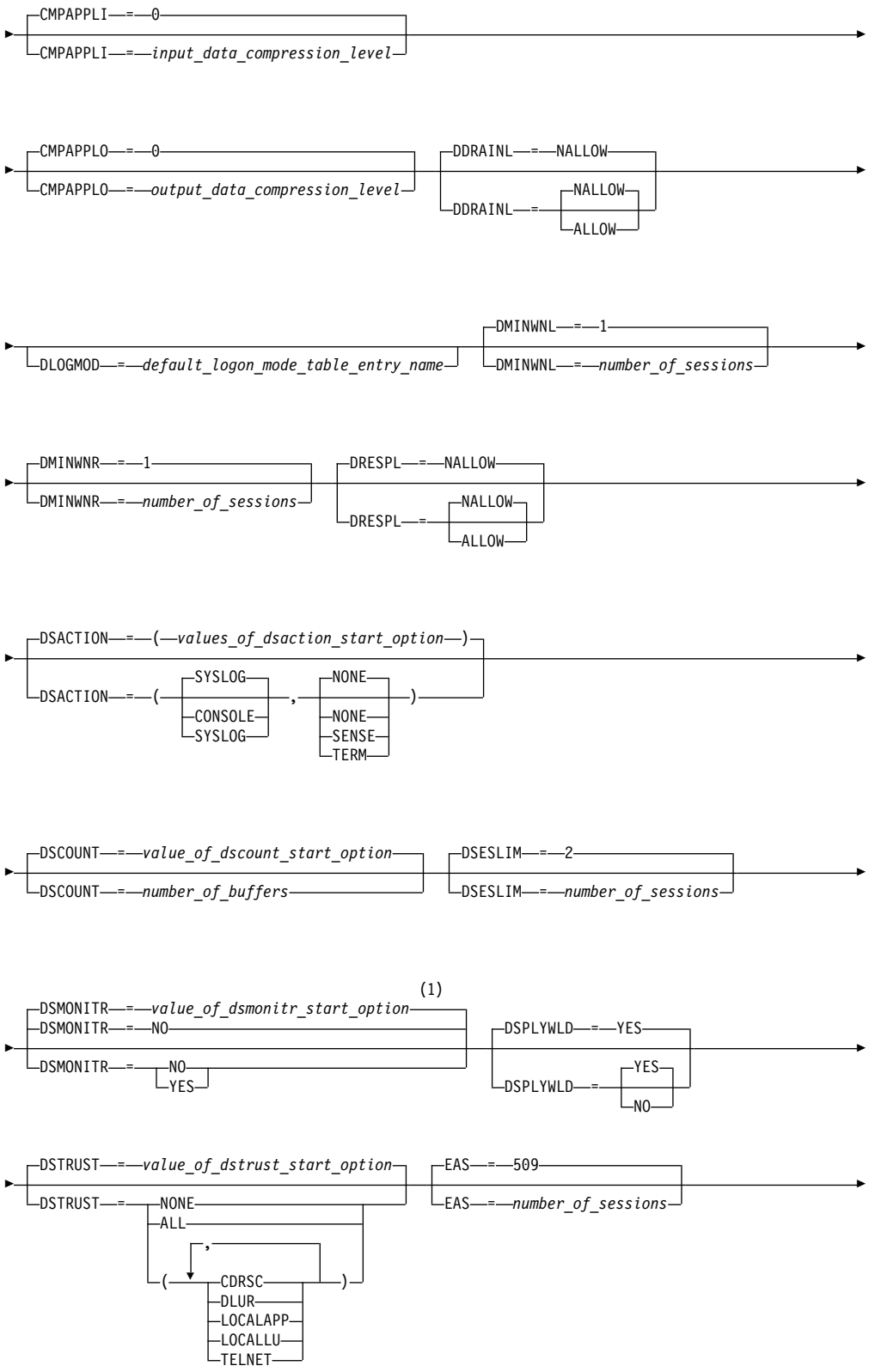
Book name	Topics
z/OS Communications Server: SNA Customization	Global storage GETBLK vector (X'000100030004')

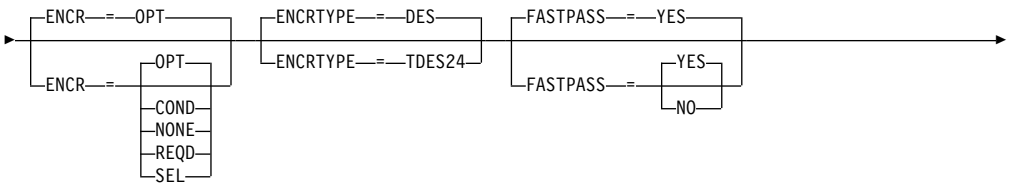
Chapter 2. SNA Resource Definition Reference

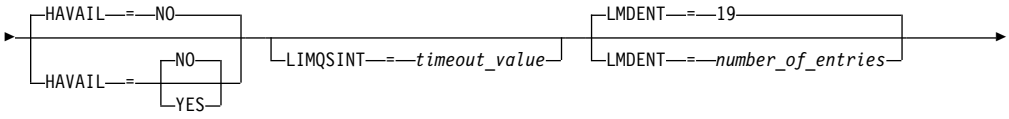
Application program major node full syntax

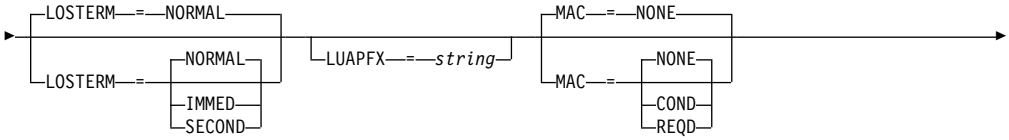
APPL

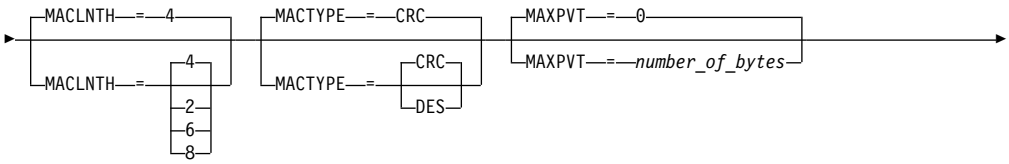


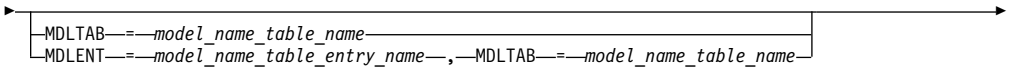

CMPAPPLI=0
CMPAPPLI=input_data_compression_level
CMPAPPLO=0
CMPAPPLO=output_data_compression_level
DDRAINL=NALLOW
DDRAINL=NALLOW
ALLOW
DLOGMOD=default_logon_mode_table_entry_name
DMINWNL=1
DMINWNL=number_of_sessions
DMINWNR=1
DMINWNR=number_of_sessions
DRESPL=NALLOW
DRESPL=NALLOW
ALLOW
DSACTION=(values_of_dsaction_start_option)
DSACTION=(SYSLOG
CONSOLE
SYSLOG
,NONE
NONE
SENSE
TERM)
DSCOUNT=value_of_dscount_start_option
DSCOUNT=number_of_buffers
DSESLIM=2
DSESLIM=number_of_sessions
(1)
DSMONITR=value_of_dsmonitr_start_option
DSMONITR=NO
DSMONITR=NO
YES
DSPLYWLD=YES
DSPLYWLD=YES
NO
DSTRUST=value_of_dstrust_start_option
DSTRUST=NONE
ALL
,
(CDRSC
DLUR
LOCALAPP
LOCALLU
TELNET)
EAS=509
EAS=number_of_sessions

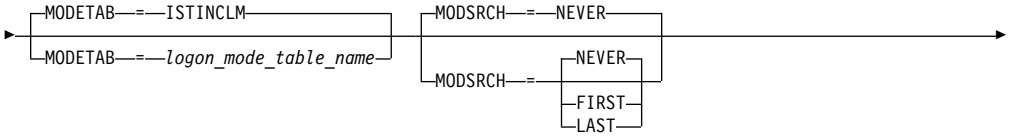

ENCR
OPT
ENCR
OPT
COND
NONE
REQD
SEL
ENCRTYPE
DES
ENCRTYPE
TDES24
FASTPASS
YES
FASTPASS
YES
NO

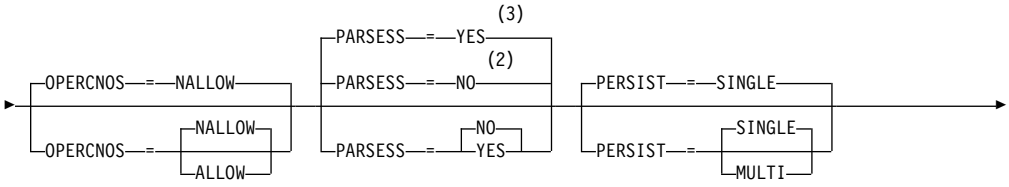

HAVAIL
NO
HAVAIL
NO
YES
LIMQSINT
timeout_value
LMDENT
19
LMDENT
number_of_entries

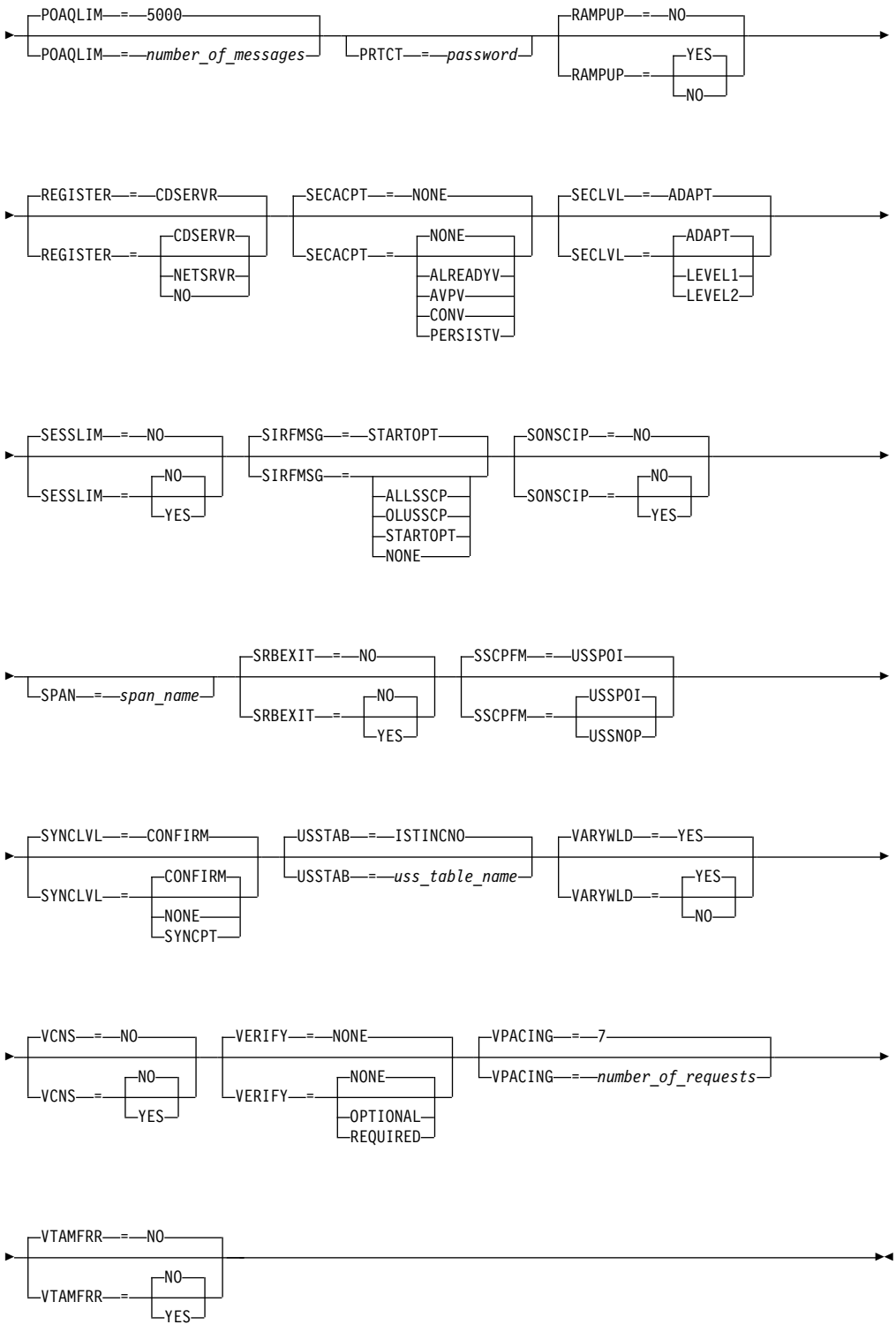

LOSTERM
NORMAL
LOSTERM
NORMAL
IMMED
SECOND
LUAPFX
string
MAC
NONE
MAC
NONE
COND
REQD


MACLNTH
4
MACLNTH
4
2
6
8
MACTYPE
CRC
MACTYPE
CRC
DES
MAXPVT
0
MAXPVT
number_of_bytes


MDLTAB
model_name_table_name
MDLENT
model_name_table_entry_name
,
MDLTAB
model_name_table_name


MODETAB
ISTINCLM
MODETAB
logon_mode_table_name
MODSRCH
NEVER
MODSRCH
NEVER
FIRST
LAST


OPERCNOS
NALLOW
OPERCNOS
NALLOW
ALLOW
(3)
PARSESS
YES
(2)
PARSESS
NO
PARSESS
NO
YES
PERSIST
SINGLE
PERSIST
SINGLE
MULTI



Notes:

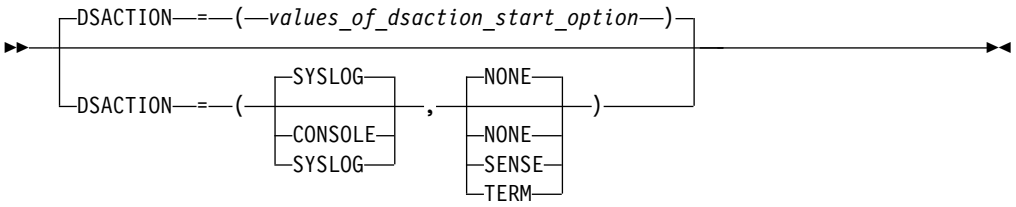
1 If the VTAM start options specify DSMONITR=YES or DSMONITR=NO, the value from the DSMONITR start option is the default value. If the VTAM start option specifies DSMONITR=APPL, the default value is DSMONITR=NO.

2 PARSESS defaults to NO when APPC=NO.

3 PARSESS defaults to YES when APPC=YES.

Application program major node operand descriptions

DSACTION



statements: *GROUP, APPL*

dependencies: *DSMONITR=YES is in effect for the VTAM application on this host. This VTAM application is the PLU of the session.*

Describes the action to be taken when a 3270 protocol violation is detected for this PLU application.

If DSACTION is specified on the APPL statement, the DSACTION value overrides the DSACTION start option for this application. If DSACTION is not specified on the APPL statement, the values that are specified on the DSACTION start option are used for this application.

The first parameter specifies the reporting level:

DSACTION=SYSLOG
Specifies that the IST2424I message group will be written to the syslog, but just a single message (IST2424I) will be written to the console.

DSACTION=CONSOLE
Specifies that the IST2424I message group will be written to both the syslog and the console.

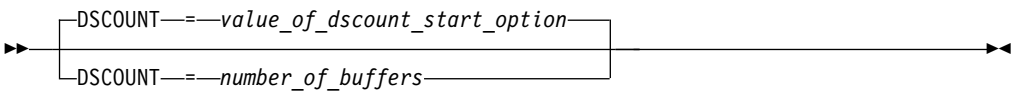
The second parameter specifies the intervention level:

DSACTION=NONE
Specifies only the reporting level action is taken.

DSACTION=SENSE
Specifies that the reporting level action is taken and a sense code is sent to the PLU application.

DSACTION=TERM
Specifies that the reporting level action is taken and the session is terminated.

DSCOUNT

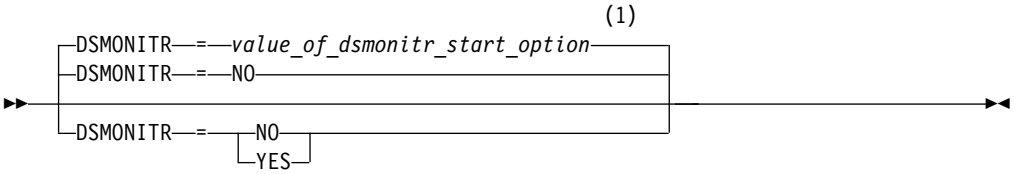


statements:	*GROUP, APPL*
dependencies:	*DSMONITR=YES or DSMONITR=APPL*
range:	*0–15*

Specifies the number of output PIU chains to be saved as historical data for the session. If a 3270 protocol violation is detected, these PIU chains will be written to GTF trace for later problem determination. The larger the number of saved chains, the better the chances of isolating the specific cause of the reported violation, but at the cost of higher memory utilization. These buffers are stored in 64-bit memory.

If DSCOUNT is specified on the APPL statement, it overrides the DSCOUNT start option for this application. If DSCOUNT is not specified on the APPL statement, the values that are specified on the DSCOUNT start option will be used for this application.

DSMONITR



Notes:

1 If the VTAM start options specify DSMONITR=YES or DSMONITR=NO, the value from the DSMONITR start option is the default value. If the VTAM start option specifies DSMONITR=APPL, the default value is DSMONITR=NO.

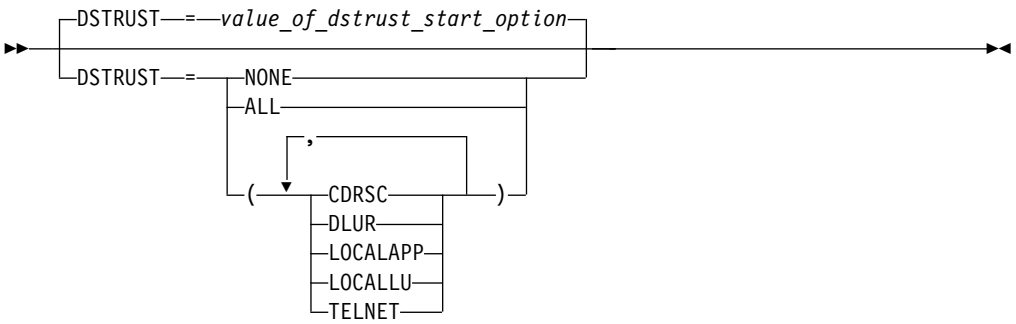
If the VTAM start options specify DSMONITR=YES or DSMONITR=APPL, this parameter specifies whether the 3270 Intrusion Detection Services (IDS) monitoring is enabled or disabled for this PLU application. If the VTAM start options specify DSMONITR=NO, this parameter is ignored.

If DSMONITR is not specified on the APPL statement, the values that are specified on the DSMONITR start option will be used for this application.

DSMONITR=NO
Specifies that 3270 IDS monitoring is disabled for new sessions and current monitored sessions are no longer monitored.

DSMONITR=YES
Specifies that 3270 IDS monitoring is enabled for new sessions unless the DSMONITR=NO start option is coded.

DSTRUST



Specifies one or more resource types to exempt from 3270 Intrusion Detection Services (IDS) monitoring. The VTAM application is the PLU of the session. Resources that are listed on this operand are trusted to carry only valid 3270 data streams.

If DSTRUST is specified on the APPL statement, it overrides the DSTRUST start option for this application. If DSTRUST is not specified on the APPL statement, the values that are specified on the DSTRUST start option will be used for this application.

DSTRUST=ALL
Equals to specifying DSTRUST=(CDRSC,DLUR,LOCALAPP,LOCALLU,TELNET).

DSTRUST=CDRSC
Specifies that CDRSC sessions to the VTAM PLU application are trusted and therefore exempted from 3270 IDS monitoring.

DSTRUST=DLUR
Specifies that DLUR sessions to the VTAM PLU application are trusted and therefore exempted from 3270 IDS monitoring.

DSTRUST=LOCALAPP
Specifies that VTAM applications on this host are trusted and therefore exempted from 3270 IDS monitoring if these applications are the SLU of a session with this PLU application. This option does not apply to local Telnet applications.

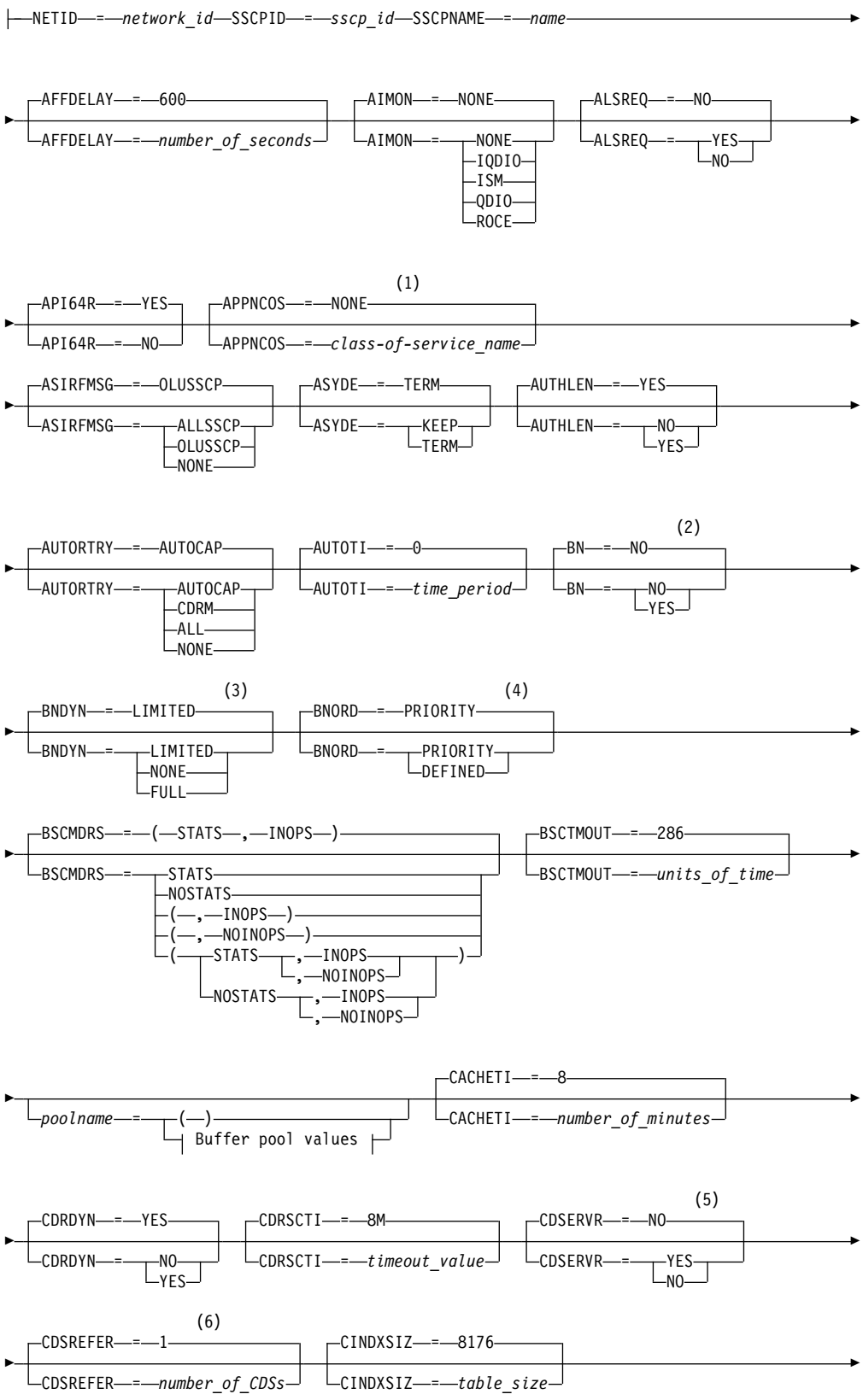
DSTRUST=LOCALLU
Specifies that local LUs are trusted and therefore exempted from 3270 IDS monitoring if these LUs are the SLU of a session with this PLU application.

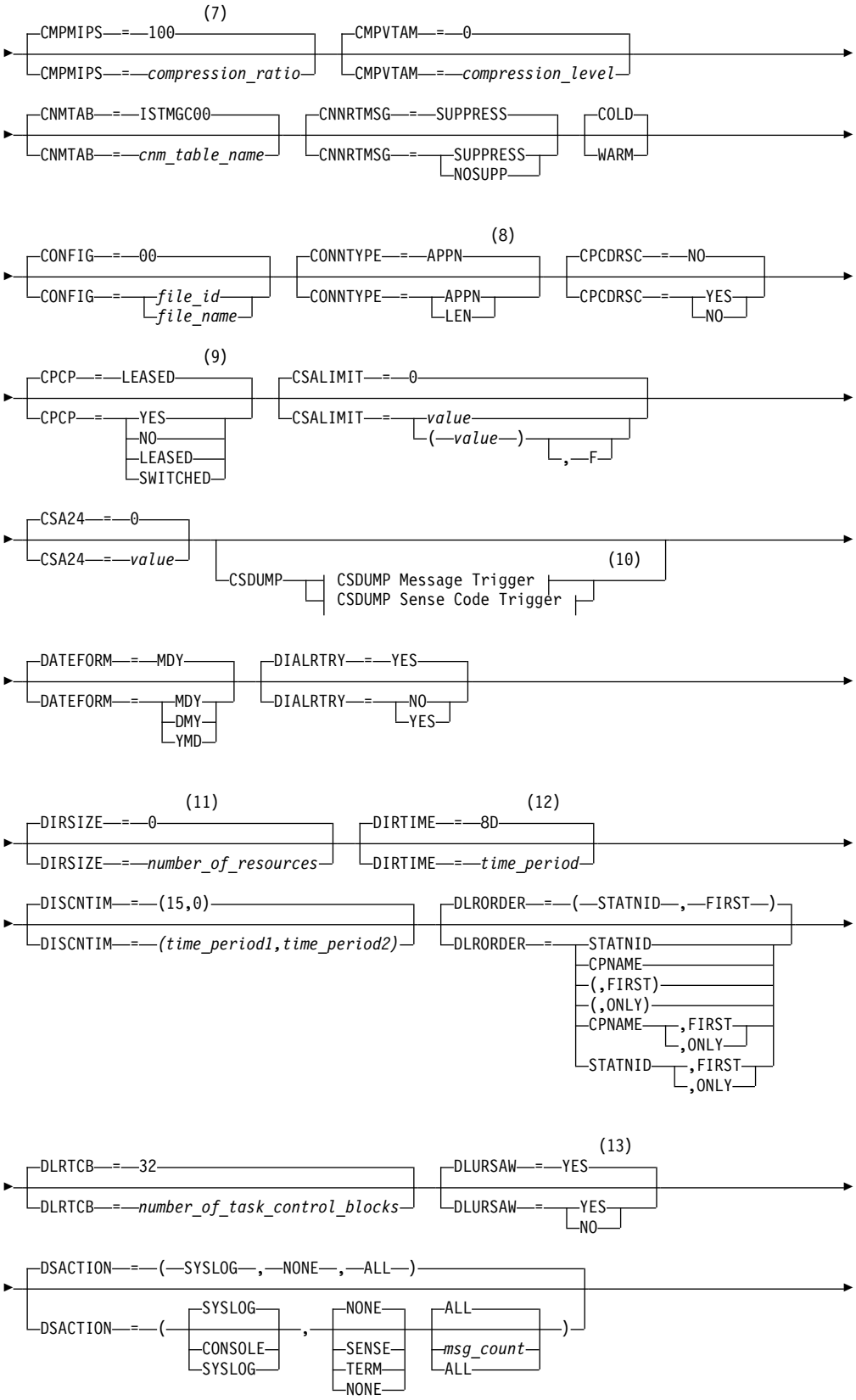
DSTRUST=NONE
Specifies that no resources are to be trusted or exempted from 3270 IDS monitoring for this PLU application.

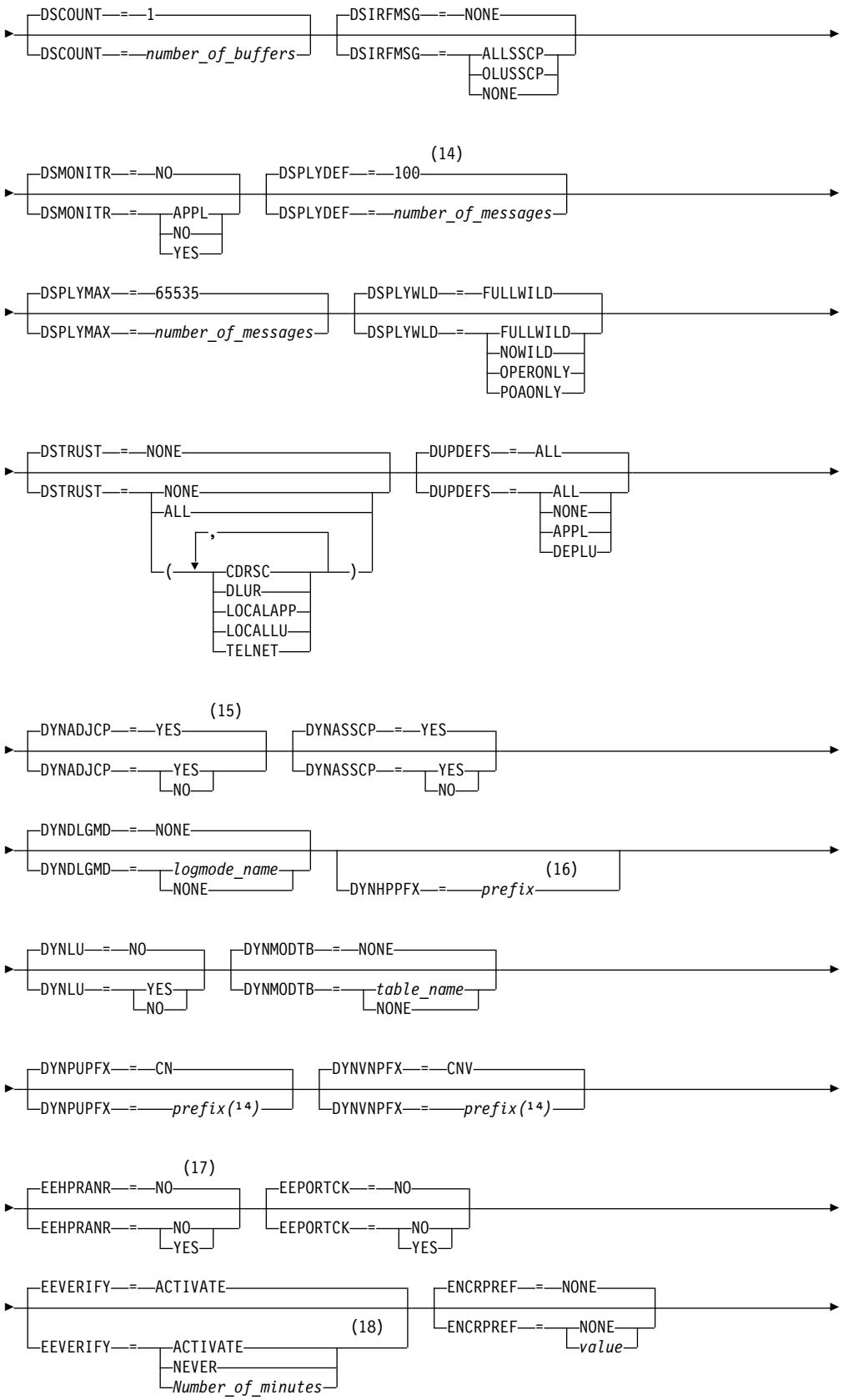
DSTRUST=TELNET
Specifies that local Telnet applications are trusted and therefore exempted from 3270 IDS monitoring if these applications are the SLU of a session with this PLU application.

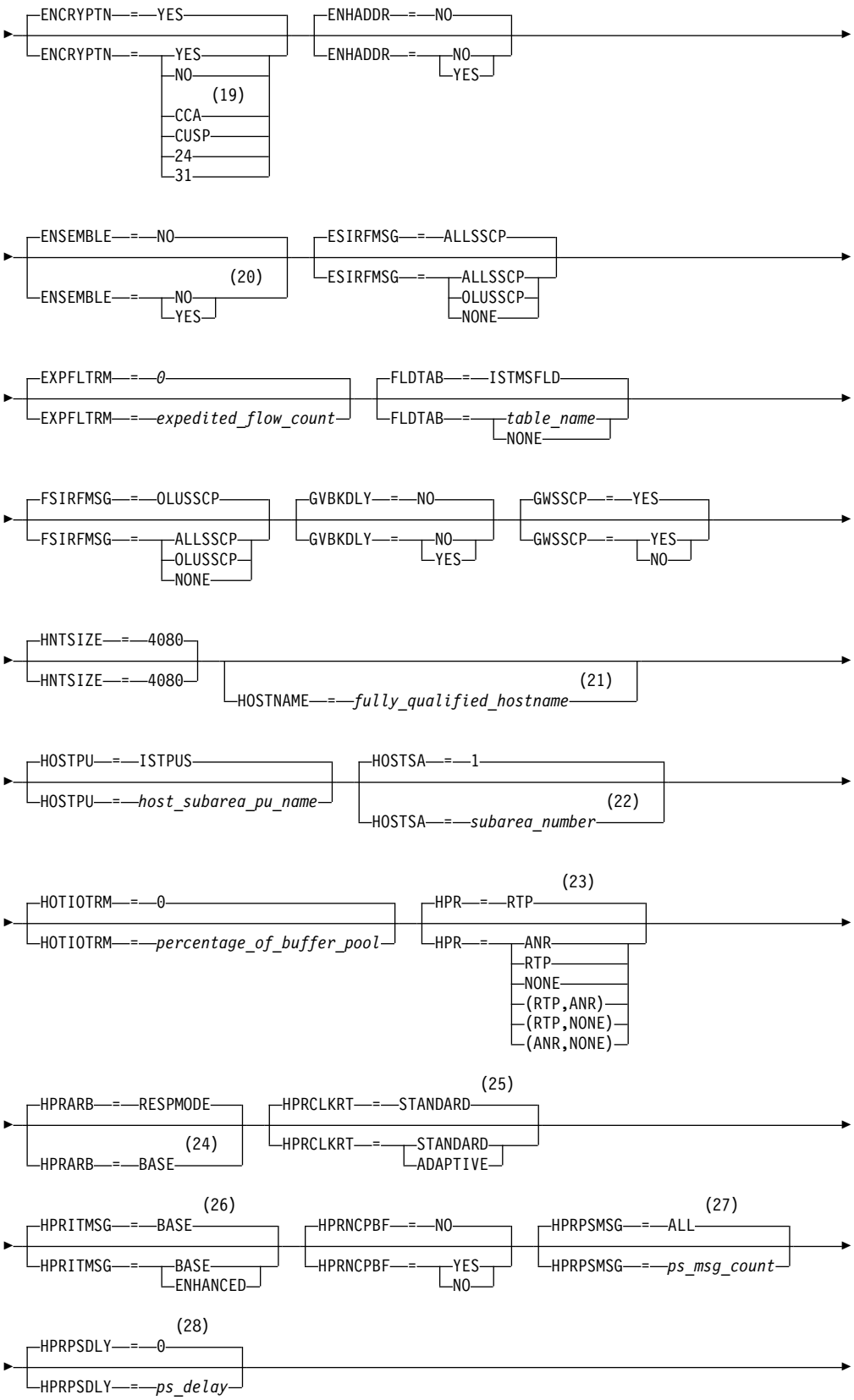
Start options syntax diagrams

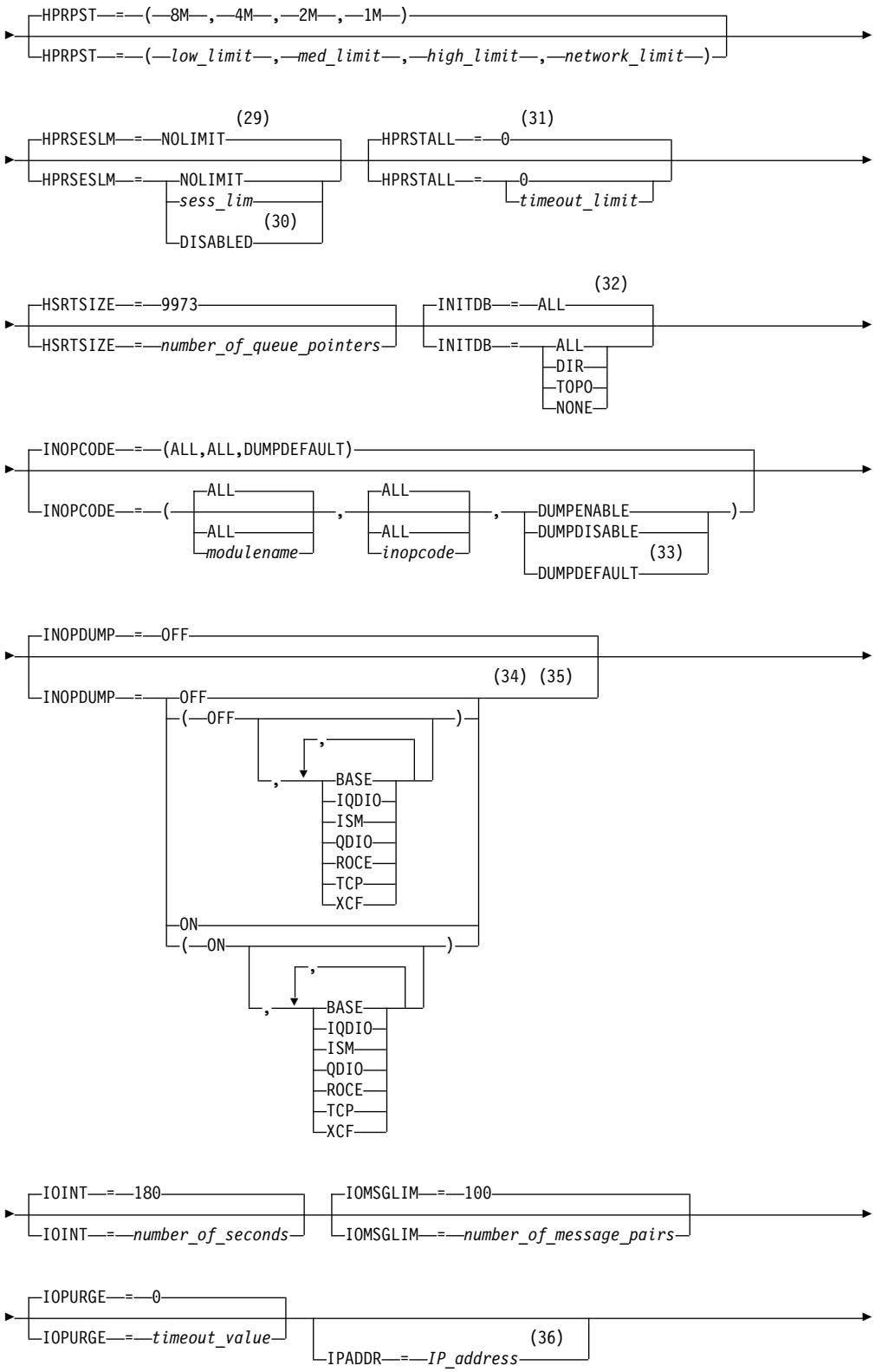
Options:

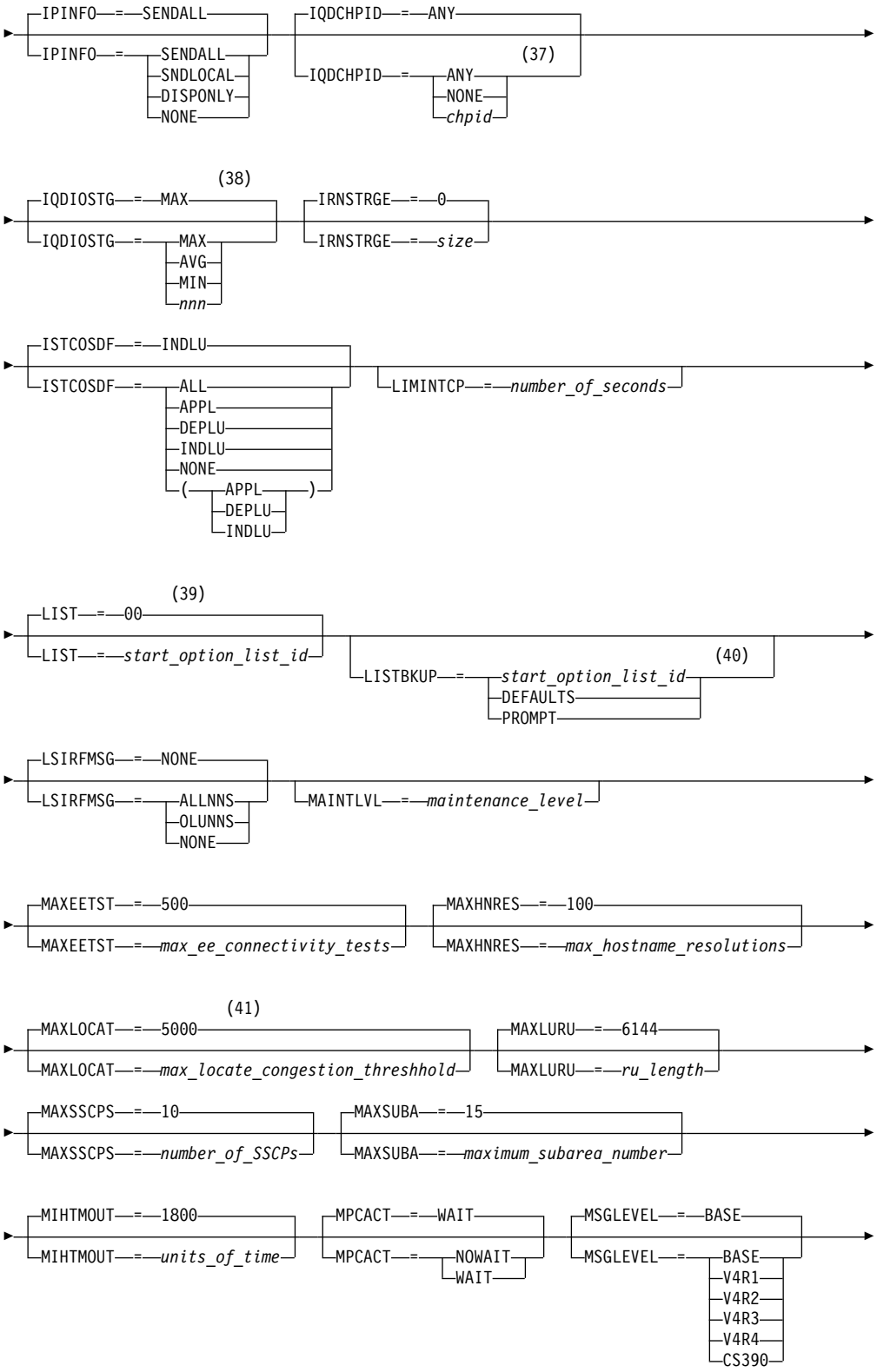

NETID = network_id SSCPID = sscp_id SSCPNAME = name
AFFDELAY = 600
AFFDELAY = number_of_seconds
AIMON = NONE
AIMON = NONE IQDIO ISM QDIO ROCE
ALSREQ = NO
ALSREQ = YES NO
API64R = YES
API64R = NO
(1)
APPNCOS = NONE
APPNCOS = class-of-service_name
ASIRFMSG = OLUSSCP
ASIRFMSG = ALLSSCP OLUSSCP NONE
ASYDE = TERM
ASYDE = KEEP TERM
AUTHLEN = YES
AUTHLEN = NO YES
AUTORTRY = AUTOCAP
AUTORTRY = AUTOCAP CDRM ALL NONE
AUTOTI = 0
AUTOTI = time_period
(2)
BN = NO
BN = NO YES
(3)
BNDYN = LIMITED
BNDYN = LIMITED NONE FULL
(4)
BNORD = PRIORITY
BNORD = PRIORITY DEFINED
BSCMDRS = (STATS , INOPS)
BSCMDRS = STATS NOSTATS (, INOPS) (, NOINOPS) (STATS , INOPS , NOINOPS) (NOSTATS , INOPS , NOINOPS)
BSCTMOUT = 286
BSCTMOUT = units_of_time
poolname = ( )
Buffer pool values
CACHETI = 8
CACHETI = number_of_minutes
(5)
CDRDYN = YES
CDRDYN = NO YES
CDRSCTI = 8M
CDRSCTI = timeout_value
CDSERVR = NO
CDSERVR = YES NO
(6)
CDSREFER = 1
CDSREFER = number_of_CDSs
CINDXSIZ = 8176
CINDXSIZ = table_size

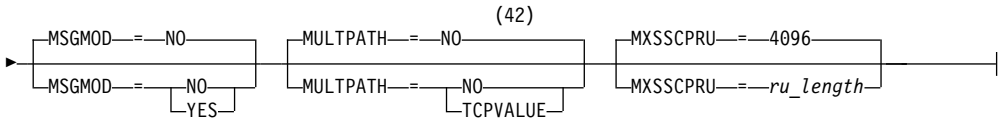

(7)
CMPMIPS=100
CMPMIPS=compression_ratio
CMPVTAM=0
CMPVTAM=compression_level
CNMTAB=ISTMGC00
CNMTAB=cnm_table_name
CNNRTMSG=SUPPRESS
CNNRTMSG=SUPPRESS
NOSUPP
COLD
WARM
(8)
CONFIG=00
CONFIG=file_id
file_name
CONNTYPE=APPN
CONNTYPE=APPN
LEN
CPCDRSC=NO
CPCDRSC=YES
NO
(9)
CPCP=LEASED
CPCP=YES
NO
LEASED
SWITCHED
CSALIMIT=0
CSALIMIT=value
(value)
,F
CSA24=0
CSA24=value
CSDUMP
CSDUMP Message Trigger
CSDUMP Sense Code Trigger
(10)
DATEFORM=MDY
DATEFORM=MDY
DMY
YMD
DIALRTRY=YES
DIALRTRY=NO
YES
(11)
DIRSIZE=0
DIRSIZE=number_of_resources
(12)
DIRTIME=8D
DIRTIME=time_period
DISCNTIM=(15,0)
DISCNTIM=(time_period1,time_period2)
DLRORDER=(STATNID,FIRST)
DLRORDER=STATNID
CPNAME
(,FIRST)
(,ONLY)
CPNAME
,FIRST
,ONLY
STATNID
,FIRST
,ONLY
DLRTCB=32
DLRTCB=number_of_task_control_blocks
(13)
DLURSAW=YES
DLURSAW=YES
NO
DSACTION=(SYSLOG,NONE,ALL)
DSACTION=(SYSLOG
CONSOLE
SYSLOG
,NONE
SENSE
TERM
NONE
ALL
msg_count
ALL)


DSCOUNT=1
DSCOUNT=number_of_buffers
DSIRFMSG=NONE
DSIRFMSG=ALLSSCP
OLUSSCP
NONE
DSMONITR=NO
DSMONITR=APPL
NO
YES
(14)
DSPLYDEF=100
DSPLYDEF=number_of_messages
DSPLYMAX=65535
DSPLYMAX=number_of_messages
DSPLYWLD=FULLWILD
DSPLYWLD=FULLWILD
NOWILD
OPERONLY
POAONLY
DSTRUST=NONE
DSTRUST=NONE
ALL
(
,
CDRSC
DLUR
LOCALAPP
LOCALLU
TELNET
)
DUPDEFS=ALL
DUPDEFS=ALL
NONE
APPL
DEPLU
(15)
DYNADJCP=YES
DYNADJCP=YES
NO
DYNASSCP=YES
DYNASSCP=YES
NO
DYNDLGMD=NONE
DYNDLGMD=logmode_name
NONE
(16)
DYNHPPFX=prefix
DYNLU=NO
DYNLU=YES
NO
DYNMODTB=NONE
DYNMODTB=table_name
NONE
DYNPUPFX=CN
DYNPUPFX=prefix(14)
DYNVNPFX=CNV
DYNVNPFX=prefix(14)
(17)
EEHPRANR=NO
EEHPRANR=NO
YES
EEPORTCK=NO
EEPORTCK=NO
YES
EEVERIFY=ACTIVATE
EEVERIFY=ACTIVATE
NEVER
Number_of_minutes
(18)
ENCRPREF=NONE
ENCRPREF=NONE
value


ENCRYPTN=YES
ENCRYPTN=YES
NO
(19)
CCA
CUSP
24
31
ENHADDR=NO
ENHADDR=NO
YES
ENSEMBLE=NO
(20)
ENSEMBLE=NO
YES
ESIRFMSG=ALLSSCP
ESIRFMSG=ALLSSCP
OLUSSCP
NONE
EXPFLTRM=0
EXPFLTRM=expedited_flow_count
FLDTAB=ISTMSFLD
FLDTAB=table_name
NONE
FSIRFMSG=OLUSSCP
FSIRFMSG=ALLSSCP
OLUSSCP
NONE
GVBKDLY=NO
GVBKDLY=NO
YES
GWSSCP=YES
GWSSCP=YES
NO
HNTSIZE=4080
HNTSIZE=4080
(21)
HOSTNAME=fully_qualified_hostname
HOSTPU=ISTPUS
HOSTPU=host_subarea_pu_name
HOSTSA=1
(22)
HOSTSA=subarea_number
HOTIOTRM=0
HOTIOTRM=percentage_of_buffer_pool
(23)
HPR=RTP
HPR=ANR
RTP
NONE
(RTP,ANR)
(RTP,NONE)
(ANR,NONE)
HPRARB=RESPMODE
(24)
HPRARB=BASE
(25)
HPRCLKRT=STANDARD
HPRCLKRT=STANDARD
ADAPTIVE
(26)
HPRITMSG=BASE
HPRITMSG=BASE
ENHANCED
HPRNCPBF=NO
HPRNCPBF=YES
NO
(27)
HPRPSMSG=ALL
HPRPSMSG=ps_msg_count
(28)
HPRPSDLY=0
HPRPSDLY=ps_delay


HPRPST=(8M,4M,2M,1M)
HPRPST=(low_limit,med_limit,high_limit,network_limit)
HPRSESLM=NOLIMIT (29)
HPRSESLM=NOLIMIT
sess_lim
DISABLED (30)
HPRSTALL=0 (31)
HPRSTALL=0
timeout_limit
HSRTSIZE=9973
HSRTSIZE=number_of_queue_pointers
INITDB=ALL (32)
INITDB=ALL
DIR
TOPO
NONE
INOPCODE=(ALL,ALL,DUMPDEFAULT)
INOPCODE=(ALL
ALL
modulename
,ALL
ALL
inopcode
,DUMPENABLE
DUMPDISABLE
DUMPDEFAULT (33)
)
INOPDUMP=OFF
INOPDUMP=OFF (34) (35)
(OFF
,BASE
IQDIO
ISM
QDIO
ROCE
TCP
XCF
)
ON
(ON
,BASE
IQDIO
ISM
QDIO
ROCE
TCP
XCF
)
IOINT=180
IOINT=number_of_seconds
IOMSGLIM=100
IOMSGLIM=number_of_message_pairs
IOPURGE=0
IOPURGE=timeout_value
IPADDR=IP_address (36)


IPINFO=SENDALL
IPINFO=SENDALL
SNDLOCAL
DISPONLY
NONE
IQDCHPID=ANY
(37)
IQDCHPID=ANY
NONE
chpid
(38)
IQDIOSTG=MAX
IQDIOSTG=MAX
AVG
MIN
nnn
IRNSTRGE=0
IRNSTRGE=size
ISTCOSDF=INDLU
ISTCOSDF=ALL
APPL
DEPLU
INDLU
NONE
(APPL)
DEPLU
INDLU
LIMINTCP=number_of_seconds
(39)
LIST=00
LIST=start_option_list_id
(40)
LISTBKUP=start_option_list_id
DEFAULTS
PROMPT
LSIRFMSG=NONE
LSIRFMSG=ALLNNS
OLUNNS
NONE
MAINTLVL=maintenance_level
MAXEETST=500
MAXEETST=max_ee_connectivity_tests
MAXHNRES=100
MAXHNRES=max_hostname_resolutions
(41)
MAXLOCAT=5000
MAXLOCAT=max_locate_congestion_threshhold
MAXLURU=6144
MAXLURU=ru_length
MAXSSCPS=10
MAXSSCPS=number_of_SSCPs
MAXSUBA=15
MAXSUBA=maximum_subarea_number
MIHTMOUT=1800
MIHTMOUT=units_of_time
MPCACT=WAIT
MPCACT=NOWAIT
WAIT
MSGLEVEL=BASE
MSGLEVEL=BASE
V4R1
V4R2
V4R3
V4R4
CS390



Notes:

1 APPNCOS is meaningful only if the NODETYPE start option is also used.

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

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

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

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

6 CDSREFER is meaningful only if the NODETYPE=NN and CDSERVR=NO start options are also used.

7 The CMPMIPS start option is meaningful only if the value for CMPVTAM is greater than 1.

8 CONNTYPE is meaningful only if the NODETYPE start option is also used.

9 CPCP is meaningful only if the NODETYPE start option is also used.

10 Specify the CSDUMP start option twice to set both message and sense code triggers.

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

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

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

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

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

16 Two character prefix.

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

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

19 ENCRYPTN=CCA needs to be coded when Triple Des Encryption is desired.

20 The ENSEMBLE setting is used to either permit or deny connectivity to the intraensemble data network (IEDN) and the intranode management network (INMN) by allowing or denying activation of OSX and OSM interfaces.

21 HOSTNAME is meaningful only if the NODETYPE start option is also used.

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

23 HPR is meaningful only if NODETYPE is also used.

24 This start option was provided by APAR OW36113 for use in migration to VTAM V4R5. Do not use this option unless you use the default value of RESPMODE.

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

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

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

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

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

30 HPRSESLM=DISABLED is meaningful only on interchange nodes.

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

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

33 INOPCODE has no effect unless INOPDUMP is active for the resource when an inoperative condition is detected.

34 INOPDUMP status is propagated to resources that are defined within a transport resource list entry when the entry is activated.

35 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.

36 IPADDR is meaningful only if the NODETYPE start option is also used.

37 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 System z® 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 effects: 1) Modified from ANY (or CHPID) to NONE has no effect on current usage but blocks subsequent activations; 2) Modified from NONE to ANY (or CHPID) has no effect on current usage but allows subsequent activations; 3) Modified from CHPID_X to CHPID_Y has no effect on current usage. VTAM only uses the CHPID value when building the IUTIQDIO MPC group. To change CHPIDs for an active MPC group, the steps 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. 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***).

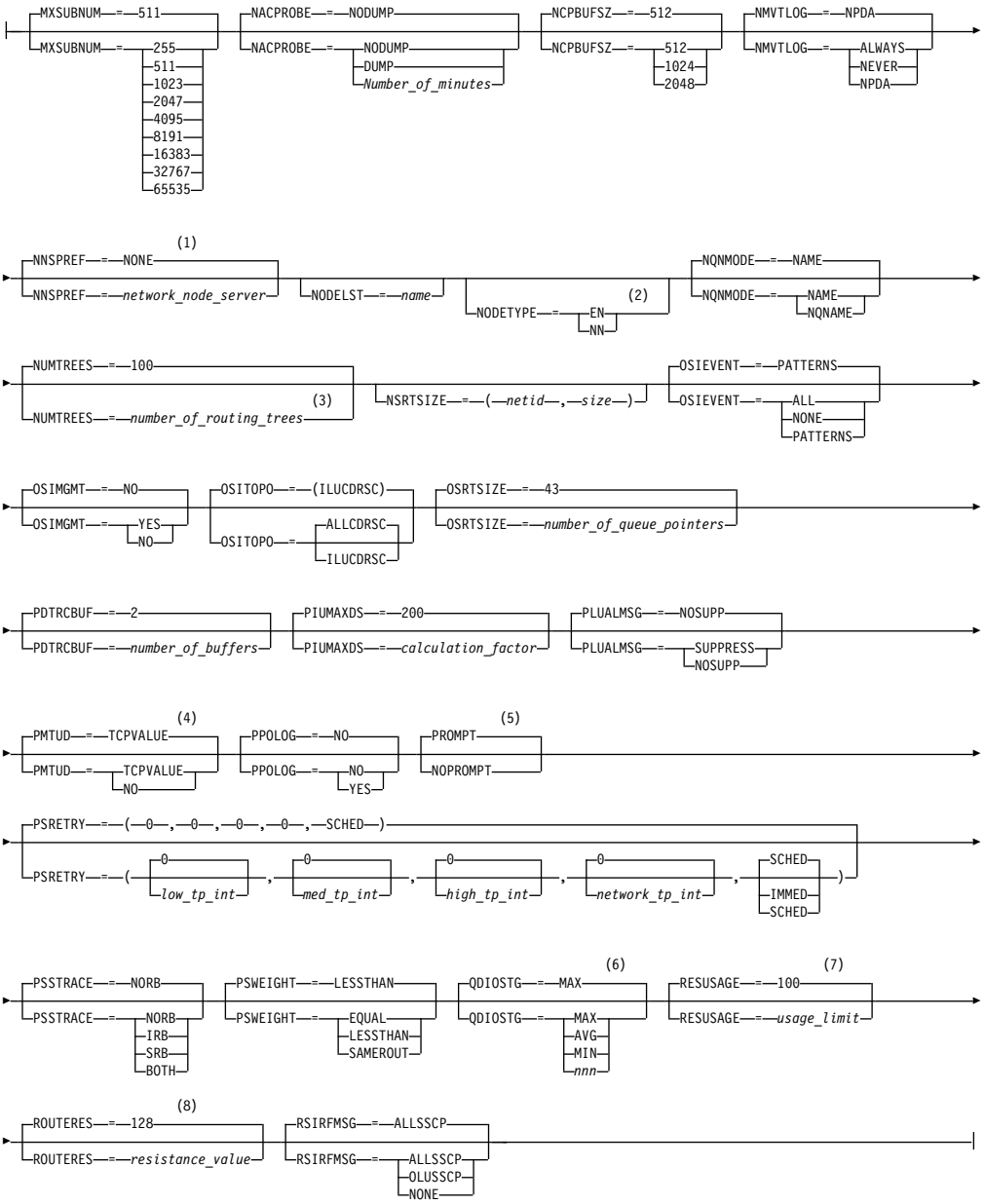
38 This option only affects iQDIO devices that use a MFS of 64k. The smaller frame sizes will always use 126 SBALs.

39 LIST can be entered by a VTAM operator only. If LIST is coded in an ATCSTR*xx* file, it is considered to be an error and is ignored.

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

41 MAXLOCAT is meaningful only if NODETYPE is specified.

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



Notes:

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

2 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).

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

4 PMTUD is meaningful only if the NODETYPE start option is also used.

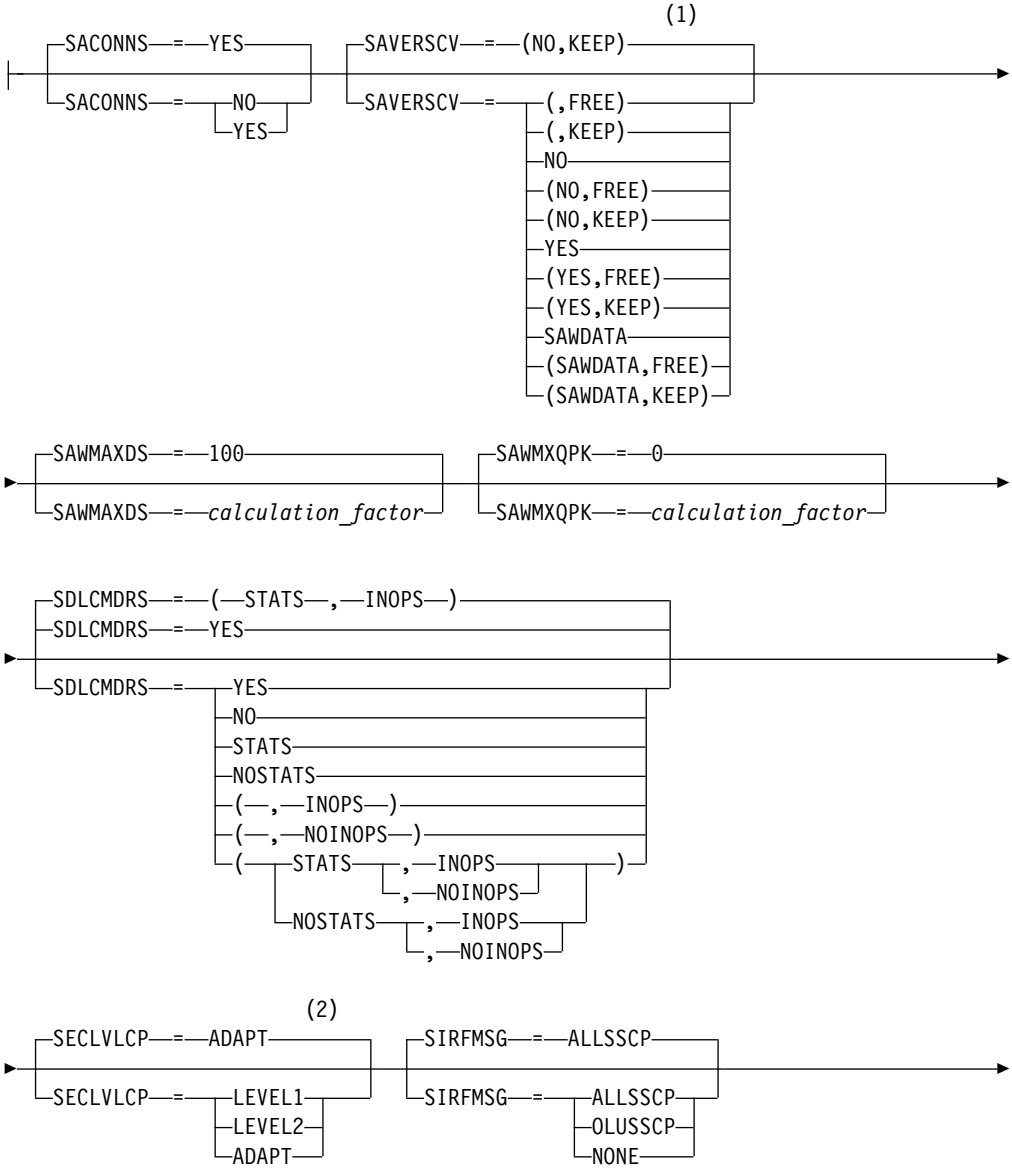
5 A VTAM operator cannot enter the PROMPT or NOPROMPT start option; it

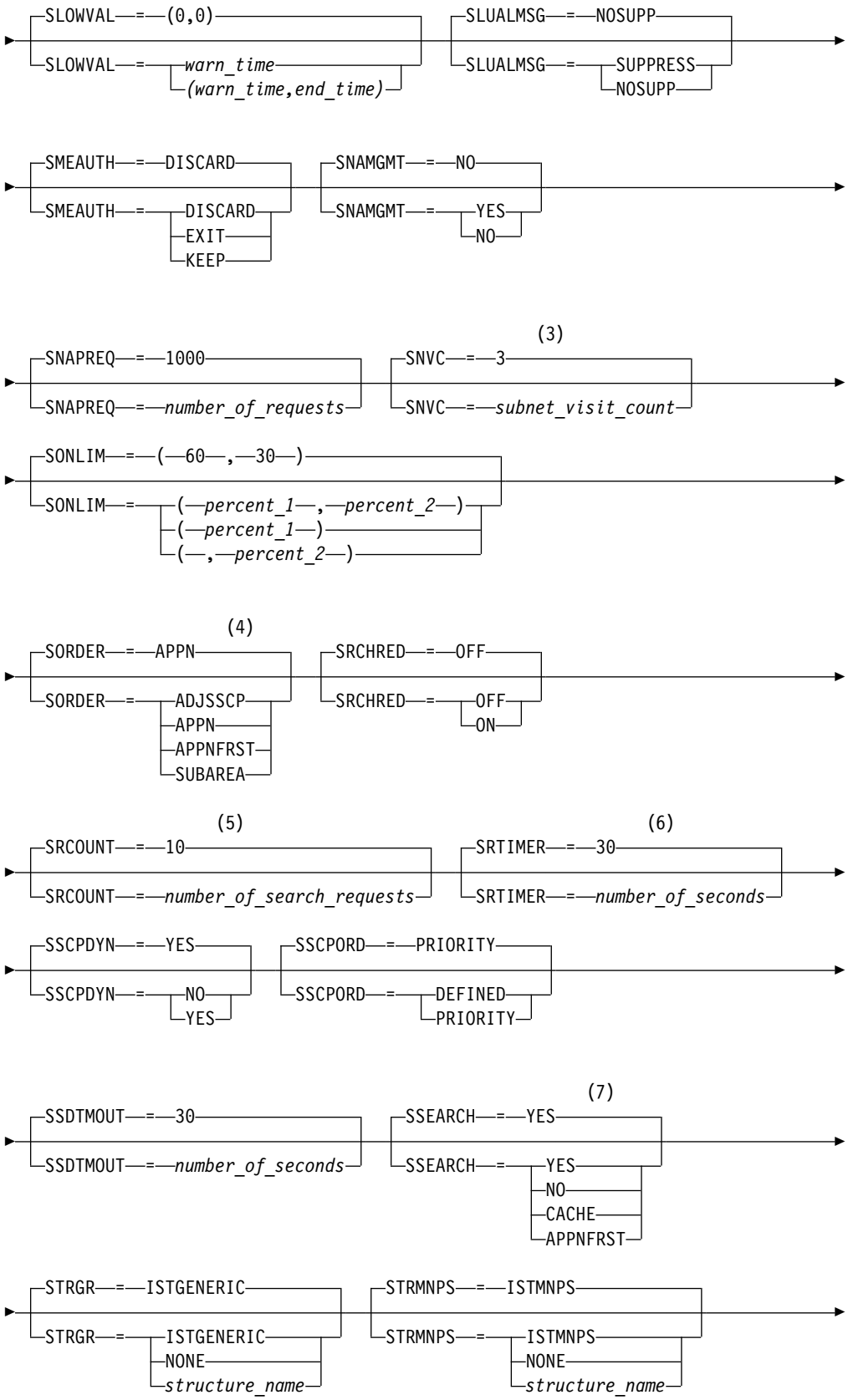
can be coded only in ATCSTR00. The value coded in ATCSTR00 is ignored if start options are entered on the START command or if VTAM finds an error in a start list. Upon finding an error in a start list, VTAM prompts the operator so that the operator can specify the option correctly.

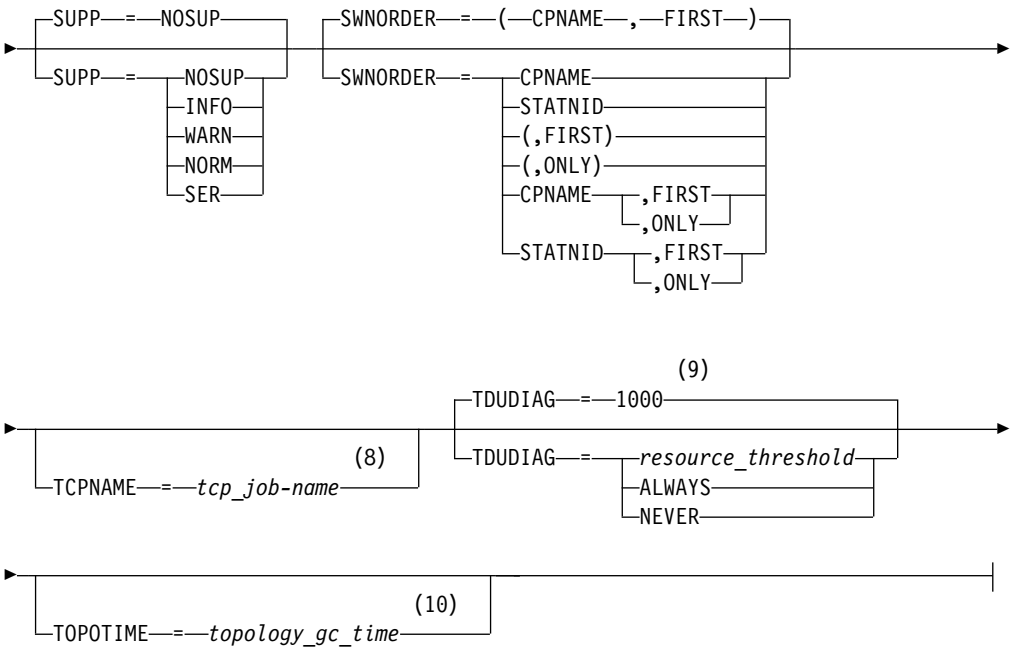
6 QDIOSTG defaults to MAX for 64-bit (z/Architecture®) machines and MIN for non 64-bit machines.

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

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




SLOWVAL=(0,0)
SLOWVAL=warn_time
(warn_time,end_time)
SLUALMSG=NOSUPP
SLUALMSG=SUPPRESS
NOSUPP
SMEAUTH=DISCARD
SMEAUTH=DISCARD
EXIT
KEEP
SNAMGMT=NO
SNAMGMT=YES
NO
SNAPREQ=1000
SNAPREQ=number_of_requests
(3)
SNVC=3
SNVC=subnet_visit_count
SONLIM=(60,30)
SONLIM=(percent_1,percent_2)
(percent_1)
(,percent_2)
(4)
SORDER=APPN
SORDER=ADJSSCP
APPN
APPNFRST
SUBAREA
SRCHRED=OFF
SRCHRED=OFF
ON
(5)
SRCOUNT=10
SRCOUNT=number_of_search_requests
(6)
SRTIMER=30
SRTIMER=number_of_seconds
SSCPDYN=YES
SSCPDYN=NO
YES
SSCPORD=PRIORITY
SSCPORD=DEFINED
PRIORITY
SSDTMOUT=30
SSDTMOUT=number_of_seconds
(7)
SSEARCH=YES
SSEARCH=YES
NO
CACHE
APPNFRST
STRGR=ISTGENERIC
STRGR=ISTGENERIC
NONE
structure_name
STRMNPS=ISTMNPS
STRMNPS=ISTMNPS
NONE
structure_name



Notes:

1 SAVERSCV is meaningful only if NODETYPE is also used.

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

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

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

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

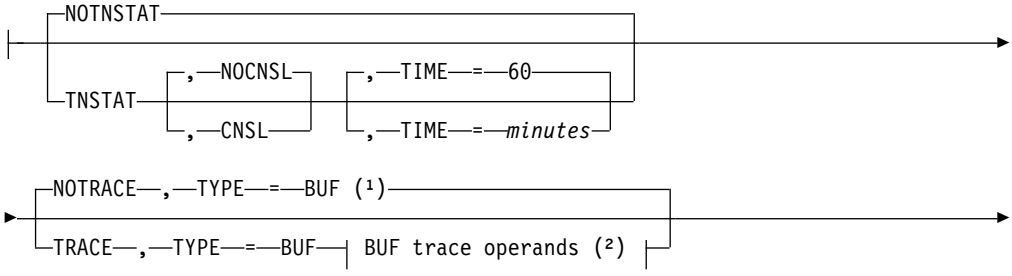
6 SRTIMER is meaningful only if the SRCHRED=ON start option is also used.

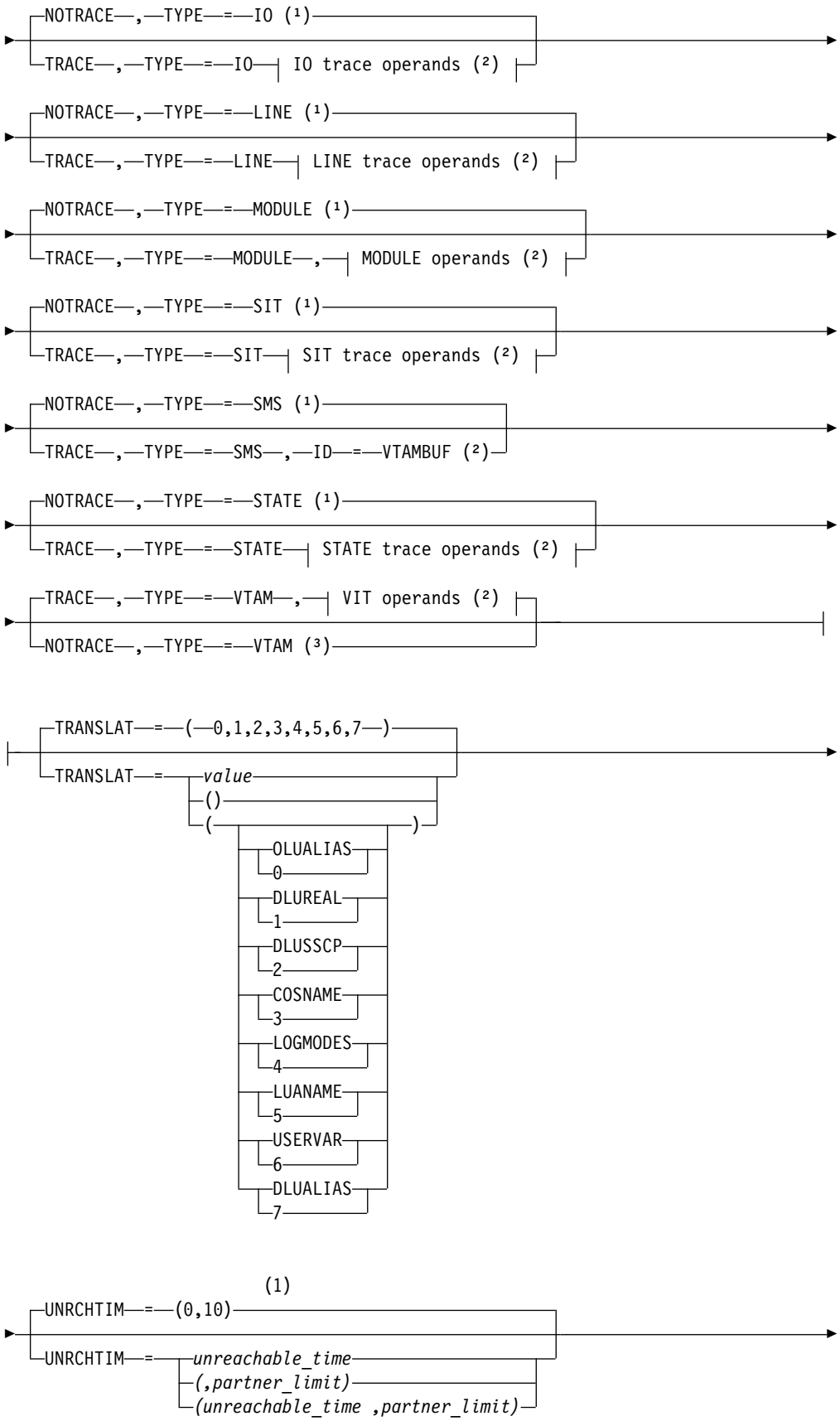
7 SSEARCH is meaningful only if the NODETYPE=NN start option is also used.

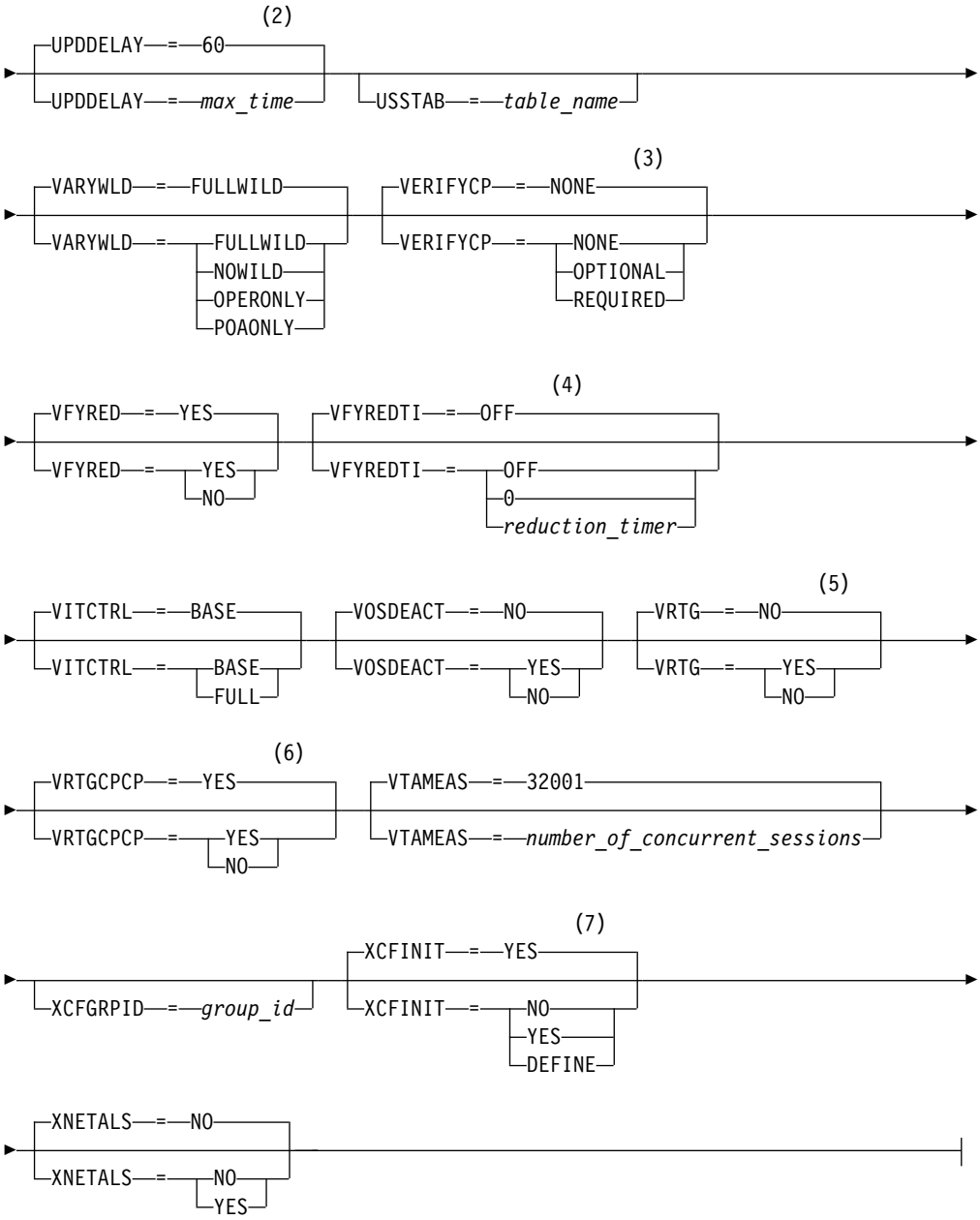
8 TCPNAME is meaningful only if the NODETYPE start option is also used.

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

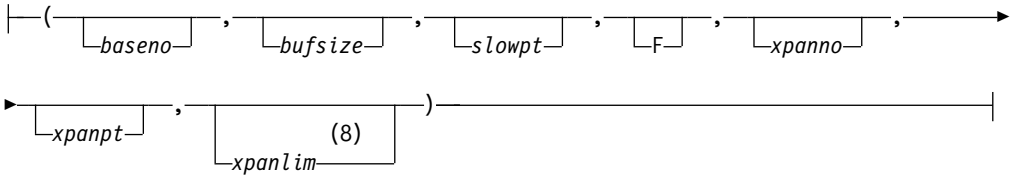
10 TOPOTIME is meaningful only if the NODETYPE start option is also used.



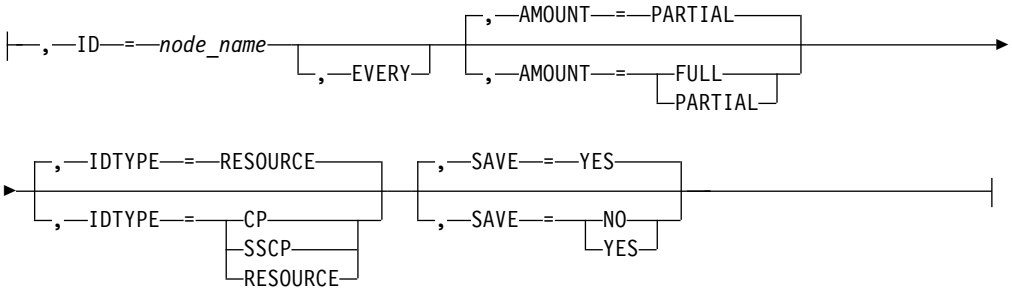

NOTRACE,TYPE=IO (1)
TRACE,TYPE=IO IO trace operands (2)
NOTRACE,TYPE=LINE (1)
TRACE,TYPE=LINE LINE trace operands (2)
NOTRACE,TYPE=MODULE (1)
TRACE,TYPE=MODULE, MODULE operands (2)
NOTRACE,TYPE=SIT (1)
TRACE,TYPE=SIT SIT trace operands (2)
NOTRACE,TYPE=SMS (1)
TRACE,TYPE=SMS,ID=VTAMBUF (2)
NOTRACE,TYPE=STATE (1)
TRACE,TYPE=STATE STATE trace operands (2)
TRACE,TYPE=VTAM, VIT operands (2)
NOTRACE,TYPE=VTAM (3)
TRANSLAT=(0,1,2,3,4,5,6,7)
TRANSLAT=value
()
(
OLUALIAS
0
DLUREAL
1
DLUSSCP
2
COSNAME
3
LOGMODES
4
LUANAME
5
USERVAR
6
DLUALIAS
7
)
(1)
UNRCHTIM=(0,10)
UNRCHTIM=unreachable_time
(,partner_limit)
(unreachable_time ,partner_limit)



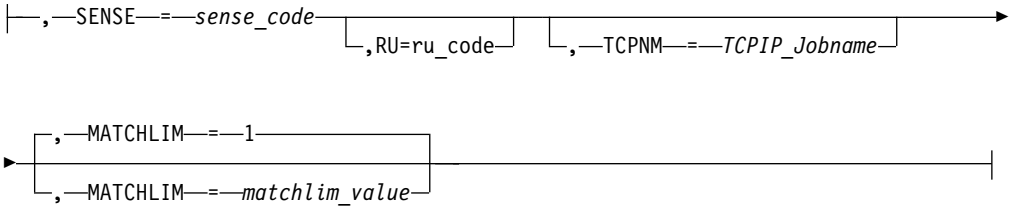
Buffer pool values:



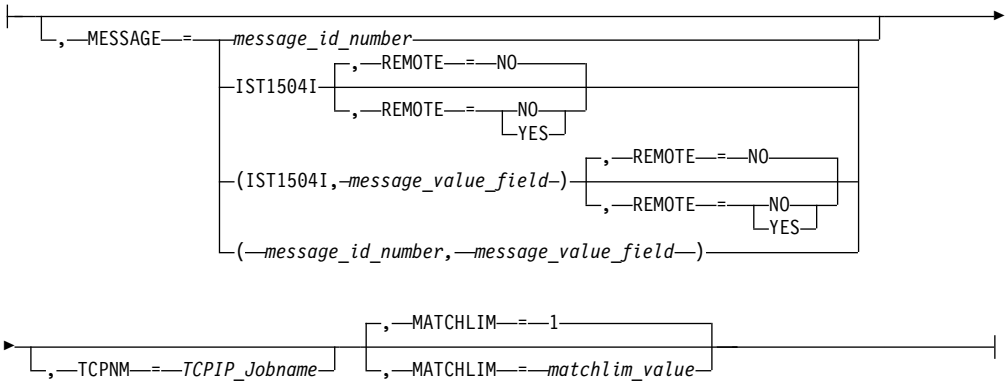
BUF trace operands:



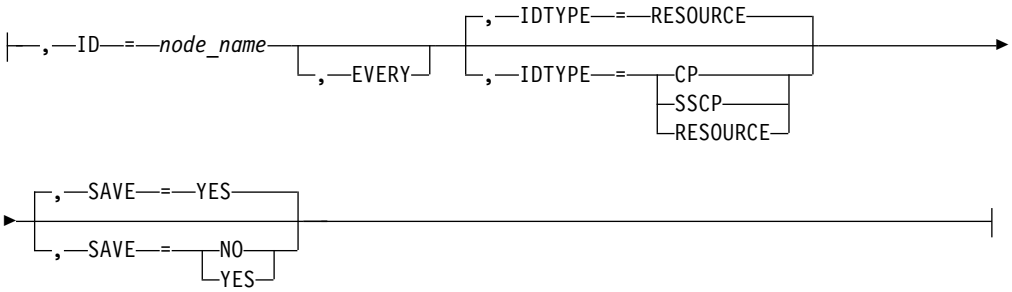
CSDUMP sense code trigger:



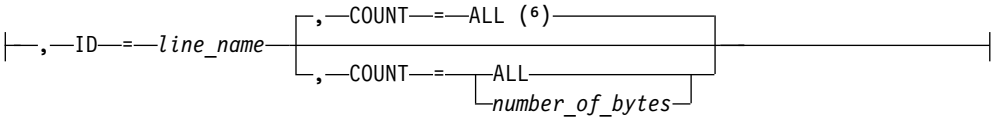
CSDUMP message trigger:



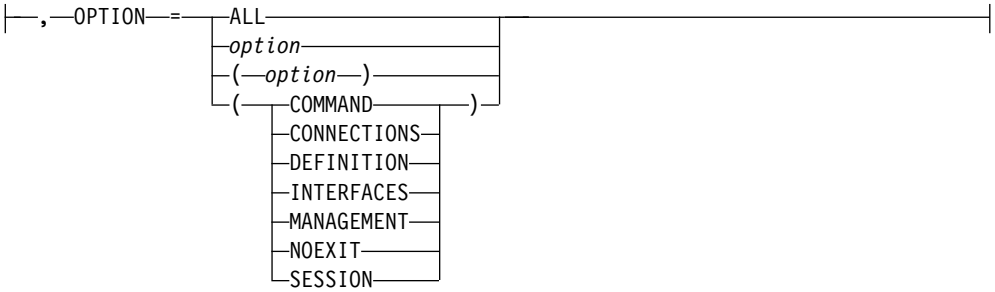
IO trace operands:



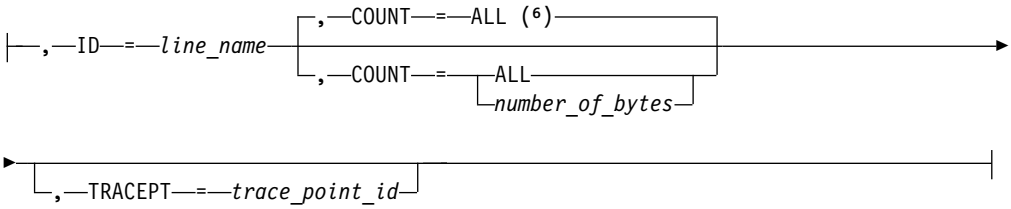
LINE trace operands:



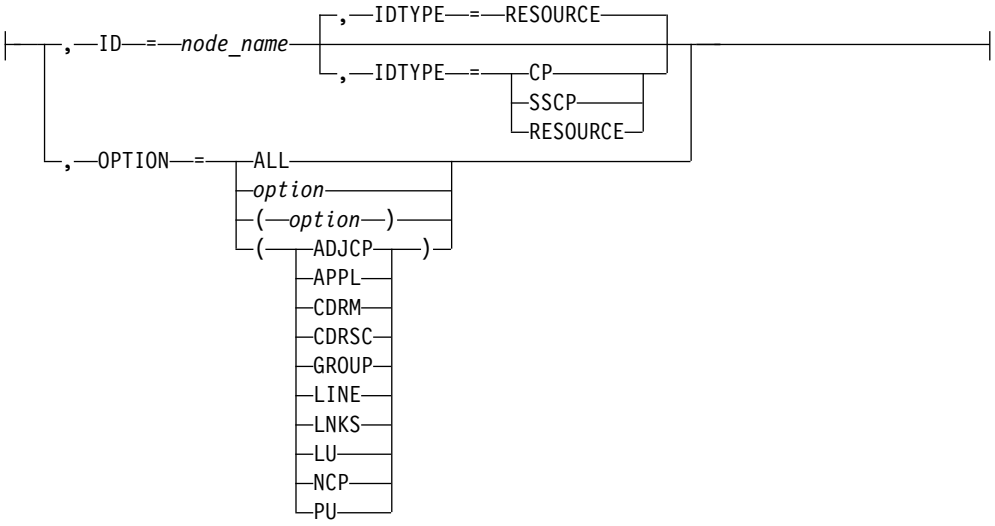
MODULE operands:



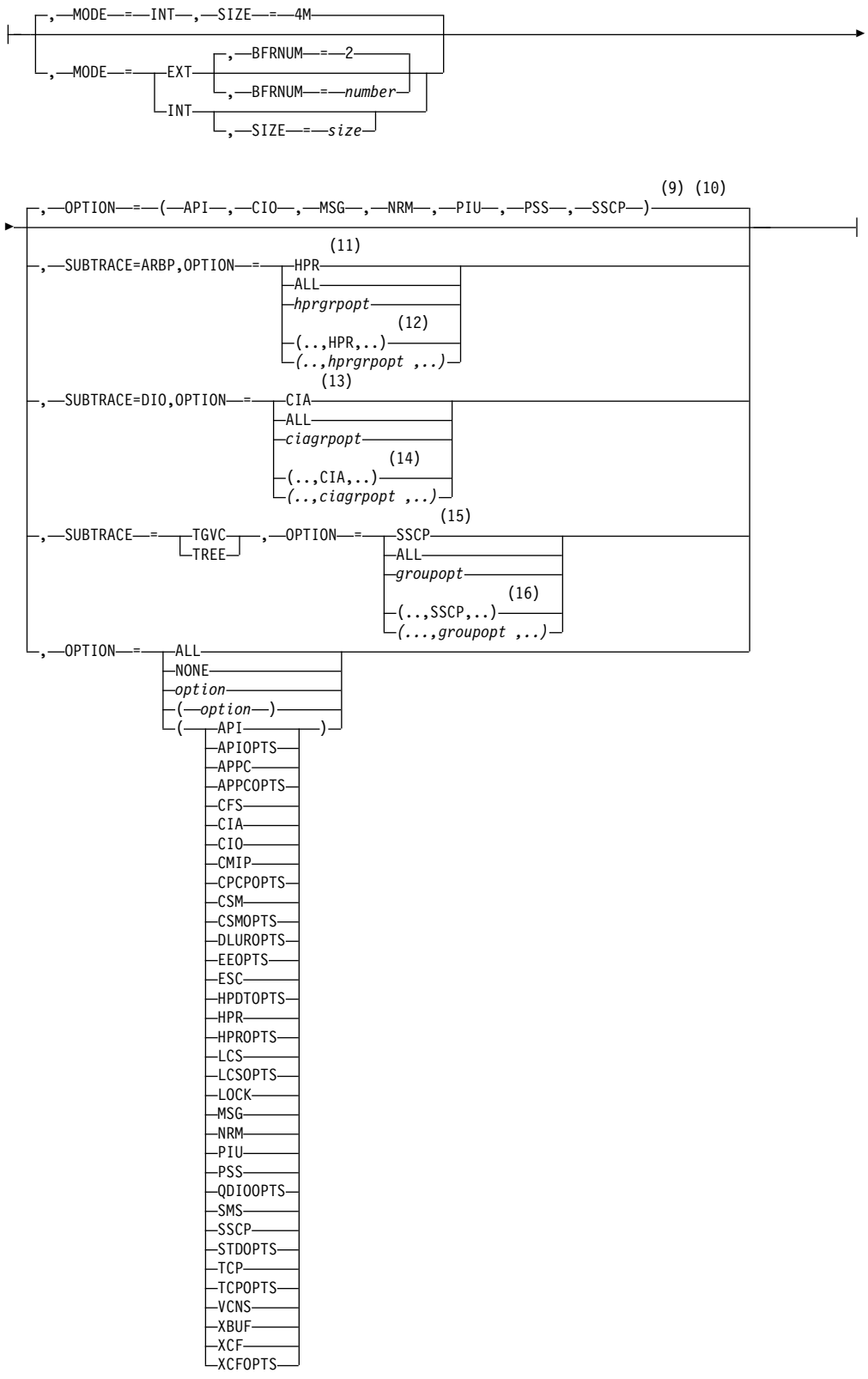
SIT trace operands:



STATE trace operands:



VIT operands:



Notes:

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

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

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

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

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

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

7 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).

8 The IOBUF pool (IO00, IO) is the only buffer pool where all seven values can be specified. For all other buffer pools, the *xpanlim* field is not supported. If you specify the *xpanlim* field for any buffer pool other than the IOBUF pool (IO00, IO), even if the field is null, you get an IST1072I message.

9 The default options apply only to MODE=INT.

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

11 When SUBTRACE=ARBP is specified, if a single OPTION value is coded, it must be HPR, ALL, or one of the group options (*hprgrpopt*) that include HPR as an individual option equivalent. The applicable group options are DLUROPTS, EEOPTS, HPDTOPTS, HPROPTS, QDIOOPTS, and XCFOPTS.

12 If multiple trace options are coded in parentheses, either HPR or one of the group options (*hprgrpopt*) that include HPR as an individual option equivalent must be coded inside the parentheses when SUBTRACE=ARBP is coded.

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

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

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

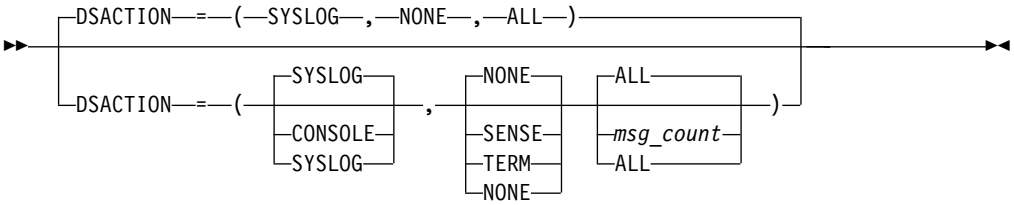
16 If multiple trace options are coded in parentheses, either SSCP or one of the group options (*groupopt*) must be coded inside the parentheses when SUBTRACE=TGVC or SUBTRACE=TREE is coded.

Session security start options

Table 3. Start options that affect session security. These start options can be displayed as a group with the DISPLAY VTAMOPTS,FUNCTION=SECURITY command.

Start option	Description
DSACTION	Determines the VTAM action when a 3270 protocol violation is identified.
DSCOUNT	Specifies the number of PIUs to record to GTF when a violation is identified.
DSMONITR	Determines whether 3270 data stream intrusion detection monitoring is enabled.
DSTRUST	Identifies entities (applications, devices, etc.) that are trusted for 3270 data streams. Trusted entities are not monitored for 3270 protocol violations even when monitoring is enabled.
ENCRPREF	The prefix to be used for common cryptographic architecture (CCA) key-encrypting key (KEK) labels
ENCRYPTN	VTAM's level of cryptography support
IPINFO	Provides control over the displaying and passing IP characteristics received in this host.
SECLVLCP	Whether VTAM uses basic or enhanced protocol for session-level security verification during activation of LU 6.2 sessions involving APPN control points
VERIFYCP	Whether VTAM performs LU-LU session-level verification during activation of LU 6.2 sessions involving APPN control points

DSACTION start option



range (for the DSACTION=msg_count parameter): 10-100

Specifies the action to be taken when a 3270 protocol violation is detected for this PLU application. If DSACTION is specified on the APPL statement, the DSACTION value overrides the DSACTION start option for this application.

You can modify the DSACTION value by using the MODIFY VTAMOPTS command while VTAM is running. The modification affects only sessions that are established after the modification is complete.

The first parameter specifies the reporting level:

DSACTION=SYSLOG
Specifies that the IST2424I message group will be written to the syslog, but just a single message (IST2424I) will be written to the console. This is the default value.

DSACTION=CONSOLE
Specifies that the IST2424I message group will be written to both the syslog and the console.

The second parameter specifies the intervention level:

DSACTION=NONE
Specifies that only the reporting level action is taken. This is the default value.

DSACTION=SENSE
Specifies that the reporting level action is taken and a sense code is sent to the PLU application.

DSACTION=TERM
Specifies that the reporting level action is taken and the session is terminated.

The third parameter specifies the message reduction and summarization threshold:

DSACTION=ALL
Specifies that all 3270 Intrusion Detection Services (IDS) monitoring messages will be written. This is the default value.

DSACTION=*msg_count*
Specifies the number of 3270 IDS messages within a 60 second interval that triggers VTAM's error message reduction and summarization function. This function limits the number of IST2424I message groups that can be issued during a 60 second interval. At the end of the time interval, a summary of the 3270 IDS events is written.

DSCOUNT start option

range: *0-15*

Specifies the number of output PIU chains to be saved as historical data for the session. If a 3270 protocol violation is detected, these PIU chains will be written to GTF trace for later problem determination. The larger the number of saved chains, the better the chances of isolating the specific cause of the reported violation, but at the cost of higher memory utilization. These buffers are stored in 64-bit memory.

Modify the DSCOUNT value by using the MODIFY VTAMOPTS command while VTAM is running. The modification affects only sessions that are established after the modification is complete.

DSMONITR start option

Specifies whether the 3270 Intrusion Detection Services (IDS) monitoring is enabled or disabled for applications that are executing in the VTAM host.

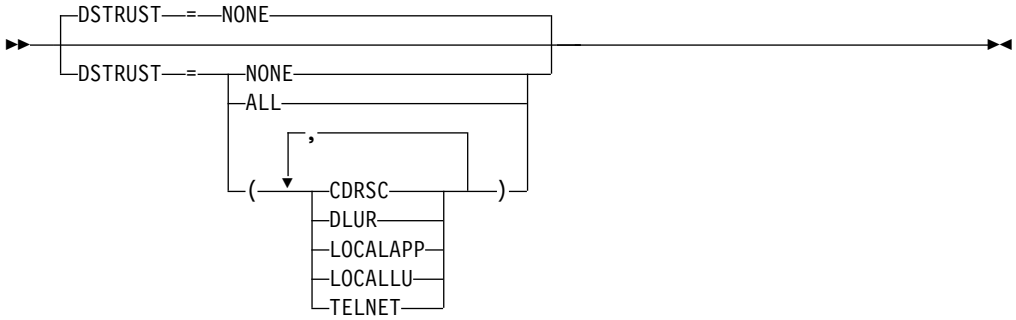
Modify the DSMONITR value by using the MODIFY VTAMOPTS command while VTAM is running.

DSMONITR=APPL
Specifies that 3270 IDS monitoring is enabled for new sessions if a PLU application's APPL statement specifies DSMONITR=YES. If the APPL statement does not have a DSMONITR operand or if it specifies DSMONITR=NO, the sessions will not be monitored.

DSMONITR=NO
Specifies that 3270 IDS monitoring is disabled in this VTAM instance for new sessions and current monitored sessions are no longer monitored. This is the default value.

DSMONITR=YES
3270 IDS monitoring is enabled for new sessions unless overridden with the DSMONITR operand of the APPL statement. Any APPL statement that does not have DSMONITR coded or has DSMONITR=YES coded will be monitored.

DSTRUST start option



Specifies one or more resource types to exempt from 3270 Intrusion Detection Services (IDS) monitoring when the VTAM application is the PLU of the session. Resources that are listed on this operand are trusted to carry only valid 3270 data streams.

Modify the DSTRUST value by using the MODIFY VTAMOPTS command while VTAM is running. The modification affects only sessions that are established after the modification is complete.

DSTRUST=ALL
Equals to specifying DSTRUST=(CDRSC,DLUR,LOCALAPP,LOCALLU,TELNET).

DSTRUST=CDRSC
Specifies that CDRSC sessions to the VTAM PLU application are trusted and therefore exempt from 3270 IDS monitoring.

DSTRUST=DLUR
Specifies that DLUR sessions to the VTAM PLU application are trusted and therefore exempt from 3270 IDS monitoring.

DSTRUST=LOCALAPP
Specifies that VTAM applications on this host are trusted and therefore exempt from 3270 IDS monitoring if they are the SLU of a session with this PLU application. Local Telnet applications are excluded.

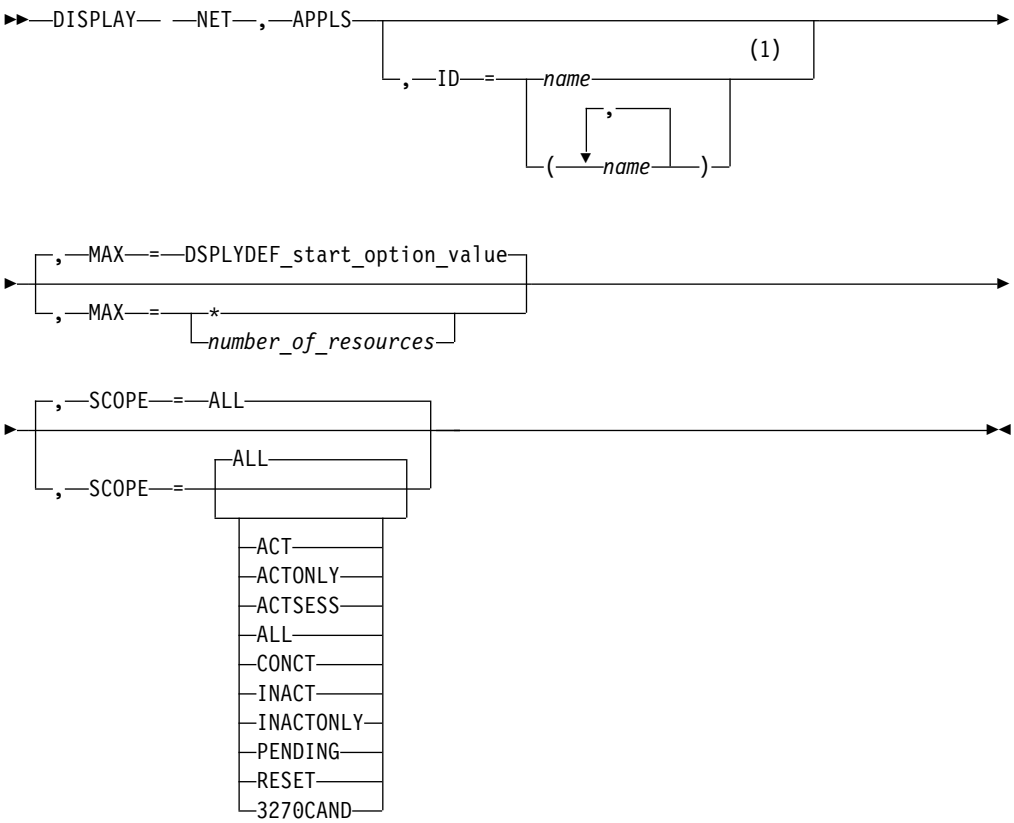
DSTRUST=LOCALLU
Specifies that local LUs are trusted and therefore exempt from 3270 IDS monitoring if they are the SLU of a session with this PLU application.

DSTRUST=NONE
Specifies that no resources are to be trusted or exempt from 3270 IDS monitoring for this PLU application. This is the default value.

DSTRUST=TELNET
Specifies that local Telnet applications are trusted and therefore exempt from 3270 IDS monitoring if they are the SLU of a session with this PLU application.

Chapter 3. SNA Operation

DISPLAY APPLS command



Notes:

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

Abbreviations

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

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

Purpose

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

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

Operands

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

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

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

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

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

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

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

SCOPE
Specifies the required scope of the display.

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

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

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

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

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

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

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

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

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

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

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

SCOPE=3270CAND
Specifies that information is to be displayed about all active application program minor nodes, within the specified major nodes (or within all major nodes if the ID operand is omitted), that have had at least one session (since the application opened its ACB) that would have been a candidate for 3270 IDS monitoring if monitoring had been enabled.

Resulting display

The resulting VTAM display shows:

- The name and status of the specified active application program major nodes (or all active application program major nodes if the ID operand is omitted). Inactive application program major nodes are not known to VTAM and are therefore not displayed.
- For each active application program major node, the name and status of each subordinate application program minor node (limited to active, connectable, inactive, or pending minor nodes if specified on the SCOPE operand). For SCOPE=3270CAND, the status displayed is the number of sessions that have been started (since the application opened its ACB) that would have been a candidate for 3270 IDS monitoring if monitoring had been enabled.

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

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

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

Examples

Displaying all application program major nodes and their minor nodes:

```
d net,appls
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = APPL MAJ NODES/NAMES
IST089I VTAMSEG  TYPE = APPL SEGMENT     , ACTIV
IST360I APPLICATIONS:
IST080I ISTATA00 CONCT      ISTNOP   ACTIV      ISTPDCLU ACT/S
IST080I A01N     ACT/S
IST089I VTAMSG2  TYPE = SEGMENT          , ACTIV
IST360I APPLICATIONS:
IST080I *?-?*    CONCT
IST089I A01APPLS TYPE = APPL SEGMENT     , ACTIV
IST360I APPLICATIONS:
IST080I A01NV    ACTIV      A01NVPPT ACTIV      A01NV000 CONCT
IST080I A01NV001 ACTIV      A01NV002 ACTIV      A01NV003 ACTIV
IST080I A01NV004 ACTIV      A01NV005 ACTIV      A01NV006 ACTIV
IST080I A01NV007 CONCT      A01NV008 CONCT      A01NV009 CONCT
IST080I A01TFOPT CONCT      A01TFO0  CONCT      A01TFO1  CONCT
IST080I A01TFO2  CONCT      A01TFO3  CONCT      A01TFO4  CONCT
IST080I A01TF00  CONCT      A01TF01  CONCT      A01TF02  CONCT
IST080I A01TF03  CONCT      A01TF04  CONCT      A01TF05  CONCT
IST080I A01TF06  CONCT      A01TF07  CONCT      A01TF08  CONCT
IST080I A01TF09  CONCT      AAUTSKLP CONCT      AAUTCNMI ACTIV
IST080I DSICRTR  ACTIV      DSIAMLUT ACT/S      A01NVLUC ACT/S
IST080I A01NVSPT ACTIV      BNJHWMON ACTIV      ALIASAPL CONCT
```

```
IST080I DSIGDS   ACTIV      APPLR02  CONCT      APPLA01  CONCT
IST080I APPL01   CONCT      APPL0102 CONCT      A01MVSNO CONCT
IST080I A01MVSOP CONCT      A01MVSRE CONCT      WORM     CONCT
IST080I DIAL01   CONCT      CAPPL01O CONCT      CAPPL01C CONCT
IST080I CAPPL01N CONCT      ECHO01   CONCT      ECHOX01  CONCT
IST080I ECHOA01  CONCT      APPCA01  CONCT      A01AP08  CONCT
IST080I A01SPAP8 CONCT      A01SPAP9 CONCT      NPMA01M  CONCT
IST080I NPMA01MA CONCT      TPNS02   CONCT      TPNSA01  CONCT
IST080I IMS02    CONCT      MHCICS02 CONCT      CICS02A  CONCT
IST080I TCAM02   CONCT      TSO02    ACTIV      TSO0201  ACT/S
IST080I TSO0202  CONCT      TSO0203  CONCT      TSO0204  CONCT
IST080I TSO0205  CONCT      TSO0206  CONCT      TSO0207  CONCT
IST080I TSO0208  CONCT      TSO0209  CONCT      TSO0210  CONCT
IST080I VMA01    CONCT      VMA011   CONCT      VMA012   CONCT
IST080I VMA013   CONCT      VMA014   CONCT      VMA015   CONCT
IST080I VMA016   CONCT      VMA017   CONCT      VMA018   CONCT
IST080I VMA019   CONCT
IST089I A01ECHOC TYPE = APPL SEGMENT     , ACTIV
IST360I APPLICATIONS:
IST080I ECHO01A  ACT/S      ECHO01B  ACTIV      ECHO01C  ACT/S
IST080I ECHO01D  CONCT      ECHO01E  CONCT
IST1454I 93 RESOURCE(S) DISPLAYED
IST314I END
```

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

```
d net,appls,id=a01appls
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = APPL MAJ NODES/NAMES
IST089I A01APPLS TYPE = APPL SEGMENT     , ACTIV
IST360I APPLICATIONS:
IST080I APPL1    CONCT      APPLA*   CONCT      APPL2    CONCT
IST080I APPLQ?   CONCT      APPLQ1   ACTIV      APPL3    CONCT
IST080I APPL01   CONCT      APPL0102 CONCT      A01MVSNO CONCT
IST1454I 9 RESOURCE(S) DISPLAYED FOR ID=A01APPLS
IST314I END
```

Displaying the active applications that have had sessions that might be candidates for 3270 IDS monitoring:

```
d net,appls,scope=3270cand
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = APPL MAJ NODES/NAMES
IST089I VTAMSEG  TYPE = APPL SEGMENT     , ACTIV
IST1358I NO QUALIFYING MATCHES
IST089I VTAMSG2  TYPE = APPL SEGMENT     , ACTIV
IST1358I NO QUALIFYING MATCHES
IST089I APPL1A   TYPE = APPL SEGMENT     , ACTIV
IST360I APPLICATIONS:
IST080I APPL1    0000000673 APPL2    0000251801 APPL3    0000000023
IST080I TSO10001 0000000001
IST089I TCPAPPLS TYPE = APPL SEGMENT     , ACTIV
IST1358I NO QUALIFYING MATCHES
IST1454I 4 RESOURCE(S) DISPLAYED
IST314I END
```

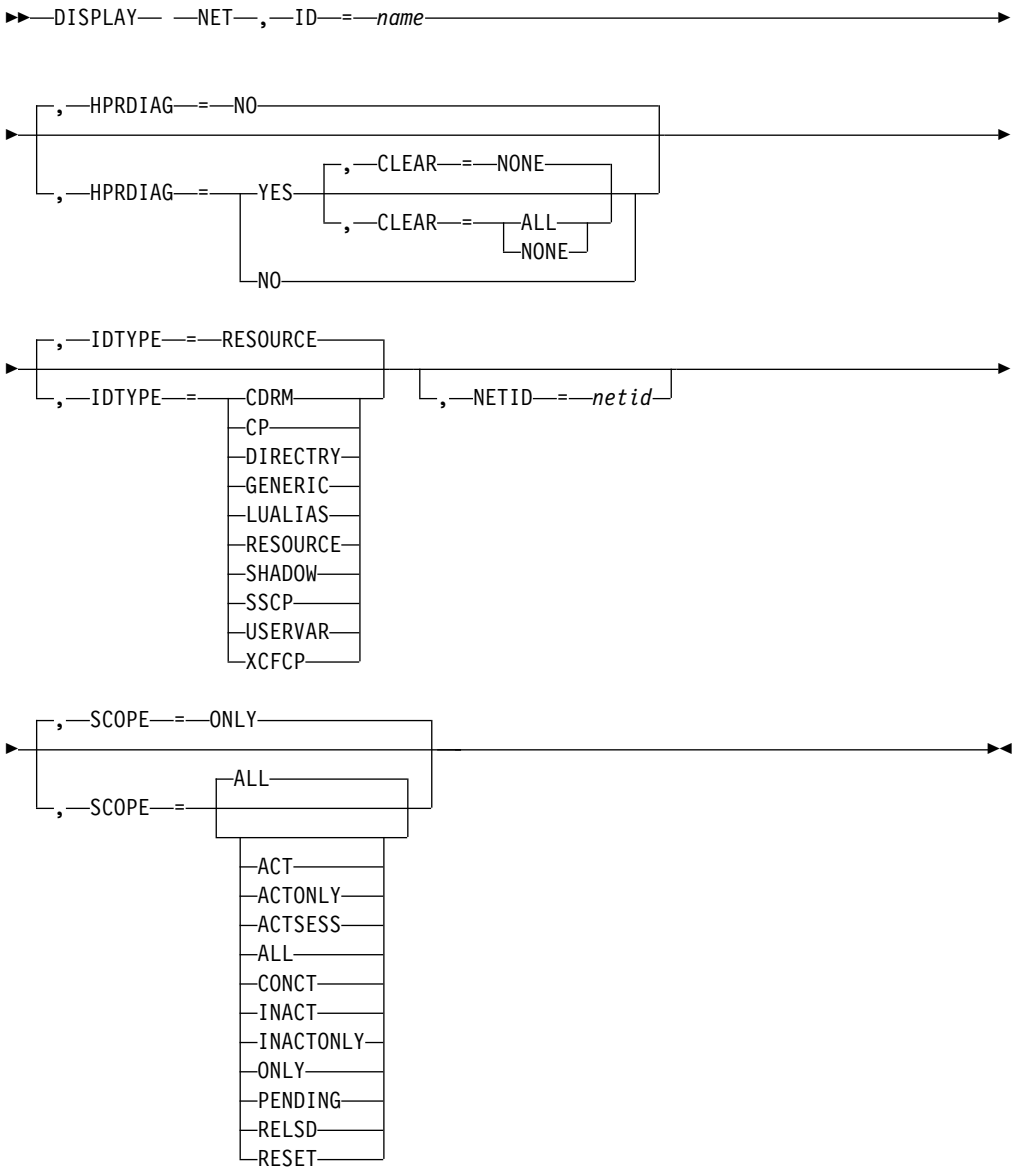
Displaying application program major nodes and their minor nodes, limiting output to 5 resources:

```
d net,appls,max=5
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = APPL MAJ NODES/NAMES
IST089I VTAMSEG  TYPE = APPL SEGMENT     , ACTIV
IST360I APPLICATIONS:
IST080I ISTATA00 CONCT      ISTNOP   ACTIV      ISTPDCLU ACTIV
```

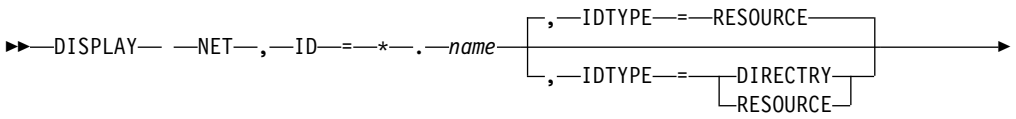
```
IST080I SSCP1A   ACTIV
IST089I VTAMSG2  TYPE = APPL SEGMENT     ,ACTIV
IST360I APPLICATIONS:
IST080I *?-?*    CONCT
IST1315I DISPLAY TRUNCATED AT MAX = 5
IST1454I 5 RESOURCE(S) DISPLAYED
IST314I END
```

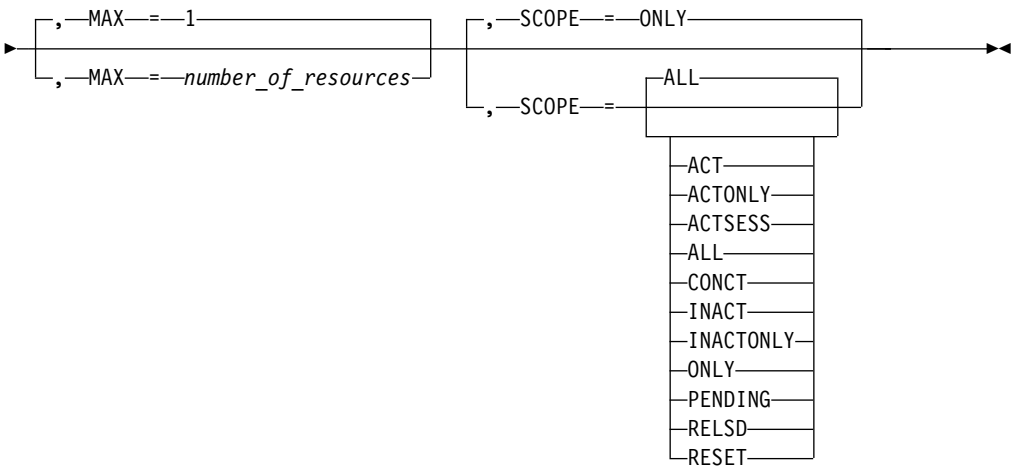
DISPLAY ID command

Display a resource:

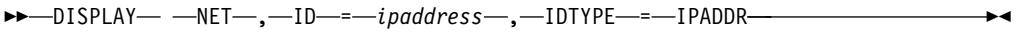


Display a resource name in any network:





Display a resource name using an IP address:



Abbreviations

Operand	Abbreviation
DISPLAY	D
HPRDIAG=YES	HPRDIAG or HPRDIAG=Y
SCOPE=ACT	ACT or A
SCOPE=ACTONLY	ACTONLY
SCOPE=ACTSESS	ACTSESS
SCOPE=ALL	EVERY or E
SCOPE=CONCT	CONCT
SCOPE=INACT	INACT or I
SCOPE=INACTONLY	INACTONL
SCOPE=ONLY	NONE or N
SCOPE=PENDING	PEND
SCOPE=RELSD	RELSD
SCOPE=RESET	RESET

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

Purpose

The DISPLAY ID command provides information about a particular major node, minor node, or directory entry. Additional information can be displayed about the subordinate resources of the node.

Note: This command applies only to active major nodes and minor nodes within active major nodes.

Inactive subarea nodes (for example, NCP major nodes) that have been contacted by VTAM as a result of the activation of a cross-subarea link station can be displayed, if the name of the given subarea node is known to VTAM. Both the NCP being displayed and the NCP containing the link station must be an NCP V1R3 or later release level. In all other cases, inactive major nodes and their minor nodes are not known to VTAM and are therefore not displayed.

When the operator specifies:

- A switched line, the display indicates whether the line is dial-in, dial-out, or both dial-in and dial-out. For a dial-in line, the answer mode is indicated.
- An application program minor node or LU name, the associated z/OS UNIX System Services, interpret, and logon-mode table names and the default logon-mode entry are displayed.

  Note: Specifying ISTNOP, the name of the application program that represents the network operator, also displays the names of the message-flooding prevention table and the session awareness (SAW) data filter table.
- An NCP or host physical unit name, the following information is displayed:
  - The name and status of the associated dynamic path update members
  - The load module name of the NCP that was loaded (if different from the NCP PU name)
  - An indication of whether a nondisruptive load (MODIFY LOAD) is currently in progress
  - An indication of whether an NCP, MOSS, or CSP dump transfer (MODIFY DUMP) is currently in progress.
- The name of an FRSESET definition statement, an FRSESET display is issued. The display includes a message that shows how the FRSESET was defined, statically or dynamically. (Statically means that it was included in the NCP generation.)
- An application program minor node, the compression-level values are displayed.
- An application program, LU, or cross-domain resource name, the security data for data encryption and message authentication are displayed.
- An application program minor node, the 3270 Intrusion Detection Service (IDS) values are displayed.

Operands

CLEAR
Specifies whether to clear diagnostic counters for the RTP pipe.

CLEAR=ALL
The diagnostic counters of the specified RTP pipe are cleared.

CLEAR=NONE
The diagnostic counters are not cleared.

The HPRDIAG=YES operand is required when you specify the CLEAR operand. The resource identified by the ID operand must be an RTP physical unit in this host.

HPRDIAG
Specifies whether additional HPR diagnostic information is to be displayed for the Rapid Transport Protocol (RTP) physical unit.

HPRDIAG=YES
Specifies that additional HPR diagnostic information is to be displayed for the Rapid Transport Protocol (RTP) physical unit.

The resource identified by the ID operand must be an RTP physical unit in this host.

HPRDIAG=NO
Specifies that additional HPR diagnostic information is not to be displayed for the Rapid Transport Protocol (RTP) physical unit. If specified, the resource identified by the ID operand must be an RTP physical unit in this host.

ID=name
Specifies the name of a major node, minor node, USERVAR, generic resource name, LUALIAS, or resource in the directory database.

The name can be a network-qualified name. Regardless of whether you specify a network-qualified name on the ID operand, the resource name in the display output is network-qualified only for application programs, SSCPs, CDRSCs, and LUs. The resource name in the display output is not network-qualified for any other type of resource.

For an APPN node, to display information about a dynamic XCF local SNA PU representing the connection to another VTAM, you can specify one of the following names:

- The name of the PU
- The CP name (or SSCP name) of the other VTAM with IDTYPE=XCFCP

For a pure subarea node, to display information about a dynamic XCF TRLE representing the connectivity to another VTAM node, you can specify one of the following names:

- The name of the TRLE
- The SSCP name (or CP name) of the other VTAM with IDTYPE=XCFCP

Note:

1. If the name is an NCP major node, the name used must be the name specified on the ID operand when the NCP was activated. If PUNAME was specified on the BUILD definition statement, then *name* is the PUNAME.
2. If the name is an application program in this domain, the ID operand can specify either the application program minor node name or the name under which the application program opened its ACB.
3. For an application program minor node, you can specify the name of a conventionally defined application program, a model application program, or a dynamic application program built from a model application program definition. For a CDRSC minor node, you can specify the name of a conventionally defined CDRSC, a model CDRSC, a clone CDRSC built from a model CDRSC, or a dynamic CDRSC.

   If you are specifying a model resource (APPL or CDRSC), you can use wildcard characters in the name you specify. The use of wildcard characters on the ID operand of the DISPLAY ID command does not depend on the value of the DSPLYWLD start option. Unlike wildcard characters in other commands, the wildcard characters you specify on the ID operand of the DISPLAY ID command do not represent unspecified characters. They are interpreted as the actual characters, asterisk (*) and question mark (?).

Therefore, if you specify DISPLAY ID=APPL*, VTAM displays information about the model resource (APPL or CDRSC) named APPL*, but it does not display information about any other application programs or CDRSCs whose names begin with APPL, followed by zero to four valid characters in length. It also does not display detailed information about any clone resource (APPL or CDRSC) that was built from the model resource named APPL*.

In other words, using wildcard characters in the name that you specify on the ID operand of the DISPLAY ID command results in the display of at most one model application program or one model CDRSC. If you want to display information about all application programs or CDRSCs whose names match a pattern established by the placement of wildcard characters, use the DISPLAY RSCLIST command.

4. For a CDRM, you can specify a network-qualified name, but this does not remove the restriction that the non-network-qualified CDRM name must be unique across networks.
5. If the name is a non-network-qualified CDRSC, VTAM uses the network ID of the host from which the command is issued. If two or more CDRSCs exist with the same resource name, but different network identifiers, and DISPLAY ID=*non-network-qualified_name* is issued, then one of the following situations occurs:
   - Only one CDRSC is displayed. The displayed CDRSC is one of the following types:
     - The one that has been defined with VTAM's network identifier
     - The one that has been defined as cross-network, but specified with NQNMODE=NAME, either on its CDRSC definition or by the NQNMODE start option
   - None of the CDRSCs are displayed if they are all specified with NQNMODE=NQNAME, either on their CDRSC definitions or by the NQNMODE start option.
6. If you specify a non-network-qualified USERVAR name, VTAM uses the network ID of the host from which you issue the command.
7. You can specify an asterisk (*) as a wildcard character (or *NETWORK) as the network ID portion of a network-qualified name. The wildcard character (*) is useful for displaying a resource for which you do not know the network ID. The wildcard character (*) is also useful for displaying several resources with the same name that are found in multiple networks, if you also specify the MAX operand on the command.
8. If the name is a generic resource name, the output lists all the members known by that generic resource name.
9. If the name is a TN3270 client IP address in dotted decimal format (for example, ID=192.5.48.122) or in colon-hexadecimal format for IPv6 addresses and there is an associated z/OS Communications Server Telnet server APPL, CDRSC, or LU minor node resource name, it is displayed. The saving and displaying of the IP information for TN3270 clients is controlled by the IPINFO start option. See z/OS Communications Server: SNA Resource Definition Reference for more information about the IPINFO start option.
10. If the name is an RTP pipe, the number of fully active sessions is displayed in the IST1855I message.

Restriction: When you specify an IP address, **IDTYPE=IPADDR** is also required.

IDTYPE

Specifies the type of resource that the ID operand names. If several types of resources share the same name, IDTYPE can be used to identify which resource the command acts on. IDTYPE differs from MAX in that IDTYPE displays several representations of the same resource, whereas MAX displays several different resources with the same name.

IDTYPE=CDRM

Displays information only about the SSCP (represented as a CDRM).

IDTYPE=CP

Displays information only about the host CP (represented as an application) or an adjacent CP (represented as a CDRSC).

IDTYPE=DIRECTRY

Displays information from the directory database for the specified resource. The DISPLAY ID command with IDTYPE=DIRECTRY is valid only when it is issued at a network node or an interchange node.

IDTYPE=GENERIC

Displays the names of application program network names that are also generic resources.

IDTYPE=IPADDR

Displays the IP address of the currently connected TN3270 client applications and LUs. The IP address accepts a fully qualified dotted decimal format for IPv4 type addresses, or colon-hexadecimal format for IPv6 type addresses.

Note: The saving and displaying of the IP information for TN3270 clients is controlled by the IPINFO start option. See z/OS Communications Server: SNA Resource Definition Reference for more information.

IDTYPE=LUALIAS

Displays information only about the CDRSC whose name is associated with the LUALIAS. If a network-qualified name is specified, VTAM does not search for an LUALIAS with that resource name. For more information about CDRSCs that are defined with an LUALIAS, see z/OS Communications Server: SNA Resource Definition Reference.

IDTYPE=RESOURCE

Displays information about the resource named on the ID operand. VTAM searches for the resource in the following order:

1. VTAM searches for an SSCP (CDRM), a host CP (application), or an adjacent CP (CDRSC) by the name specified on the ID operand and displays information for any or all these resources it finds. If the resource is found and it is not the host CP, and you are issuing this command at a network node or interchange node, the display includes information from the directory database.
2. If VTAM does not find an SSCP, a host CP, or an adjacent CP, it searches for a resource with the name specified on the ID operand and displays information for the resource, if it finds it. If the resource is a CDRSC, and you are issuing this command at a network node or interchange node, the display includes information from the directory database.
3. If VTAM does not find a resource by that name, it searches for a USERVAR with the name specified on the ID operand and displays information for the resource, if it finds it.

4. If VTAM does not find a USERVAR by that name, or a USERVAR is found but the resource defined as the value of the USERVAR is not found, it searches for an LUALIAS with the name specified on the ID operand and displays information for the CDRSC, if it finds it.
5. If no resource is found with the name specified on the ID operand, and you are issuing this command at a network node or interchange node, VTAM displays information about the resource from the directory database, if it finds it.
6. If no resource is found and no entry exists in the directory database with the specified name, the command fails.

IDTYPE=SHADOW
Displays information only about a shadow resource, if it exists. Included in the information displayed is the real resource that caused the displayed resource to become a shadow resource.

For more information about shadow resources, see the z/OS Communications Server: SNA Network Implementation Guide

IDTYPE=SSCP
Displays information only about the SSCP (represented as a CDRM).

IDTYPE=USERVAR
Displays information only about the resource whose name is associated with the USERVAR.

IDTYPE=XCFCP
Displays information only about the dynamic XCF local SNA PU representing the connection to another VTAM in the XCF group, when the ID operand specifies the CP name of the other VTAM.

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

1. An "any network" resource name is specified on the ID operand
2. IDTYPE=RESOURCE or IDTYPE=DIRECTRY is used

The value for MAX can be any integer from 1 to 200. The default is 1.

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

The display might show the same resource more than once if both subarea information and APPN directory information are available for a particular resource. The value specified for MAX does not consider this duplication of information for a particular resource, so you could specify a value such as MAX=3 and receive a display of up to six resources.

NETID=netid
Valid only for CDRSC major nodes and limits the scope of the display to CDRSCs within the indicated network and CDRSCs defined without a network identifier (not associated with any particular network). If you specify the

NETID operand, but do not identify a specific network (that is, a value for *netid* is not entered), all CDRSCs in the major node are displayed. CDRSCs are displayed in the order in which they were defined or added within the major node.

To display minor nodes and independent LUs, specify a network-qualified name on the ID operand, and do not use the NETID operand.

SCOPE
Specifies the wanted scope of the display.

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

The SCOPE operand is ignored for frame relay PUs or FRSESETs. Nor does SCOPE have any effect when you display resources in the directory database.

These values specify whether information is to be provided about the specified node's subordinate resources in addition to the information about the node itself. They are meaningful only for resources that have subordinate resources.

SCOPE=ACT
Specifies that, in addition to the resource specified on the ID operand, the name, and status of all its active, pending, and connectable subordinate resources, if any, are to be displayed. If this display is undesirably large, you can use SCOPE=ACTONLY or SCOPE=CONCT to further limit the display.

SCOPE=ACTONLY
Specifies that, in addition to the resource specified on the ID operand, the name, and status of all its active subordinate resources, if any, are to be displayed. The display does not include resources in pending or connectable states. If no resources are found in an active state, you can use SCOPE=ACT to broaden the scope of the display to active, connectable, and pending resources.

SCOPE=ACTSESS
Specifies that, in addition to the resource specified on the ID operand, the name of all its subordinate resources that are active with sessions, if any, are to be displayed.

SCOPE=ALL
Specifies that, in addition to the resource specified on the ID operand, the name, and status of all its subordinate resources, if any, are to be displayed (regardless of their status).

SCOPE=CONCT
Specifies that, in addition to the resource specified on the ID operand, the name, and status of all its subordinate resources in a CONCT (connectable) state, if any, are to be displayed. If no resources are found in a connectable state, you can use SCOPE=ACT to broaden the scope of the display to active, connectable, and pending resources.

SCOPE=INACT
Specifies that, in addition to the resource specified on the ID operand, the name, and status of all its inactive subordinate resources, if any, are to be displayed. If this display is undesirably large, you can use SCOPE=INACTONLY or SCOPE=RESET to further limit the display.

SCOPE=INACTONLY
Specifies that, in addition to the resource specified on the ID operand, the

name, and status of all its inactive subordinate resources, if any, are to be displayed. Resources in a RESET state are not included in the SCOPE=INACTONLY display.

SCOPE=ONLY
Tells VTAM not to display the name and status of any subordinate resources.

SCOPE=PENDING
Specifies that, in addition to the resource specified on the ID operand, the name, and status of all its pending subordinate resources, if any, are to be displayed. A pending state is a transient state to or from the fully active state.

SCOPE=RELSD
Specifies that the information is to be displayed about all PUs in a RELSD state within the specified major nodes.

SCOPE=RESET
Specifies that, in addition to the resource specified on the ID operand, the name, and status of all its subordinate resources in a RESET state, if any, are to be displayed.

Resulting display

The resources that are displayed depend on their relationship within the hierarchy that is specified on the ID operand. The following lists show what resources are displayed for each major node or minor node.

Note: Independent LUs that are defined under a PU do not always appear in this output. Only independent LUs that are currently using the PU as a boundary function for multiple concurrent sessions are displayed.

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

For a DISPLAY ID command with IDTYPE=RESOURCE or IDTYPE=DIRECTRY, if the resource type that is displayed is EN, the node might actually be a network node, end node, or SSCP. This is because in a mixed APPN and subarea network, CPs, and SSCPs that are found in or through a subarea network are represented in this host (the host where you are issuing this command) as end nodes which are served by the interchange node through which the resource was found.

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

- Major nodes:
  - For ID=*ADJCP major node*, its subordinate nodes
  - For ID=*application program major node*, its subordinate applications:

    - Conventionally defined application programs
    - Model application programs
    - Dynamic application programs built from model application program definitions
  - For ID=*CDRM major node*, its subordinate CDRMs
  - For ID=*CDRSC major node*, its subordinate CDRSCs:
    - Conventionally defined CDRSCs
    - Model CDRSCs
    - Clone CDRSCs built from model CDRSC definitions
  - For ID=*channel-attachment major node*, its subordinate links
  - For ID=*external communications adapter (XCA) major node*, its subordinate links
  - For ID=*hostpu*, its subordinate cross-subarea links
  - For ID=*local non-SNA 3270 major node*, its subordinate logical units
  - For ID=*local_sna_major_node*:
    - Each PU providing local SNA connectivity and its subordinate logical units
    - Each PU providing APPN host-to-host connectivity
  - For ID=*lugroup major node*, its model LU groups, and their model LUs
  - For ID=*model major node*, its subordinate logical units and the physical units to which the logical units are subordinate
  - For ID=*NCP major node*, its subordinate links
  - For ID=*rapid transport protocol major node* (ISTRTPMN), its dynamic physical units
  - For ID=*switched major node*, its subordinate logical units and the physical units to which the logical units are subordinate
  - For ID=*transport resource list major node*, its subordinate transport resource list entries (TRLEs).
- Minor nodes:
  - For ID=*conventionally defined application program* or ACB *name*:
    - For SCOPE=ACT, the established sessions with the application program
    - For SCOPE=INACT, the names of logical units waiting for sessions with the application program
    - For SCOPE=ALL, the information provided for both ACT and INACT, as described above
    - An indication if the application is a VCNS user
  - For ID=*model application program*
    - An indication that the application program is a model
    - A list of dynamic application programs that have been built from this model, or an indication that no dynamic application programs have been built from this model
    - An indication if the model application program definition specifies that any dynamic application programs built from the model are to be VCNS users
  - For ID=*dynamic application program*
    - An indication that the application program is a dynamic application program
    - The name of the model application program definition used to build the dynamic application program

- For SCOPE=ACT, the established sessions with the dynamic application program
- For SCOPE=ALL, the established sessions with the dynamic application program
- An indication if the dynamic application program is a VCNS user

– For ID=*CDRSC minor node* (conventionally defined and dynamic):
- For SCOPE=ACT, the established sessions with the cross-domain resource
- For SCOPE=INACT, the names of logical units waiting for sessions with the cross-domain resource
- For SCOPE=ALL, the information provided for both ACT and INACT, as described in the preceding information

– For ID=*model CDRSC minor node*:
- An indication that the CDRSC is a model
- An indication of the current value of the DELETE parameter of the model CDRSC
- For SCOPE=ONLY, an indication if no clone CDRSCs currently exist that were built from this model
- For other values of SCOPE, a list of clone CDRSCs that have been built from this model that meet the SCOPE criteria, or an indication if no clone CDRSCs currently exist that were built from this model that meet the SCOPE criteria

– For ID=*clone CDRSC minor node*:
- An indication that the CDRSC is a clone
- The name of the model CDRSC used to build the clone CDRSC
- An indication of the current value of the DELETE parameter from the model CDRSC used to build this clone CDRSC
- For SCOPE=ACT, the established sessions with the cross-domain resource
- For SCOPE=INACT, the names of logical units waiting for sessions with the cross-domain resource
- For SCOPE=ALL, the information provided for both ACT and INACT, as described previously

– For ID=*host* CDRM *name*, the host's network ID (where applicable), subarea and element addresses, and only the external CDRM session partner and session status for established sessions with the host CDRM

– For ID=*same-network external* CDRM *name*:
- HPR capability, if the same-network external CDRM is active
- For SCOPE=ACT, active cross-domain resources owned by the external CDRM
- For SCOPE=INACT, inactive cross-domain resources owned by the external CDRM
- For SCOPE=ALL, all active or inactive cross-domain resources owned by the external CDRM

– For ID=*cross-network external* CDRM *name*:
- For SCOPE=ACT, active cross-network resources owned by the external CDRM
- For SCOPE=INACT, inactive cross-network resources owned by the external CDRM
- For SCOPE=ALL, all active or inactive cross-network resources owned by the external CDRM

  - For ID=*line group*:
    - For SCOPE=ALL, lines and PUs
    - For SCOPE=ACT, all active lines and all active PUs
    - For SCOPE=INACT, all inactive lines, all inactive PUs, and all active lines that have inactive PUs
    - For SCOPE=ONLY, only line group
  - For ID=*link*:
    - Its subordinate link stations, or
    - Its subordinate physical units and dependent logical units
  - For ID=*physical_unit*:
    - Its subordinate logical units
    - For a PU providing APPN host-to-host connectivity, the name, status, and line control as specified by the TRLE operand on the PU definition statement
    - For a PU supported by a DLUR, the name of the DLUR and the switched major node that defines the PU
    - For a dynamic rapid transport protocol (RTP) PU, the data flow rate and the end-to-end route
    - For an HPR-capable PU in a type 2.1 node, the HPR capability.
  - For ID=*transport_resource_list_entry*:
    - Names of the Communications Server z/OS upper-layer protocols (ULPs) using this TRLE
    - For a dynamic TCP TRLE, an exclusively owned TRLE, or an internal shared memory (ISM) TRLE, only one message with a ULP ID is issued because only one ULP can use each of these TRLEs. For an OSA-Express® adapter, one message with a ULP ID is issued for each datapath channel address that a ULP uses. For other TRLEs, more than one ULP ID message can be issued, depending on how many ULPs are using the TRLE.

      Rule: Only one message with a ULP ID is generated for a 10GbE RoCE Express feature that operates in a shared RoCE environment.
    - The ULP ID will be the jobname for TCP/IP ULPs, the SNA PU name for ANNC ULPs, and the XCA Major Node name for ATM or EE ULPs.
- Resources in the directory database:
  - The name of the resource
  - The entry type, such as dynamic
  - The resource type, such as network node
  - The owning CP
  - The network node server
  - For an LU resource:
    - The subarea number
    - The required locate message size to retrieve routing information
    - The locate message size used when this LU was last searched
- Generic resource names:
  - Member name
  - Owning CP name
  - Whether the resource is currently available to be selected during resolution. `NO` indicates that the generic resource is on an end node that does not have a

CP-CP session with its network node server, and is therefore not selectable. YES indicates that the resource is selectable. DEL indicates that the resource has deleted itself as a generic resource and is not selectable. If you need to fully delete the generic resource from VTAM and the generic resource coupling facility structure, the application's ACB must be closed and the MODIFY GR DELETE command must be issued at every host in the sysplex. See the z/OS Communications Server: SNA Network Implementation Guide for a full description of generic resource deletion procedures.

– APPC value

Examples

Displaying an adjacent CP major node:

```
d net,id=istadjcp,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = ISTADJCP, TYPE = ADJCP MAJOR NODE
IST486I STATUS= ACTIV     ,  DESIRED STATE= ACTIV
IST1100I ADJACENT CONTROL POINTS FROM MAJOR NODE ISTADJCP
IST1102I NODENAME          NODETYPE CONNECTIONS CP CONNECTIONS NATIVE
IST1103I NETB.VN1          VN       0           0              *NA*
IST2157I ALIASRCH = *NA
IST1103I NETA.VN1          VN       1           0              *NA*
IST2157I ALIASRCH = *NA
IST314I END
```

Displaying an application program major node, including model application programs and dynamic application programs built from those models:

```
d net,id=a01appls,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A01APPLS, TYPE = APPL SEGMENT
IST486I STATUS= ACTIV     , DESIRED STATE= ACTIV
IST360I APPLICATIONS:
IST080I APPL01   CONCT      APPL0102 CONCT      A01MVSNO CONCT
IST080I APPL1    CONCT      APPLA*   CONCT      APPL2    CONCT
IST080I APPLQ?   CONCT      APPL3    CONCT      APPLQ1   ACTIV
IST314I END
```

Displaying a CDRM major node:

```
d net,id=cdrm1a,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = CDRM1A, TYPE = CDRM SEGMENT
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST477I CDRMS:
IST1546I CDRM     STATUS    SUBAREA ELEMENT NETID    SSCPID
IST1547I SSCP1A    ACTIV          1       1  NETA          1
IST1547I SSCPAA    NEVAC         10       1  NETA        N/A
IST1547I SSCP2A    NEVAC          2       1  NETA        N/A
IST1547I SSCPBA    NEVAC         11       1  NETA        N/A
IST1547I SSCPCA    NEVAC         12       1  NETA        N/A
IST1547I SSCP7B    ACTIV          5       1  NETB          7
IST1547I SSCP9C    ACTIV          8       3  NETC          9
IST1500I STATE TRACE = OFF
IST314I END
```

Displaying a CDRSC major node:

```
d net,id=istcdrdy,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = ISTCDRDY, TYPE = CDRSC SEGMENT
IST486I STATUS= ACTIV     , DESIRED STATE= ACTIV
IST478I CDRSCS:
IST483I C25NVLUC ACTIV----Y, CDRM = ***NA***, NETID = NETA
```

```
IST483I B01NVLUC ACTIV----Y, CDRM = ***NA***, NETID = NETA
IST483I A81NVLUC ACTIV----Y, CDRM = ***NA***, NETID = NETA
IST483I A03D207F ACT/S----Y, CDRM = A01N    , NETID = NETA
IST483I A02NVLUC ACT/S----Y, CDRM = A01N    , NETID = NETA
IST483I ECHO02A  ACT/S----Y, CDRM = A01N    , NETID = NETA
IST483I A50NVLUC ACT/S----Y, CDRM = A01N    , NETID = NETA
IST483I A500N    ACT/S----Y, CDRM = A01N    , NETID = NETA
IST483I A02N     ACT/S----Y, CDRM = A01N    , NETID = NETA
IST314I END
```

Displaying a CDRSC major node for a specific network:

```
d net,id=a99cdrsc,netid=netc,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A99CDRSC, TYPE = CDRSC SEGMENT
IST486I STATUS= ACTIV     , DESIRED STATE= ACTIV
IST478I CDRSCS:
IST483I CECH*    ACTIV     , CDRM = C01M    , NETID = NETC
IST483I CECHO01  ACTIV     , CDRM = C01M    , NETID = NETC
IST483I TPNSC01  ACTIV     , CDRM = C01M    , NETID = NETC
IST483I C01NVLUC ACTIV     , CDRM = C01M    , NETID = NETC
IST483I TSO11    ACTIV     , CDRM = ***NA***, NETID = NETC
IST483I ECHO11   ACTIV     , CDRM = C11M    , NETID = NETC
IST483I C11NVLUC ACTIV     , CDRM = C11M    , NETID = NETC
IST483I TSO255   ACTIV     , CDRM = ***NA***, NETID = NETC
IST483I ECHO255  ACTIV     , CDRM = C255M   , NETID = NETC
IST483I C255NLUC ACTIV     , CDRM = C255M   , NETID = NETC
IST314I END
```

Displaying a local SNA major node:

```
d net,id=a50lsna,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A50LSNA, TYPE = LCL SNA MAJ NODE
IST486I STATUS= ACTIV     , DESIRED STATE= ACTIV
IST084I NETWORK NODES:
IST089I PUA      TYPE = PU_T2            , ACTIV      ,CUA=0770
IST089I LSNALU1  TYPE = LOGICAL UNIT     , ACTIV
IST089I LSNALU2  TYPE = LOGICAL UNIT     , ACTIV
IST089I LSNALU3  TYPE = LOGICAL UNIT     , ACTIV
IST089I LSNALU4  TYPE = LOGICAL UNIT     , ACTIV
IST314I END
```

Displaying a local SNA major node for each PU providing APPN host-to-host connectivity:

```
d net,id=lsna1a,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = LSNA1A, TYPE = LCL SNA MAJ NODE
IST486I STATUS= ACTIV     , DESIRED STATE= ACTIV
IST084I NETWORK NODES:
IST1316I PU NAME = AHHCPU1   STATUS = NEVAC       TRLE = ML1A2A2
IST1316I PU NAME = AHHCPU2   STATUS = NEVAC       TRLE = ML1A2A3
IST1316I PU NAME = AHHCPU3   STATUS = NEVAC       TRLE = ML1A2A4
IST314I END
```

Displaying the dynamic XCF local SNA major node:

```
d net,id=istlsxcf,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = ISTLSXCF, TYPE = LCL SNA MAJ NODE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST084I NETWORK RESOURCES:
IST1316I PU NAME = ISTP0001  STATUS = ACTIV--LX-  TRLE = ISTT0001
IST1500I STATE TRACE = OFF
IST314I END
```

Displaying a transport resource list major node:

```
d net,id=trl1a,scope=all
 IST097I DISPLAY ACCEPTED
 IST075I NAME = TRL1A, TYPE = TRL MAJOR NODE
 IST1314I TRLE = TRLE1A    STATUS = NEVAC       CONTROL = MPC
 IST1314I TRLE = TRLE1B    STATUS = NEVAC       CONTROL = MPC
 IST1314I TRLE = TRLE1C    STATUS = NEVAC       CONTROL = MPC
 IST1314I TRLE = TRLE1D    STATUS = NEVAC       CONTROL = MPC
 IST314I END
```

Displaying an active TRL entry:

```
d net,id=trle1a
IST097I DISPLAY ACCEPTED
IST075I NAME = TRLE1A, TYPE = TRLE
IST486I STATUS= ACTIV----E, DESIRED STATE= ACTIV
IST087I TYPE = LEASED             , CONTROL = MPC , HPDT = NO
IST1954I TRL MAJOR NODE = TRL1
IST1715I MPCLEVEL = HPDT       MPCUSAGE = SHARE
IST1221I WRITE DEV = 0508 STATUS = RESET      STATE = ONLINE
IST1221I READ  DEV = 0408 STATUS = RESET      STATE = ONLINE
IST1500I STATE TRACE = OFF
IST314I END
```

Displaying a local non-SNA 3270 major node:

```
d net,id=a01local,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A01LOCAL, TYPE = LCL 3270 MAJ NODE
IST486I STATUS= ACTIV     , DESIRED STATE= ACTIV
IST355I LOGICAL UNITS:
IST089I A01A741  TYPE = LOGICAL UNIT     , NEVAC      ,CUA=0741
IST089I A01A742  TYPE = LOGICAL UNIT     , NEVAC      ,CUA=0742
IST089I A01A743  TYPE = LOGICAL UNIT     , NEVAC      ,CUA=0743
IST089I A01A744  TYPE = LOGICAL UNIT     , NEVAC      ,CUA=0744
IST089I A01A745  TYPE = LOGICAL UNIT     , NEVAC      ,CUA=0745
IST089I A01A746  TYPE = LOGICAL UNIT     , NEVAC      ,CUA=0746
IST089I A01A747  TYPE = LOGICAL UNIT     , NEVAC      ,CUA=0747
IST089I A01A748  TYPE = LOGICAL UNIT     , NEVAC      ,CUA=0748
IST089I A01A721  TYPE = LOGICAL UNIT     , ACT/S      ,CUA=0721
IST089I A01A722  TYPE = LOGICAL UNIT     , ACTIV      ,CUA=0722
IST089I A01A723  TYPE = LOGICAL UNIT     , ACTIV      ,CUA=0723
IST089I A01A724  TYPE = LOGICAL UNIT     , ACTIV      ,CUA=0724
IST089I A01A725  TYPE = LOGICAL UNIT     , ACTIV      ,CUA=0725
IST089I A01A726  TYPE = LOGICAL UNIT     , NEVAC      ,CUA=0726
IST314I END
```

Displaying an NCP major node:

```
d net,id=a0462zc,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A0462ZC, TYPE = PU T4/5
IST486I STATUS= ACTIV     , DESIRED STATE= ACTIV
IST247I LOAD/DUMP PROCEDURE STATUS = RESET
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST484I SUBAREA = 4
IST391I ADJ LINK STATION = 0017-S, LINE = 0017-L, NODE = ISTPUS
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST077I SIO = 50078 CUA = 0017
IST675I VR = 0, TP = 2
IST170I LINES:
IST080I A04B00   NEVAC      A04B01   NEVAC      A04B03   NEVAC
IST080I A04B32   NEVAC      A04B33   NEVAC      A04B35   NEVAC
IST080I A04VXX   NEVAC----T A04S02   NEVAC      A04S34   NEVAC
IST080I A04S04   NEVAC      A04S16   NEVAC      A04S20   NEVAC
```

```
IST080I A04S36   NEVAC      A04S48   NEVAC      A04S52   NEVAC
IST080I A04S128  NEVAC      A04S136  NEVAC      A04PT88  ACTIV
IST080I A04C00   NEVAC      A04C02   NEVAC
IST314I END
```

Displaying the host physical unit:

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

Displaying the rapid transport protocol (RTP) major node:

```
d net,id=istrtpmn,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = ISTRTPMN, TYPE = RTP MAJOR NODE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1486I   RTP NAME   STATE             DESTINATION CP     MNPS  TYPE
IST1487I   CNR00004   CONNECTED         NETA.SSCP2A        NO    LULU
IST1487I   CNR00003   CONNECTED         NETA.SSCP2A        NO    RSTP
IST1487I   CNR00002   CONNECTED         NETA.SSCP2A        NO    CPCP
IST1487I   CNR00001   CONNECTED         NETA.SSCP2A        NO    CPCP
IST314I END
```

Displaying a switched major node:

```
d net,id=a04smnc,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A04SMNC, TYPE = SW SNA MAJ NODE
IST486I STATUS= ACTIV     , DESIRED STATE= ACTIV
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST084I NETWORK NODES:
IST089I A04P882  TYPE = PU_T2            , ACTIV--L--
IST089I A04P883  TYPE = PU_T2            , ACTIV--L--
IST089I A04D8831 TYPE = LOGICAL UNIT     , ACTIV
IST089I A04D8832 TYPE = LOGICAL UNIT     , ACTIV
IST089I A04D8833 TYPE = LOGICAL UNIT     , ACT/S
IST089I A04D8834 TYPE = LOGICAL UNIT     , ACTIV
IST089I A04D8835 TYPE = LOGICAL UNIT     , ACTIV
IST089I A04D8836 TYPE = LOGICAL UNIT     , ACT/S
IST089I A04D8837 TYPE = LOGICAL UNIT     , ACT/S
IST089I A04P885  TYPE = PU_T2            , ACTIV--L--
IST089I A04P886  TYPE = PU_T2            , ACTIV--L--
IST089I A04D8861 TYPE = LOGICAL UNIT     , ACT/S
IST089I A04D8862 TYPE = LOGICAL UNIT     , ACT/S
IST089I A04D8863 TYPE = LOGICAL UNIT     , ACTIV
IST089I A04D8864 TYPE = LOGICAL UNIT     , ACTIV
IST314I END
```

Displaying a channel-attachment major node:

```
d net,id=ctcbc0t3,scope=all
IST097I DISPLAY  ACCEPTED
IST075I NAME = CTCBC0T3         , TYPE = CA MAJOR NODE
IST486I STATUS= ACTIV     , DESIRED STATE= ACTIV
```

```
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST170I LINES:
IST232I CTCLBC03, ACTIV----E, CUA = BC0
IST314I END
```

Displaying an XCA major node with its subordinate resources:

```
d net,id=xca1a,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = XCA1A, TYPE = XCA MAJOR NODE
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST1021I MEDIUM=RING,ADAPNO= 1,CUA=0500,SNA SAP= 8
IST1885I SIO = 1234 SLOWDOWN = YES
IST1324I VNNAME =  NETA.CN1           VNGROUP = GP1A2A
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I XCA1A    AC/R    21 NO    902D00000000000000000017100808080
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST170I LINES:
IST232I LN1A2A  , ACTIV
IST232I LN1A7B  , NEVAC
IST232I LN1A9C  , NEVAC
IST232I LN1AAA  , NEVAC
IST232I LN1ABA  , NEVAC
IST232I LN1ACA  , NEVAC
IST232I LN1ADA  , NEVAC
IST232I LN1AEA  , NEVAC
IST314I END
```

Displaying an XCA major node without its subordinate resources:

```
d net,id=x50rbf4a
IST097I DISPLAY ACCEPTED
IST075I NAME = X50RBF4A, TYPE = XCA MAJOR NODE
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST1021I MEDIUM=RING,ADAPNO= 0,CUA=0BF4,SNA SAP= 4
IST1885I SIO = 1234 SLOWDOWN = YES
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST314I END
```

Displaying an XCA major node that defines a native ATM port:

```
d net,id=xcaosa1a,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = XCAOSA1A, TYPE = XCA MAJOR NODE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1557I MEDIUM = ATM, PORT NAME = OSA11
IST1559I ATM ADDRESS                                    TYPE      FORMAT
IST1553I 11111111111111111111111111111111111111100    LOCAL     NSAP
IST1324I VNNAME = NETA.SSCPVN        VNGROUP = GP1A2AC
IST1559I ATM ADDRESS                                    TYPE      FORMAT
IST1553I 21111111111111111111111111111111111111110    GATEWAY   NSAP
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I XCAOSA1A AC/R    21 NO    107500000000000000000014C00808080
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST170I LINES:
IST232I LN1A2A   ACTIV
IST232I LNP1A2A1 ACTIV
IST232I LN1A2AC1 ACTIV
IST314I END
```

Displaying an XCA major node group that defines a transmission group (TG) to a native ATM connection network:

```
d net,id=gp1a2ac,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = GP1A2AC, TYPE = LINE GROUP
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST231I XCA MAJOR NODE = XCAOSA1A
IST1485I DLCADDR SUBFIELDS FOR GP1A2AC
IST1318I 1,C'ATMSVCNETA.SSCPVNEXCLUSIVE'
IST1318I 7,BCD'03000000 40000000 40000000 536000'
IST1318I 8,X'0003'
IST1318I 21,X'00022111 11111111 11111111 11111111 11111111 1110'
IST084I NETWORK RESOURCES:
IST089I LN1A2AC1 TYPE = LINE             , ACTIV
IST314I END
```

Displaying an XCA major node that defines Enterprise Extender:

```
d net,id=xcaip,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = XCAIP, TYPE = XCA MAJOR NODE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1679I MEDIUM = HPRIP
IST1685I TCP/IP JOB NAME = ***NA***
IST924I-------------------------------------------------------------
IST1324I VNNAME = IP.VNA             VNGROUP = GPVNA     (LOCAL)
IST1910I LOCAL HOSTNAME NODENAME.NETID.DOMAIN
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I XCAIP    NEV      0 NO    107500000000000000000014C00808080
IST924I -------------------------------------------------------------
IST1324I VNNAME = IP.VNB             VNGROUP = GPVNB     (GLOBAL)
IST1680I LOCAL IP ADDRESS 223.254.254.252
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I XCAIP    NEV      0 NO    127500000000000000000014C00808080
IST924I -------------------------------------------------------------
IST1324I VNNAME = IP.VNC             VNGROUP = GPVNC     (GLOBAL)
IST1910I LOCAL HOSTNAME NODENAME.NETID.REALLYREALLYLONGDOMAIN.COM
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I XCAIP    NEV      0 NO    12B400000000000000000017100808080
IST924I -------------------------------------------------------------
IST1902I GROUP = GPIP1
IST1680I LOCAL IP ADDRESS 223.254.254.254
IST924I -------------------------------------------------------------
IST1902I GROUP = GPIP2
IST1680I LOCAL IP ADDRESS 223.254.254.255
IST924I -------------------------------------------------------------
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST170I LINES:
IST1901I LINES UNDER GROUP: GPVNC
IST232I LNIPC1   NEVAC
IST232I LNIPC2   NEVAC
IST1901I LINES UNDER GROUP: GPVNA
IST232I LNIPA1   NEVAC
IST232I LNIPA2   NEVAC
IST1901I LINES UNDER GROUP: GPVNB
IST232I LNIPB1   NEVAC
IST232I LNIPB2   NEVAC
IST232I LNIPB3   NEVAC
IST1901I LINES UNDER GROUP: GPIP1
IST232I LNIP1    NEVAC
IST232I LNIP2    NEVAC
IST1901I LINES UNDER GROUP: GPIP2
IST232I LNIP21   NEVAC
IST232I LNIP22   NEVAC
IST232I LNIP23   NEVAC
IST314I END
```

Displaying a GROUP associated with an XCA major node that defines Enterprise Extender, where the GROUP definition uses only IPADDR to define the IPv4 connection:

```
d net,id=gpip,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = GPIP, TYPE = LINE GROUP
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST231I XCA MAJOR NODE = XCAIP
IST1680I LOCAL IP ADDRESS 223.254.254.252
IST084I NETWORK RESOURCES:
IST089I LNIP1    TYPE = LINE             , NEVAC
IST089I LNIP2    TYPE = LINE             , NEVAC
IST314I END
```

Displaying a GROUP associated with an XCA major node that defines Enterprise Extender, where the GROUP definition uses HOSTNAME to define the IPv6 connection:

```
d net,id=gpip6v,e
IST097I DISPLAY ACCEPTED
IST075I NAME = GPIP6V, TYPE = LINE GROUP
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST231I XCA MAJOR NODE = XCAIP1
IST1680I LOCAL IP ADDRESS 9::67:1:1
IST1910I LOCAL HOSTNAME VIPA26.SSCP1A.RALEIGH.IBM.COM
IST084I NETWORK RESOURCES:
IST089I LNGV6000 TYPE = LINE             , NEVAC
IST089I LNGV6001 TYPE = LINE             , NEVAC
IST314I END
```

Displaying an adjacent CP (CDRSC minor node):

```
d net,id=neta.sscp2a,idtype=cp,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.SSCP2A, TYPE = ADJACENT CP
IST1046I SSCP NETA.SSCP2A ALSO EXISTS
IST486I STATUS= ACT/S----Y, DESIRED STATE= ACTIV - TRACE= OFF
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTCDRDY
IST479I CDRM NAME = SSCP1A, VERIFY OWNER = NO
IST1184I CPNAME = NETA.SSCP2A - NETSRVR = ***NA***
IST1044I ALSLIST = ISTAPNPU
IST082I DEVTYPE = INDEPENDENT LU / CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000002
IST206I SESSIONS:
IST1081I ADJACENT LINK STATION = P3A21
IST634I NAME     STATUS         SID          SEND RECV VR TP NETID
IST635I SSCP1A   ACTIV/CP-S F6ABEEC38077021A 0002 0001  0  0 NETA
IST635I SSCP1A   ACTIV/CP-P EAABEEC37D76FABF 0001 0002  0  0 NETA
IST314I END
```

Displaying a dependent LU requester:

```
d net,id=nncpa1,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.NNCPA1, TYPE = ADJACENT CP
IST486I STATUS= ACT/S----Y, DESIRED STATE= ACTIV
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=CPSVCMG USS LANGTAB=***NA***
```

```
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTCDRDY
IST1044I ALSLIST = ISTAPNPU
IST1131 DEVICE = ILU/CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST228I ENCRYPTION = OPT, TYPE = TDES24
IST1563I CKEYNAME = NNCPA1 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000004, SESSION REQUESTS = 0000000004
IST206I SESSIONS:
IST1081I ADJACENT LINK STATION = P3A4956K
IST634I NAME     STATUS         SID          SEND RECV VR TP NETID
IST635I SSCP1A   ACTIV/DL-S E2C5E2E2D6D5000B 001C 0000  0  0 NETA
IST635I SSCP1A   ACTIV/CP-S E2C5E2E2D6D50005 0004 0001  0  0 NETA
IST635I SSCP1A   ACTIV/DL-P EAABEEC3361D945A 0000 0012  0  0 NETA
IST635I SSCP1A   ACTIV/CP-P EAABEEC3361D945B 0001 0005  0  0 NETA
IST1355I PHYSICAL UNITS SUPPORTED BY DLUR NETA.NNCPA1
IST089I AA1PUA   TYPE = PU_T2            , ACTIV
IST089I AA1PUB   TYPE = PU_T2            , ACTIV
IST924I -------------------------------------------------------------
IST075I NAME = NETA.NNCPA1, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = DYNAMIC NN
IST1184I CPNAME = NETA.NNCPA1 - NETSRVR = ***NA***
IST314I END
```

Displaying an SSCP (CDRM minor node) with virtual-route-based transmission group support:

```
d net,id=neta.sscp2a,idtype=sscp,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.SSCP2A, TYPE = CDRM
IST1046I CP NETA.SSCP2A ALSO EXISTS
IST486I STATUS= ACTIV     , DESIRED STATE= ACTIV
IST815I AUTOMATIC RECOVERY IS SUPPORTED
IST231I CDRM  MAJOR NODE = CDRM1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST476I CDRM TYPE = EXTERNAL
IST637I SUBAREA= 2   ELEMENT= 1 SSCPID = 2
IST675I VR = 0, TP = 0
IST389I PREDEFINITION OF CDRSC = OPT
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I SSCP2A   AC/R   255 YES   982D000000000000000017100808080
IST636I CDRSCS OWNED BY SSCP2A   -
IST080I L4A3278A ACTIV      L4A3279A ACTIV      L4A3767D ACTIV
IST080I L4A3278B ACTIV      L4A3279B ACTIV      L4A3287B ACTIV
IST080I L4A3767E ACTIV      L4A4956D ACTIV      L4A4956E ACTIV
IST080I L4A4956F ACTIV      NETAPPL1 ACTIV      NETAPPL2 ACTIV
IST080I NETAPPL3 ACTIV      NETAPPL4 ACTIV      APLMDSEC ACTIV
IST080I TSO2     ACTIV
IST314I END
```

Displaying an SSCP (CDRM) and adjacent CP (CDRSC) with the same name from a network node:

```
d net,id=sscp2a,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.SSCP2A, TYPE = CDRM
IST1046I CP NETA.SSCP2A ALSO EXISTS
IST486I STATUS= NEVAC, DESIRED STATE= INACT - TRACE= OFF
IST815I AUTOMATIC RECOVERY IS SUPPORTED
IST231I CDRM MAJOR NODE = CDRM1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST476I CDRM TYPE = EXTERNAL
IST637I SUBAREA= 2   ELEMENT= 1 SSCPID = 2
IST389I PREDEFINITION OF CDRSC = OPT
IST636I CDRSCS OWNED BY SSCP2A   -
IST080I NETAPPL1 PNF/S
```

```
IST924I -------------------------------------------------------------
IST075I NAME = NETA.SSCP2A, TYPE = ADJACENT CP
IST1046I SSCP NETA.SSCP2A ALSO EXISTS
IST486I STATUS= ACT/S----Y, DESIRED STATE= ACTIV - TRACE= OFF
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTCDRDY
IST479I CDRM NAME = SSCP1A, VERIFY OWNER = NO
IST1184I CPNAME = NETA.SSCP2A - NETSRVR = ***NA***
IST1044I ALSLIST = ISTAPNPU
IST082I DEVTYPE = INDEPENDENT LU / CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000002
IST206I SESSIONS:
IST1081I ADJACENT LINK STATION = P3A21
IST634I NAME     STATUS         SID          SEND RECV VR TP NETID
IST635I SSCP1A   ACTIV/CP-S F6ABEEC38077021A 0006 0001  0  0 NETA
IST635I SSCP1A   ACTIV/CP-P EAABEEC37D76FABF 0001 0006  0  0 NETA
IST924I -------------------------------------------------------------
IST075I NAME = NETA.SSCP2A, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = DYNAMIC NN
IST1184I CPNAME = NETA.SSCP2A - NETSRVR = ***NA***
IST314I END
```

Displaying an SSCP (CDRM) and a host CP (application) with the same name:

```
d net,id=neta.sscp1a,idtype=resource,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.SSCP1A, TYPE = CDRM
IST1046I CP NETA.SSCP1A ALSO EXISTS
IST486I STATUS= ACTIV     , DESIRED STATE= ACTIV
IST815I AUTOMATIC RECOVERY IS SUPPORTED
IST231I CDRM  MAJOR NODE = VTAMSEG
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST476I CDRM TYPE = HOST, GATEWAY CAPABLE
IST637I SUBAREA= 2   ELEMENT= 1 SSCPID = 2
IST388I DYNAMIC CDRSC DEFINITION SUPPORT = YES
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST172I NO SESSIONS EXIST
IST924I -------------------------------------------------------------
IST075I NAME = NETA.SSCP1A, TYPE = HOST CP
IST1046I SSCP NETA.SSCP1A ALSO EXISTS
IST486I STATUS= ACT/S     , DESIRED STATE= ACTIV
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I APPL  MAJOR NODE = VTAMSEG
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST271I JOBNAME = VTAM    , STEPNAME = VTAM    , DSPNAME = 0AAABIST
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = SSCP1A CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST171I ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST634I NAME     STATUS         SID          SEND RECV VR TP NETID
IST635I SSCP2A   ACTIV/CP-S EAABEEC3F11FF31F 0002 0001       NETA
IST635I SSCP2A   ACTIV/CP-P F6ABEEC3F4203D93 0001 0002       NETA
IST314I END
```

Displaying the host (this command works for any host). This display shows an interchange node:

```
d net,id=vtam
IST097I DISPLAY ACCEPTED
IST075I NAME = VTAM, TYPE = CDRM
IST1046I CP NETA.SSCP1A ALSO EXISTS
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST599I REAL NAME = NETA.SSCP1A
IST815I AUTOMATIC RECOVERY IS SUPPORTED
IST231I CDRM MAJOR NODE = VTAMSEG
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST2159I XCF GROUP = ISTXCF11 CFS GROUP = ISTCFS11
IST2181I GR STRUCTURE NAME IS ISTGENERIC11
IST2181I MNPS STRUCTURE NAME IS ISTMNPS11
IST476I CDRM TYPE = HOST GATEWAY CAPABLE
IST637I SUBAREA = 1 ELEMENT = 1 SSCPID = 1
IST388I DYNAMIC CDRSC DEFINITION SUPPORT = YES
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST924I -------------------------------------------------------------
IST075I NAME = NETA.SSCP1A, TYPE = HOST CP
IST1046I SSCP NETA.SSCP1A ALSO EXISTS
IST486I STATUS= ACT/S, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = NO
IST1501I XCF TOKEN = 010000B7000F0001
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1632I VPACING = 63
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I APPL MAJOR NODE = VTAMSEG
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST271I JOBNAME = VTAM550T, STEPNAME = NET, DSPNAME = ISTEAF13
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = SSCP1A CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST1633I ASRCVLM = 1999999
IST1634I DATA SPACE USAGE: CURRENT = 0 MAXIMUM = 272
IST171I ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000000
IST314I END
```

Displaying a CDRSC (no SSCP, adjacent CP, or host CP was found with this name) from a network node:

```
d net,id=neta.netappl1,idtype=resource,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.NETAPPL1, TYPE = CDRSC
IST486I STATUS= ACT/S, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = CDRSC1A
IST479I CDRM NAME = SSCP2A, VERIFY OWNER = NO
IST1184I CPNAME = NETA.SSCP2A - NETSRVR = ***NA***
IST1044I ALSLIST = ISTAPNPU
IST082I DEVTYPE = INDEPENDENT LU / CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = NETAPPL1 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST1081I ADJACENT LINK STATION = P3A21
```

```
IST634I NAME     STATUS         SID          SEND RECV VR TP NETID
IST635I APPL1    ACTIV-P    EAABEEC356FA371B 0000 0000  0  0 NETA
IST924I -------------------------------------------------------------
IST075I NAME = NETA.NETAPPL1, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = DYNAMIC LU
IST1184I CPNAME = NETA.SSCP2A - NETSRVR = ***NA***
IST484I SUBAREA = 2
IST1703I DESIRED LOCATE SIZE = 1K LAST LOCATE SIZE = 16K
IST314I END
```

Displaying directory information for a resource (no SSCP, adjacent CP, host CP, or other resource was found with this name) and the command was issued at a network node or interchange node:

```
d net,id=neta.lu71,idtype=resource,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.LU71, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = DYNAMIC LU
IST1184I CPNAME = NETA.NN3 - NETSRVR = ***NA***
IST484I SUBAREA = ****NA****
IST1703I DESIRED LOCATE SIZE = 1K LAST LOCATE SIZE = 16K
IST314I END
```

Displaying only directory information for a resource:

```
d net,id=sscp2a,idtype=directry,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.SSCP2A, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = DYNAMIC NN
IST1184I CPNAME = NETA.SSCP2A   - NETSRVR = ***NA***
IST314I END
```

Displaying a conventionally defined application program that is not being monitored for 3270 protocol violations:

```
d net,id=appl1,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.APPL1, TYPE = APPL
IST486I STATUS= ACT/S, DESIRED STATE= ACTIV - TRACE= OFF
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1632I VPACING =  7
IST1938I APPC = YES
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I APPL MAJOR NODE = APPL1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST271I JOBNAME = ECHO, STEPNAME = ECHO, DSPNAME = IST6D2D6
IST228I ENCRYPTION = OPTIONAL, TYPE = DES
IST1563I CKEYNAME = APPL1 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST1633I ASRCVLM = 2000000
IST1634I DATA SPACE USAGE: CURRENT = 0 MAXIMUM = 0
IST2436I DSMONITR = NO
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000001
IST206I SESSIONS:
IST634I NAME     STATUS         SID          SEND RECV VR TP NETID
IST635I NETAPPL1 ACTIV-S    EAABEEC37D76FAC1 0000 0000  0  0 NETA
IST314I END
```

Displaying an application program that is multinode persistent session (MNPS) capable:

```
d net,id=mappl1,e
 IST097I DISPLAY ACCEPTED
 IST075I NAME = NETA.MAPPL1, TYPE = DYNAMIC APPL
 IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
 IST1447I REGISTRATION TYPE = CDSERVR
 IST1550I MNPS STATE = DISABLED
 IST2062I SNPS FORCED TAKEOVER REQUESTS ARE ACCEPTABLE
 IST1629I MODSRCH = NEVER
 IST977I MDLTAB=***NA*** ASLTAB=***NA***
 IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
 IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
 IST1632I VPACING =  7
 IST1938I APPC = NO
 IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
 IST231I APPL MAJOR NODE = APPLANY
 IST1425I DEFINED USING MODEL MAPPL*
 IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
 IST1500I STATE TRACE = OFF
 IST271I JOBNAME = ECHO, STEPNAME = ECHO, DSPNAME = ISTBFA93
 IST228I ENCRYPTION = OPTIONAL , TYPE = DES
 IST1563I CKEYNAME = MAPPL1 CKEY = PRIMARY CERTIFY = NO
 IST1552I MAC = NONE MACTYPE = NONE
 IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
 IST1633I ASRCVLM = 1000000
 IST1634I DATA SPACE USAGE: CURRENT = 0 MAXIMUM = 0
 IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
 IST172I NO SESSIONS EXIST
 IST314I END
```

Displaying an application program that is single node persistent session (SNPS) capable and is being monitored for 3270 protocol violations:

```
d net,id=appl1,e
 IST097I DISPLAY ACCEPTED
 IST075I NAME = NETA.APPL1, TYPE = APPL
 IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
 IST1447I REGISTRATION TYPE = CDSERVR
 IST2062I SNPS FORCED TAKEOVER REQUESTS ARE ACCEPTABLE
 IST977I MDLTAB=***NA*** ASLTAB=***NA***
 IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
 IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
 IST1632I VPACING =  7
 IST1938I APPC = NO
 IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
 IST231I APPL MAJOR NODE = APPL1A
 IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
 IST1500I STATE TRACE = OFF
 IST271I JOBNAME = ECHO, STEPNAME = ECHO, DSPNAME = IST4915A
 IST228I ENCRYPTION = OPTIONAL , TYPE = DES
 IST1563I CKEYNAME = APPL1 CKEY = PRIMARY CERTIFY = NO
 IST1552I MAC = NONE MACTYPE = NONE
 IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
 IST1633I ASRCVLM = 1000000
 IST1634I DATA SPACE USAGE: CURRENT = 0 MAXIMUM = 0
 IST2433I DSMONITR = YES, DSCOUNT = 1, DSACTION = (SYSLOG,NONE)
 IST2434I DSTRUST = NONE
 IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
 IST172I NO SESSIONS EXIST
 IST314I END
```

Displaying a model application program:

```
d net,id=appl*,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.APPL*, TYPE = MODEL APPL
IST486I STATUS= CONCT, DESIRED STATE= CONCT - TRACE= OFF
IST1447I REGISTRATION TYPE = CDSERVR
```

```
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1938I APPC = NO
IST597I CAPABILITY-PLU INHIBITED,SLU INHIBITED,SESSION LIMIT NON
IST231I APPL MAJOR NODE = APPL1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST271I JOBNAME = ***NA***, STEPNAME = ***NA***, DSPNAME = ***NA
IST228I ENCRYPTION = OPTIONAL, TYPE = DES
IST1563I CKEYNAME = APPL* CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST1424I APPLICATIONS DEFINED USING THIS MODEL:
IST080I APPL1  ACTIV
IST314I END
```

Displaying a multinode persistent session application program from a remote node connected to the MNPS coupling facility structure might result in any of the following output:

```
d net,id=mapplx1,e
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.MAPPLX1, TYPE = APPL
IST1549I OWNER = NETA.SSCP2A MNPS STATE = DISABLED
IST2062I MNPS FORCED TAKEOVER REQUESTS ARE ACCEPTABLE
IST924I -------------------------------------------------------------
IST075I NAME = NETA.MAPPLX1, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = REGISTERED LU
IST1184I CPNAME = NETA.SSCP1A - NETSRVR = NETA.SSCPAA
IST314I END
```

```
d net,id=mapplx1,e
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.MAPPLX1, TYPE = CDRSC
IST486I STATUS= ACT/S----Y, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTCDRDY
IST479I CDRM NAME = SSCPAA, VERIFY OWNER = NO
IST1184I CPNAME = NETA.SSCP2A - NETSRVR = ***NA***
IST082I DEVTYPE = INDEPENDENT LU / CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = MAPPLX1 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST1081I ADJACENT LINK STATION = CNR00005
IST634I NAME     STATUS         SID          SEND RECV VR TP NETID
IST635I APPLAA1  ACTIV-P    EAABEE185A59FD67 0000 0000  0  0 NETA
IST924I -------------------------------------------------------------
IST075I NAME = NETA.MAPPLX1, TYPE = APPL
IST1549I OWNER = NETA.SSCP2A MNPS STATE = ENABLED
IST2062I MNPS FORCED TAKEOVER REQUESTS ARE ACCEPTABLE
IST924I -------------------------------------------------------------
IST075I NAME = NETA.MAPPLX1, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = DYNAMIC LU
IST1184I CPNAME = NETA.SSCP2A - NETSRVR = ***NA***
IST314I END
```

```
d net,id=mappl1,e
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.MAPPL1, TYPE = CDRSC
```

```
IST486I STATUS= ACT/S----Y, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTCDRDY
IST479I CDRM NAME = SSCP1A, VERIFY OWNER = NO
IST1184I CPNAME = NETA.SSCP2A - NETSRVR = ***NA***
IST082I DEVTYPE = INDEPENDENT LU / CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = MAPPL1 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST1081I ADJACENT LINK STATION = CNR00003
IST634I NAME     STATUS         SID          SEND RECV VR TP NETID
IST635I APPL1    ACTIV-P    EAABEEC30C061090 0000 0000  0  0 NETA
IST924I -------------------------------------------------------------
IST075I NAME = NETA.MAPPL1, TYPE = APPL
IST1549I OWNER = NETA.SSCP2A MNPS STATE = DISABLED
IST2062I MNPS FORCED TAKEOVER REQUESTS ARE ACCEPTABLE
IST314I END
```

```
d net,id=mapplx1,e
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.MAPPLX1, TYPE = APPL
IST486I STATUS= CONCT, DESIRED STATE= CONCT
IST1447I REGISTRATION TYPE = CDSERVR
IST1550I MNPS STATE = DEFINED
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1632I VPACING =  7
IST1938I APPC = YES
IST597I CAPABILITY-PLU INHIBITED,SLU INHIBITED,SESSION LIMIT NONE
IST231I APPL MAJOR NODE = APPLMG2
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST271I JOBNAME = ***NA***, STEPNAME = ***NA***, DSPNAME = ***NA***
IST228I ENCRYPTION = OPTIONAL, TYPE = DES
IST1563I CKEYNAME = MAPPLX1 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST1633I ASRCVLM = 1000000
IST1634I DATA SPACE USAGE: CURRENT = ***NA*** MAXIMUM = ***NA***
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST172I NO SESSIONS EXIST
IST924I -------------------------------------------------------------
IST075I NAME = NETA.MAPPLX1, TYPE = APPL
IST1549I OWNER = NETA.SSCP1A MNPS STATE = DISABLED
IST2062I MNPS FORCED TAKEOVER REQUESTS ARE ACCEPTABLE
IST314I END
```

Displaying a dynamic application program:

```
d net,id=appl1,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.APPL1, TYPE = DYNAMIC APPL
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV - TRACE= OFF
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1632I VPACING =  7
```

```
IST1938I APPC = NO
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NON
IST231I APPL MAJOR NODE = APPL1A
IST1425I DEFINED USING MODEL APPL*
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST271I JOBNAME = ECHO, STEPNAME = ECHO, DSPNAME = IST75874
IST228I ENCRYPTION = OPTIONAL, TYPE = DES
IST1563I CKEYNAME = APPL1 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST1633I ASRCVLM = 2000000
IST1634I DATA SPACE USAGE: CURRENT = 0 MAXIMUM = 0
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000
IST314I END
```

Displaying the application program representing the network operator:

```
d net,id=istnop
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.ISTNOP, TYPE = APPL
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV - TRACE= OFF
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1395I FLDTAB = ISTMSFLD FILTER = ISTMGC10
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1938I APPC = NO
IST597I CAPABILITY-PLU INHIBITED,SLU INHIBITED,SESSION LIMIT NONE
IST231I APPL MAJOR NODE = VTAMSEG
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST271I JOBNAME = ***NA***, STEPNAME = ***NA***, DSPNAME = ***NA***
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = ISTNOP CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST314I END
```

Displaying a dynamic same-network CDRSC:

```
d net,id=applaa3,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.APPLAA3, TYPE = CDRSC
IST486I STATUS= ACTIV----Y, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTCDRDY
IST479I CDRM NAME = ***NA***, VERIFY OWNER = NO
IST1184I CPNAME = NETA.SSCPAA - NETSRVR = ***NA***
IST082I DEVTYPE = CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = APPLAA3 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST314I END
```

Displaying a dynamic cross-network CDRSC:

```
d net,id=netb.applb11,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETB.APPLB11, TYPE = CDRSC
IST486I STATUS= ACT/S----Y, DESIRED STATE= ACTIV
```

```
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTCDRDY
IST479I CDRM NAME = SSCP7B, VERIFY OWNER = NO
IST1184I CPNAME = NETB.SSCP7B - NETSRVR = ***NA***
IST082I DEVTYPE = CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = APPLB11 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST634I NAME     STATUS         SID          SEND RECV VR TP NETID
IST635I APPL1    ACTIV-S    C2BB19BC74339803 0016 0016  0  0 NETA
IST635I APPL1    ACTIV-P    EAABEEC34604F7E2 0009 000A  0  0 NETA
IST314I END
```

Displaying a predefined CDRSC for a specific network:

```
d net,id=applb11,netid=netb,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = APPLB11, TYPE = CDRSC
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = CDRSC1A
IST479I CDRM NAME = SSCP7B, VERIFY OWNER = NO
IST082I DEVTYPE = CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = APPLB11 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST314I END
```

Displaying a predefined CDRSC without network (no sessions):

```
d net,id=netappl2,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.NETAPPL2, TYPE = CDRSC
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV - TRACE= OFF
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = CDRSC1A
IST479I CDRM NAME = SSCP2A, VERIFY OWNER = NO
IST082I DEVTYPE = CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST314I END
```

Displaying a model CDRSC:

```
d net,id=applb*,e
IST097I DISPLAY ACCEPTED
IST075I NAME = NETB.APPLB*, TYPE = MODEL CDRSC
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
```

```
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = CDRSC1A
IST2095I MODEL CDRSC DELETE = YES
IST479I CDRM NAME = SSCP7B, VERIFY OWNER = NO
IST082I DEVTYPE = CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST228I ENCRYPTION = NONE , TYPE = DES
IST1563I CKEYNAME = APPLB11 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST2088I CDRSCS DEFINED USING THIS MODEL:
IST483I APPLB11  ACTIV     , CDRM = SSCP7B  , NETID = NETB
IST483I APPLB12  ACTIV     , CDRM = SSCP7B  , NETID = NETB
IST314I END
```

Displaying a clone CDRSC:

```
d net,id=applb11
IST097I DISPLAY ACCEPTED
IST075I NAME = NETB.APPLB11, TYPE = CLONE CDRSC
IST486I STATUS= ACT/S, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = CDRSC1A
IST1425I DEFINED USING MODEL NETB.APPLB*
IST2095I MODEL CDRSC DELETE = YES
IST479I CDRM NAME = SSCP7B, VERIFY OWNER = NO
IST082I DEVTYPE = CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST228I ENCRYPTION = NONE , TYPE = DES
IST1563I CKEYNAME = APPLB11 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000000
IST314I END
```

Displaying a CDRSC for a TN3270 or TN3270E client:

```
d net,id=tcpm1011,e
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.TCPM1011, TYPE = CDRSC
IST486I STATUS= ACT/S----Y, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTCDRDY
IST479I CDRM NAME = SSCP1A, VERIFY OWNER = NO
IST1184I CPNAME = NETA.SSCP1A - NETSRVR = ***NA***
IST082I DEVTYPE = CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST228I ENCRYPTION = NONE , TYPE = DES
IST1563I CKEYNAME = TCPM1011 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1727I DNS NAME: VIC127.TCP.RALEIGH.IBM.COM
IST1669I IPADDR..PORT 9.67.113.83..1027
```

```
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST634I NAME     STATUS         SID          SEND RECV VR TP NETID
IST635I TSO20001 ACTIV-P    F6ABEEC39DE3E239 0008 0010  0  0 NETA
IST314I END
```

Displaying a CDRSC that is associated with an IPv6 TN3270 client:

```
d net,id=tcpm2012,e
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.TCPM2012, TYPE = CDRSC
IST486I STATUS= ACT/S----Y, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTCDRDY
IST479I CDRM NAME = SSCP1A, VERIFY OWNER = NO
IST1184I CPNAME = NETA.SSCP1A - NETSRVR = ***NA***
IST1131I DEVICE = CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST228I ENCRYPTION = NONE , TYPE = DES
IST1563I CKEYNAME = TCPM2012 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1669I IPADDR..PORT 2001:0DB8::9:67:115:17..1026
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST634I NAME     STATUS         SID          SEND RECV VR TP NET
IST635I TSO20002 ACTIV-P    F6ABEEC34C26E9F3 0003 000D  0  0 NET
IST314I END
```

Displaying an independent logical unit:

```
d net,id=l3270a,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = L3270A, TYPE = CDRSC
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST599I REAL NAME = ***NA***
IST1447I REGISTRATION TYPE = NO
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST1333I ADJLIST = ***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTPDILU
IST1044I ALSLIST = AHHCPU1
IST082I DEVTYPE = INDEPENDENT LU / CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = L3270A CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST172I NO SESSIONS EXIST
IST924I -------------------------------------------------------------
IST075I NAME = NETA.L3270A, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = REGISTERED LU
IST1184I CPNAME = NETA.SSCP2A - NETSRVR = NETA.SSCP1A
IST484I SUBAREA = ****NA****
IST1703I DESIRED LOCATE SIZE = 1K LAST LOCATE SIZE = 1K
IST314I END
```

Displaying the host CDRM:

```
d net,id=a01n,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.A01N, TYPE = CDRM
IST1046I CP NETA.A01N ALSO EXISTS
IST486I STATUS= ACTIV     , DESIRED STATE= ACTIV
IST815I AUTOMATIC RECOVERY IS SUPPORTED
IST231I CDRM  MAJOR NODE = VTAMSEG
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST476I CDRM TYPE = HOST, GATEWAY CAPABLE
IST637I SUBAREA= 2   ELEMENT= 1 SSCPID = 2
IST388I DYNAMIC CDRSC DEFINITION SUPPORT = YES
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST172I NO SESSIONS EXIST
IST924I -------------------------------------------------------------
IST075I NAME = NETA.A01N, TYPE = HOST CP
IST1046I SSCP NETA.A01N ALSO EXISTS
IST486I STATUS= ACT/S     , DESIRED STATE= ACTIV
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I APPL  MAJOR NODE = VTAMSEG
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST271I JOBNAME = NET41B  , STEPNAME = NET     , DSPNAME = 00000IST
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST171I ACTIVE SESSIONS = 0000000014, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST634I NAME     STATUS          SID          SEND RECV VR TP NETID
IST635I A04P882A ACTIV/CP-S E7F3895623BE5C86 000D 0001  0  0 NETY
IST635I A04P888A ACTIV/CP-S E7F3895623BE5C85 053E 0001  0  0 NETA
IST635I A04P886A ACTIV/CP-S E7F3895623BE5C84 0721 0001  0  0 NETA
IST635I A04P885A ACTIV/CP-S E7F3895623BE5C83 03AE 0001  0  0 NETA
IST635I A04P889A ACTIV/CP-S E7F3895623BE5C82 0727 0001  0  0 NETA
IST635I A04P883A ACTIV/CP-S E7F3895623BE5C81 01C5 0001  0  0 NETZ
IST635I A02N     ACTIV/CP-S E7F3895623BE56A5 1055 0001  0  0 NETA
IST635I A02N     ACTIV/CP-P E7E3F9563F1747D7 0001 1047  0  0 NETA
IST635I A04P882A ACTIV/CP-P F3342BAB9019C2B2 0001 000E  0  0 NETY
IST635I A04P883A ACTIV/CP-P E36D478882B602AB 0001 01C6  0  0 NETZ
IST635I A04P885A ACTIV/CP-P EF0E04F6C768DD2E 0001 03AF  0  0 NETA
IST635I A04P886A ACTIV/CP-P EF0E07F6C768E02F 0001 0722  0  0 NETA
IST635I A04P888A ACTIV/CP-P EF0E09F6C768E230 0001 053F  0  0 NETA
IST635I A04P889A ACTIV/CP-P EF0E08F6C768E131 0001 0728  0  0 NETA
IST314I END
```

Displaying an active, same-network, external CDRM:

```
d net,id=A02n,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.A02N, TYPE = CDRM
IST1046I CP NETA.A02N ALSO EXISTS
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST815I AUTOMATIC RECOVERY IS SUPPORTED
IST231I CDRM  MAJOR NODE = A01CDRMC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST476I CDRM TYPE = EXTERNAL
IST637I SUBAREA= 2   ELEMENT= 1 SSCPID = 2
IST675I VR=0, TP=0
IST389I PREDEFINITION OF CDRSC = OPT
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I A02N     AC/R   255 YES   982D000000000000000017100808080
IST1482I HPR= NO - OVERRIDE = YES - CONNECTION = YES
IST636I CDRSCS OWNED BY A02N     -
IST172I NO CDRSCS EXIST
IST924I -------------------------------------------------------------
IST075I NAME = NETA.A02N, TYPE = ADJACENT CP
IST1046I SSCP NETA.A02N ALSO EXISTS
```

```
IST486I STATUS= ACT/S----Y, DESIRED STATE= ACTIV
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = ISTCDRDY
IST479I CDRM NAME = A01N    , VERIFY OWNER = NO
IST1044I ALSLIST = ISTAPNPU
IST082I DEVTYPE = INDEPENDENT LU / CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I ACTIVE SESSIONS = 0000000002, SESSION REQUESTS = 0000000000
IST206I SESSIONS:
IST1081I ADJACENT LINK STATION = A02NETNA
IST634I NAME     STATUS         SID          SEND RECV VR TP NETID
IST635I A01N     ACTIV/CP-S E7E3F9563F1747D7 1055 0001  0  0 NETA
IST635I A01N     ACTIV/CP-P E7F3895623BE56A5 0001 105F  0  0 NETA
IST924I -------------------------------------------------------------
IST075I NAME = NETA.A02N, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = DYNAMIC NN
IST1184I CPNAME = NETA.A02N     - NETSRVR = ***NA***
IST314I END
```

Displaying a cross-network external CDRM:

```
d net,id=c01n,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETC.C01N, TYPE = CDRM
IST486I STATUS= ACTIV     , DESIRED STATE= ACTIV
IST815I AUTOMATIC RECOVERY IS SUPPORTED
IST231I CDRM  MAJOR NODE = A50CDRMC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST476I CDRM TYPE = EXTERNAL
IST637I SUBAREA= 2   ELEMENT= 1 SSCPID = 2
IST675I VR = 0, TP = 2
IST638I ADJNETSA = 1, ADJNETEL = 1
IST675I VR = 0, TP = 2
IST639I GWN = A0362ZC , ADJNET = NETC
IST640I A500N    ADDR IN ADJNET - SA =         31, EL =    11
IST641I GATEWAY PATH SELECTION LIST -
IST642I  ADJNET     GWN        SUBAREA   ELEM    ADJNETSA  ADJNETEL
IST643I NETC      A0362ZC            3      1           1         1
IST643I NETC                       255      3           1         1
IST898I GWSELECT = YES
IST389I PREDEFINITION OF CDRSC = OPT
IST636I CDRSCS OWNED BY C01N     -
IST080I C01NVLUC ACT/S----Y
IST924I -------------------------------------------------------------
IST075I NAME = NETC.C01N, TYPE = DIRECTORY ENTRY
IST1186I DIRECTORY ENTRY = DYNAMIC EN
IST1184I CPNAME = NETC.C01N     - NETSRVR = NETA.A01N
IST314I END
```

Displaying a peripheral BSC line group:

```
d net,id=a03lbnnb,scope=all
IST097I DISPLAY  ACCEPTED
IST075I NAME = A03LBNNB         , TYPE = LINE GROUP
IST486I STATUS= ACTIV     , DESIRED STATE= ACTIV
IST354I PU T4/5 MAJOR NODE = A0362ZC
IST084I NETWORK NODES:
IST089I A03B00   TYPE = LINE            , NEVAC
IST089I A03C001  TYPE = PU_T2           , NEVAC
IST089I A03C002  TYPE = PU_T2           , NEVAC
IST089I A03B01   TYPE = LINE            , NEVAC
IST089I A03C011  TYPE = PU_T2           , NEVAC
IST089I A03C012  TYPE = PU_T2           , NEVAC
IST089I A03B32   TYPE = LINE            , NEVAC
IST089I A03C321  TYPE = PU_T2           , NEVAC
```

```
IST089I A03C322  TYPE = PU_T2            , NEVAC
IST089I A03B33   TYPE = LINE             , NEVAC
IST089I A03C331  TYPE = PU_T2            , NEVAC
IST089I A03C332  TYPE = PU_T2            , NEVAC
IST314I END
```

Displaying a peripheral SDLC line group:

```
d net,id=a03lbnns,scope=all
IST097I DISPLAY  ACCEPTED
IST075I NAME = A03LBNNS         , TYPE = LINE GROUP
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST354I PU T4/5 MAJOR NODE = A0362ZC
IST084I NETWORK NODES:
IST089I A03S16   TYPE = LINE             , ACTIV
IST089I A03P161  TYPE = PU_T2            , PREQC
IST089I A03P162  TYPE = PU_T2            , PREQC
IST089I A03P163  TYPE = PU_T2            , PREQC
IST089I A03P164  TYPE = PU_T2            , PREQC
IST089I A03S20   TYPE = LINE             , ACTIV
IST075I NAME = A03LBNNS         , TYPE = LINE GROUP
IST089I A03P201  TYPE = PU_T2            , PREQC
IST089I A03P202  TYPE = PU_T2            , PREQC
IST089I A03P203  TYPE = PU_T2            , PREQC
IST089I A03P204  TYPE = PU_T2            , PREQC
IST089I A03P205  TYPE = PU_T2            , PREQC
IST089I A03P206  TYPE = PU_T2            , PREQC
IST314I END
```

Displaying a peripheral SDLC switched line group:

```
d net,id=grp3a9,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = GRP3A9, TYPE = LINE GROUP
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST354I PU T4/5 MAJOR NODE = NCP3AB5
IST084I NETWORK NODES:
IST089I LN3A9    TYPE = LINE             , ACTIV
IST089I P3A4956K TYPE = PU_T2            , ACTIV--L--
IST089I L3A4956A TYPE = LOGICAL UNIT     , ACT/S
IST089I LN3A10   TYPE = LINE             , ACTIV
IST089I P3A4956L TYPE = PU_T2            , ACTIV--L--
IST089I L3A4956A TYPE = LOGICAL UNIT     , ACT/S
IST089I LN3A11   TYPE = LINE             , ACTIV
IST089I P3A4956M TYPE = PU_T2            , NEVAC
IST314I END
```

Note: Independent LU L3A4956A is shown under two PUs because it has active sessions through these PUs.

Displaying a peripheral BSC link:

```
d net,id=a03b00,scope=all
IST097I DISPLAY  ACCEPTED
IST075I NAME = A03B00           , TYPE = LINE
IST486I STATUS= NEVAC      , DESIRED STATE= INACT
IST087I TYPE = LEASED             , CONTROL = BSC , HPDT = *NA*
IST134I GROUP = A03LBNNB, MAJOR NODE = A0362ZC
IST650I POLL = 000, NEGPOLL = 010, SESSION(S) = 032
IST084I NETWORK NODES:
IST089I A03C001  TYPE = PU_T2            , NEVAC
IST089I A03T0011 TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T0012 TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T0013 TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T0014 TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T0015 TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T0016 TYPE = LOGICAL UNIT     , NEVAC
```

```
IST089I A03T0017 TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T0018 TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T0019 TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T001A TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T001B TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T001C TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T001D TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T001E TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T001F TYPE = LOGICAL UNIT     , NEVAC
IST089I A03C002  TYPE = PU_T2            , NEVAC
IST089I A03T0021 TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T0022 TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T0023 TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T0024 TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T0025 TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T0026 TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T0027 TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T0028 TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T0029 TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T002A TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T002B TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T002C TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T002D TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T002E TYPE = LOGICAL UNIT     , NEVAC
IST089I A03T002F TYPE = LOGICAL UNIT     , NEVAC
IST314I END
```

Displaying an SDLC link (multidrop INN):

```
d net,id=a04in01,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A04IN01, TYPE = LINE
IST486I STATUS= ACTIV----E , DESIRED STATE = ACTIV
IST087I TYPE = LEASED             , CONTROL = SDLC, HPDT = *NA*
IST134I GROUP = A04MPRI,  MAJOR NODE = A04N43A
IST084I NETWORK NODES:
IST089I A04P013  TYPE = PU_T2            , NEVAC
IST089I A04L013A TYPE = LOGICAL UNIT     , NEVAC
IST089I A04L013B TYPE = LOGICAL UNIT     , NEVAC
IST089I A04L013C TYPE = LOGICAL UNIT     , NEVAC
IST089I A04L013D TYPE = LOGICAL UNIT     , NEVAC
IST089I A04L013E TYPE = LOGICAL UNIT     , NEVAC
IST089I A04L013F TYPE = LOGICAL UNIT     , NEVAC
IST089I A04L013G TYPE = LOGICAL UNIT     , NEVAC
IST089I A04L013H TYPE = LOGICAL UNIT     , NEVAC
IST089I A04L013I TYPE = LOGICAL UNIT     , NEVAC
IST089I A04L013J TYPE = LOGICAL UNIT     , NEVAC
IST089I A04L013K TYPE = LOGICAL UNIT     , NEVAC
IST089I A04L013L TYPE = LOGICAL UNIT     , NEVAC
IST089I A04L013M TYPE = LOGICAL UNIT     , NEVAC
IST089I A04L013N TYPE = LOGICAL UNIT     , NEVAC
IST089I A04L013O TYPE = LOGICAL UNIT     , NEVAC
IST089I A04I013A TYPE = LOGICAL UNIT     , NEVAC
IST089I A04I013B TYPE = LOGICAL UNIT     , NEVAC
IST089I A04I013C TYPE = LOGICAL UNIT     , NEVAC
IST089I A04I013D TYPE = LOGICAL UNIT     , NEVAC
IST089I A04I013E TYPE = LOGICAL UNIT     , NEVAC
IST396I LNKSTA    STATUS     CTG GTG ADJNODE  ADJSA  NETID  ADJLS
IST397I A04P014   NEVAC        2   2              0
IST397I A04P015   NEVAC        2   2              0
IST397I A04P016   NEVAC        2   2              0
IST397I A04P017   ACTIV----E   2   2 A31N52B     31
IST397I A04P018   ACTIV----E   2   2 A71N43A     71
IST397I A04P019   NEVAC        2   2              0
```

```
IST397I A04P01A   NEVAC        2   2             0
IST397I A04P01B   NEVAC        2   2             0
IST397I A04P01C   NEVAC        2   2             0
IST314I END
```

Displaying a peripheral SDLC link:

```
d net,id=ln3atr10,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = LN3ATR10, TYPE = LINE
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST087I TYPE = LEASED             , CONTROL = SDLC, HPDT = *NA*
IST1440I USE = NCP, SPARE RESOURCE, CAN BE REDEFINED
IST134I GROUP = GP3ATRP1, MAJOR NODE = NCP3AB7
IST1324I VNNAME =  NETA.VN1           VNGROUP = GP3ATR10
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I LN3ATR10 AC/R    21 NO    907500000000000000000017100808080
IST084I NETWORK NODES:
IST089I P3ATR10  TYPE = PU_T2            , ACTIV
IST314I END
```

Displaying a cross-subarea SDLC switched link:

```
d net,id=a04hdx00,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A04HDX00, TYPE = LINE
IST486I STATUS= ACTIV      , DESIRED STATE = ACTIV
IST087I TYPE = SWITCHED DIAL-INOUT, CONTROL = SDLC, HPDT = *NA*
IST936I ANSWER MODE = ENABLED
IST134I GROUP = A04SADG1, MAJOR NODE = A04S43A
IST084I NETWORK NODES:
IST089I A31A     TYPE = LINK STATION     , ACTIV
IST314I END
```

Displaying a peripheral SDLC switched link:

```
d net,id=j0004001,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME =J00004001, TYPE = LINE
IST486I STATUS= ACTIV      , DESIRED STATE = ACTIV
IST087I TYPE = SWITCHED DIAL-INOUT, CONTROL = SDLC, HPDT = *NA*
IST936I ANSWER MODE = ENABLED
IST134I GROUP = A04TRLG1, MAJOR NODE = A04S43A
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST172I NO NETWORK NODES EXIST
IST314I END
```

Displaying an NTRI line in an NCP:

```
d net,id=ln3atr11
IST097I DISPLAY ACCEPTED
IST075I NAME = LN3ATR11, TYPE = LINE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = SWITCHED DIAL-INOUT, CONTROL = SDLC, HPDT = *NA*
IST936I ANSWER MODE = ENABLED
IST1440I USE = NCP, DEFINED RESOURCE, CANNOT BE REDEFINED
IST134I GROUP = GP3ATR10, MAJOR NODE = NCP3AB8
IST1500I STATE TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - NO
IST1657I MAJOR NODE VTAMTOPO = IGNORE
IST314I END
```

Displaying a logical line in an XCA major node:

```
d net,id=ln1a2a
IST097I DISPLAY ACCEPTED
IST075I NAME = LN1A2A, TYPE = LINE
IST486I STATUS= NEVAC, DESIRED STATE= INACT
```

```
IST087I TYPE = SWITCHED DIAL-INOUT, CONTROL = SDLC, HPDT = *NA*
IST936I ANSWER MODE = RESET
IST134I GROUP = GP1A2A, MAJOR NODE = XCA1A
IST1500I STATE TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST1657I MAJOR NODE VTAMTOPO = REPORT
IST314I END
```

Displaying XCF TRLE:

```
d net,id=istt1q2q,e
IST097I DISPLAY ACCEPTED
IST075I NAME = ISTT1Q2Q, TYPE = TRLE
IST1954I TRL MAJOR NODE = ISTTRL
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = LEASED             , CONTROL = XCF , HPDT = *NA*
IST1715I MPCLEVEL = HPDT       MPCUSAGE = SHARE
IST1717I ULPID = ISTP1Q2Q ULP INTERFACE = *NA*
IST1503I XCF TOKEN = 0200001900120002     STATUS = ACTIVE
IST1502I ADJACENT CP = NETA.SSCP2A
IST1500I STATE TRACE = OFF
IST314I END
```

Displaying TCP TRLE:

```
d net,id=iutx0aa0
IST097I DISPLAY ACCEPTED
IST075I NAME = IUTX0AA0, TYPE = TRLE
IST1954I TRL MAJOR NODE = ISTTRL
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = LEASED             , CONTROL = TCP , HPDT = *NA*
IST1717I ULPID = TCPCS ULP INTERFACE = *NA*
IST1221I READ  DEV = 0AA0 STATUS = ACTIVE     STATE = N/A
IST1221I WRITE DEV = 0AA1 STATUS = ACTIVE     STATE = N/A
IST1500I STATE TRACE = OFF
IST314I END
```

Displaying internal shared memory (ISM) TRLE:

```
d net,id=iut00011
IST097I DISPLAY ACCEPTED
IST075I NAME = IUT00011, TYPE = TRLE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = *NA*               , CONTROL = ISM, HPDT = *NA*
IST1954I TRL MAJOR NODE = ISTTRL
IST2418I SMCD PFID = 0011  VCHID = 0140  PNETID = ZOSNET
IST2417I VFN = 0001
IST924I -------------------------------------------------------------
IST1717I ULPID = TCPIP2 ULP INTERFACE = EZAISM02
IST1724I I/O TRACE = OFF  TRACE LENGTH = *NA*
IST1500I STATE TRACE = OFF
IST314I END
```

Displaying a 10GbE RoCE Express TRLE in a dedicated RoCE environment:

```
d net,id=iut10005
IST097I DISPLAY ACCEPTED
IST075I NAME = IUT10005, TYPE = TRLE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = *NA*               , CONTROL = ROCE, HPDT = *NA*
IST1954I TRL MAJOR NODE = ISTTRL
IST2361I SMCR PFID = 0005  PCHID = 0500  PNETID = NETWORK3
IST2362I PORTNUM = 1  RNIC CODE LEVEL = 2.10.4750
IST2389I PFIP = 01000300
IST924I -------------------------------------------------------------
IST1717I ULPID = TCPIP1 ULP INTERFACE = EZARIUT10005
IST1724I I/O TRACE = OFF  TRACE LENGTH = *NA*
IST1500I STATE TRACE = OFF
```

```
IST1866I TRLE = IUT10005   INOPDUMP = ON
IST924I -------------------------------------------------
IST1717I ULPID = TCPIP2 ULP INTERFACE = EZARIUT10005
IST1724I I/O TRACE = OFF  TRACE LENGTH = *NA*
IST1500I STATE TRACE = OFF
IST1866I TRLE = IUT10005   INOPDUMP = ON
IST314I END
```

Displaying a 10GbE RoCE Express TRLE in a shared RoCE environment:

```
d net,id=iut10011
IST097I DISPLAY ACCEPTED
IST075I NAME = IUT10011, TYPE = TRLE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = *NA*               , CONTROL = ROCE, HPDT = *NA*
IST1954I TRL MAJOR NODE = ISTTRL
IST2361I SMCR PFID = 0011  PCHID = 0140  PNETID = PNETID1
IST2362I PORTNUM = 1  RNIC CODE LEVEL = **NA**
IST2389I PFIP = 01000300
IST2417I VFN = 0001
IST924I -------------------------------------------------------------
IST1717I ULPID = TCPIP2 ULP INTERFACE = EZARIUT10011
IST1724I I/O TRACE = OFF  TRACE LENGTH = *NA*
IST1500I STATE TRACE = OFF
IST314I END
```

Displaying a switched major node:

```
d net,id=swxca1a,e
IST097I DISPLAY ACCEPTED
IST075I NAME = SWXCA1A, TYPE = SW SNA MAJ NODE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST084I NETWORK RESOURCES:
IST089I SW1A2A   TYPE = PU_T2            , CONCT
IST089I SW1A7B   TYPE = PU_T2            , CONCT
IST089I SW1A9C   TYPE = PU_T2            , CONCT
IST089I SW1AAA   TYPE = PU_T2            , CONCT
IST089I SW1ABA   TYPE = PU_T2            , CONCT
IST089I SW1ACA   TYPE = PU_T2            , CONCT
IST089I SW1ADA   TYPE = PU_T2            , CONCT
IST089I SW1AEA   TYPE = PU_T2            , CONCT
IST1500I STATE TRACE = OFF
IST314I END
```

Displaying a switched PU in this switched major node:

```
d net,id=sw1a2a
IST097I DISPLAY ACCEPTED
IST075I NAME = SW1A2A, TYPE = PU_T2
IST486I STATUS= CONCT, DESIRED STATE= CONCT
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = YES - FINAL USE = NOT FINAL
IST136I SWITCHED SNA MAJOR NODE = SWXCA1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST1656I VTAMTOPO = NOREPORT, NODE REPORTED - YES
IST1657I MAJOR NODE VTAMTOPO = INCLUDE
IST314I END
```

Displaying a cross-subarea SDLC link:

```
d net,id=a04c08,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A04C08, TYPE = LINE
IST486I STATUS= NEVAC      , DESIRED STATE= INACT
IST087I TYPE = LEASED             , CONTROL = SDLC, HPDT = *NA*
```

```
IST134I GROUP = A04XCA0,  MAJOR NODE = A0462ZC
IST396I LNKSTA    STATUS     CTG GTG ADJNODE  ADJSA  NETID  ADJLS
IST397I A04P08A   NEVAC        1   1             0
IST314I END
```

Displaying a cross-subarea channel link:

```
d net,id=012-l,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = 012-L, TYPE = LINE
IST486I STATUS= ACTIV----I , DESIRED STATE = ACTIV
IST087I TYPE = LEASED             , CONTROL = NCP , HPDT = *NA*
IST134I GROUP = ISTGROUP, MAJOR NODE = A99MPU
IST396I LNKSTA    STATUS     CTG GTG ADJNODE  ADJSA  NETID  ADJLS
IST397I 012-S     ACTIV----I   1   1 A03N43A      3
IST314I END
```

Displaying a cross-subarea channel link station:

```
d net,id=012-s,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = 012-S, TYPE = LINK STATION
IST486I STATUS= ACTIV----I , DESIRED STATE = ACTIV
IST081I LINE NAME = 012-L, LINE GROUP = ISTGROUP, MAJNOD = A99MPU
IST396I LNKSTA    STATUS     CTG GTG ADJNODE  ADJSA  NETID  ADJLS
IST397I 012-S     ACTIV----I   1   1 A03N43A      3
IST610I                           LINE 012-L    - STATUS ACTIV----I
IST314I END
```

Displaying a cross-subarea SDLC link station:

```
d net,id=a03p644,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A03P644, TYPE = LINK STATION
IST486I STATUS= NEVAC      , DESIRED STATE = INACT
IST081I LINE NAME = A03IN64, LINE GROUP = A03MPRI, MAJNOD = A03N43A
IST396I LNKSTA    STATUS     CTG GTG ADJNODE  ADJSA  NETID  ADJLS
IST397I A03P644   NEVAC        2   2             0
IST610I                           LINE A03IN64  - STATUS NEVAC
IST314I END
```

Displaying a cross-subarea XCA link station with ALLOWACT=YES coded:

```
d net,id=pu1a12,e
IST097I DISPLAY ACCEPTED
IST075I NAME = PU1A12, TYPE = LINK STATION
IST486I STATUS= ACTIV--W-E, DESIRED STATE= ACTIV
IST081I LINE NAME = LN1A12, LINE GROUP = GP1AS, MAJNOD = XCA1A
IST1500I STATE TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST1657I MAJOR NODE VTAMTOPO = REPORT
IST396I LNKSTA   STATUS     CTG GTG  ADJNODE ADJSA    NETID    ADJLS
IST397I PU1A12   ACTIV--W-E   1   1    NCP12    12     NETA   PU121A
IST610I                           LINE LN1A12   - STATUS ACTIV----E
IST314I END
```

Displaying a physical unit:

```
d net,id=a03p011,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A03P011, TYPE = PU_T2.1
IST486I STATUS= ACTIV      , DESIRED STATE = ACTIV
IST2238I DISCNT = NO - FINAL USE = *NA*
IST081I LINE NAME = A03IN01, LINE GROUP = A03MPRI, MAJNOD = A03N43A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST355I LOGICAL UNITS:
IST080I A03L011A NEVAC      A03L011B NEVAC      A03L011C NEVAC
IST080I A03L011D NEVAC      A03L011E NEVAC      A03L011F NEVAC
```

```
IST080I A03L011G NEVAC      A03L011H NEVAC      A03L011I NEVAC
IST080I A03L011J NEVAC      A03L011K NEVAC      A03L011L NEVAC
IST080I A03L011M NEVAC      A03L011N NEVAC      A03L011O NEVAC
IST314I END
```

Displaying a physical unit with APPN host-to-host connectivity:

```
d net,id=ahhcpu1
IST097I DISPLAY ACCEPTED
IST075I NAME = AHHCPU1, TYPE = PU_T2.1
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = YES - FINAL USE = FINAL
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I AHHCPU1  AC/R    21 YES   988D000000000000000014C00808080
IST1482I HPR = RTP - OVERRIDE = N/A - CONNECTION = YES
IST1510I LLERP = REQUIRED - RECEIVED = REQUIRED
IST136I LOCAL SNA MAJOR NODE = LSAHHC1
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST1314I TRLE = TRLE1A    STATUS = ACTIV       CONTROL = MPC
IST314I END
```

Displaying a physical unit with DLUR support:

```
d net,id=aa1pua,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = AA1PUA, TYPE = PU_T2
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST1043I CP NAME = ***NA***, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = NO
IST2238I DISCNT = YES - FINAL USE = NOT FINAL
IST1354I DLUR NAME = NNCPA1             MAJNODE = SWDLR1A
IST136I SWITCHED SNA MAJOR NODE = SWDLR1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST355I LOGICAL UNITS:
IST080I AA1LUA1  ACT/S      AA1LUA2  ACTIV      AA1LUA3  ACTIV
IST080I AA1LUA4  ACTIV
IST314I END
```

Displaying a Rapid Transport Protocol (RTP) physical unit:

```
d net,id=cnr00004
IST097I DISPLAY ACCEPTED
IST075I NAME = CNR00004, TYPE = PU_T2.1
IST486I STATUS= ACTIV--LX-, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = DELAY - FINAL USE = FINAL
IST1392I DISCNTIM = 00010 DEFINED AT PU FOR DISCONNECT
IST2178I RPNCB ADDRESS = 126FCA18
IST1963I APPNCOS = #INTER - PRIORITY = HIGH
IST1476I TCID X'1239C4D900000014' - REMOTE TCID X'1239D9D700000016'
IST1481I DESTINATION CP NETA.SSCP2A - NCE X'D0000000000000000'
IST1587I ORIGIN NCE X'D0000000000000000'
IST1966I ACTIVATED AS ACTIVE ON 05/30/03 AT 09:40:30
IST2237I CNR00004 CURRENTLY REPRESENTS A LIMITED RESOURCE
IST1477I ALLOWED DATA FLOW RATE = 355 KBITS/SEC
IST1516I INITIAL DATA FLOW RATE = 1600 KBITS/SEC
IST1841I ACTUAL DATA FLOW RATE = 85 KBITS/SEC
IST1511I MAXIMUM NETWORK LAYER PACKET SIZE = 16410 BYTES
IST1478I NUMBER OF UNACKNOWLEDGED BUFFERS = 0
IST1479I RTP CONNECTION STATE = CONNECTED - MNPS = NO
IST1959I DATA FLOW STATE: NORMAL
IST1855I NUMBER OF SESSIONS USING RTP = 372
IST1697I RTP PACING ALGORITHM = ARB RESPONSIVE MODE
IST1480I RTP END TO END ROUTE - RSCV PATH
```

```
IST1460I TGN  CPNAME             TG TYPE      HPR
IST1461I  21  NETA.SSCP2A        APPN         RTP
IST875I ALSNAME TOWARDS RTP = AHHCPU1
IST1738I ANR LABEL               TP           ER NUMBER
IST1739I 8001000A00000000        *NA*         *NA*
IST231I RTP MAJOR NODE = ISTRTPMN
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = ON, OPTION = PU
IST314I END
```

Tip: The REMOTE TCID shown on message IST1476I can be used to correlate a local RTP PU name to the RTP PU name used by the remote (VTAM) partner RTP node (shown on the IST1481I message) to represent the same RTP connection. To determine the RTP PU name used by the remote (VTAM) partner RTP node, first issue the above command on the local node and remember the REMOTE TCID value from the IST1476I message. Then issue the DISPLAY RTPS,TCID=tcid command on the remote (VTAM) partner RTP node using the REMOTE TCID value from the prior display.

Displaying a Rapid Transport Protocol (RTP) physical unit with additional diagnostic information:

```
D NET,ID=CNR00004,HPRDIAG=YES
IST097I DISPLAY ACCEPTED
IST075I NAME = CNR00004, TYPE = PU_T2.1
IST486I STATUS= ACTIV--LX-, DESIRED STATE= ACTIV
IST2244I HPRDIAG DISPLAY ISSUED ON 10/14/08 AT 09:42:17
IST1043I CP NAME = SSCP2A - CP NETID = NETA - DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = DELAY - FINAL USE = FINAL
IST1392I DISCNTIM = 00010 DEFINED AT PU FOR DISCONNECT
IST231I RTP MAJOR NODE = ISTRTPMN
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST2178I RPNCB ADDRESS 06639018
IST1963I APPNCOS = #INTER - PRIORITY = HIGH
IST1476I TCID X'246F137A0001000E' - REMOTE TCID X'246F178B0001000E'
IST1481I DESTINATION CP NETA.SSCP2A - NCE X'D000000000000000'
IST1587I ORIGIN NCE X'D000000000000000'
IST1966I ACTIVATED AS ACTIVE ON 10/14/08 AT 09:34:22
IST1479I RTP CONNECTION STATE = CONNECTED - MNPS = NO
IST1959I DATA FLOW STATE = NORMAL
IST1855I NUMBER OF SESSIONS USING RTP = 10
IST1480I RTP END TO END ROUTE - RSCV PATH
IST1460I TGN  CPNAME             TG TYPE      HPR
IST1461I  21  NETA.SSCP2A        APPN         RTP
IST875I ALSNAME TOWARDS RTP = AHHCPU1
IST1738I ANR LABEL               TP           ER NUMBER
IST1739I 8001000A00000000        *NA*         *NA*
IST924I -------------------------------------------------------------
IST1968I ARB INFORMATION:
IST1844I ARB MODE = GREEN
IST1697I RTP PACING ALGORITHM = ARB RESPONSIVE MODE
IST1477I ALLOWED DATA FLOW RATE = 1600 KBITS/SEC
IST1516I INITIAL DATA FLOW RATE = 1600 KBITS/SEC
IST1841I ACTUAL DATA FLOW RATE = 146 KBITS/SEC
IST1969I MAXIMUM ACTUAL DATA FLOW RATE = 164 KBITS/SEC
IST1862I ARB MAXIMUM SEND RATE = 32 MBITS/SEC
IST1846I CURRENT RECEIVER THRESHOLD = 36850 MICROSECONDS
IST1846I MAXIMUM RECEIVER THRESHOLD = 37000 MICROSECONDS
IST1846I MINIMUM RECEIVER THRESHOLD = 17000 MICROSECONDS
IST1970I RATE REDUCTIONS DUE TO RETRANSMISSIONS = 0
IST924I -------------------------------------------------------------
IST1971I TIMER INFORMATION:
IST1852I LIVENESS TIMER = 180 SECONDS
```

```
IST1851I SMOOTHED ROUND TRIP TIME = 9 MILLISECONDS
IST1972I SHORT REQUEST TIMER = 250 MILLISECONDS
IST2229I REFIFO TIMER = 68 MILLISECONDS
IST924I -------------------------------------------------------------
IST1973I OUTBOUND TRANSMISSION INFORMATION:
IST1974I NUMBER OF NLPS SENT = 173104 ( 173K )
IST1975I TOTAL BYTES SENT = 16055969 ( 16M )
IST1849I LARGEST NLP SENT = 140 BYTES
IST1980I SEQUENCE NUMBER = 8265162 (X'007E1DCA')
IST1842I NUMBER OF NLPS RETRANSMITTED = 0
IST2249I NLP RETRANSMIT RATE = 0.0000%
IST1976I BYTES RETRANSMITTED = 0 ( 0K )
IST1478I NUMBER OF UNACKNOWLEDGED BUFFERS = 1
IST1958I NUMBER OF ORPHANED BUFFERS = 0
IST1843I NUMBER OF NLPS ON WAITING-TO-SEND QUEUE = 0
IST1847I NUMBER OF NLPS ON WAITING-FOR-ACKNOWLEDGEMENT QUEUE = 1
IST2268I NUMBER OF BYTES ON WAITING-FOR-ACK QUEUE = 15
IST1977I MAXIMUM NUMBER OF NLPS ON WAITING-FOR-ACK QUEUE = 19
IST2269I MAXIMUM NUMBER OF BYTES ON WAITING-FOR-ACK QUEUE = 879
IST1978I WAITING-FOR-ACK QUEUE MAX REACHED ON 10/14/08 AT 09:34:22
IST2085I NUMBER OF NLPS ON OUTBOUND WORK QUEUE = 0
IST2086I MAXIMUM NUMBER OF NLPS ON OUTBOUND WORK QUEUE = 20
IST2087I OUTBOUND WORK QUEUE MAX REACHED ON 10/14/08 AT 09:34:22
IST1511I MAXIMUM NETWORK LAYER PACKET SIZE = 16410 BYTES
IST924I -------------------------------------------------------------
IST1979I INBOUND TRANSMISSION INFORMATION:
IST2059I NUMBER OF NLPS RECEIVED = 184391 ( 184K )
IST1981I TOTAL BYTES RECEIVED = 16696275 ( 16M )
IST1850I LARGEST NLP RECEIVED = 104 BYTES
IST1980I SEQUENCE NUMBER = 8480224 (X'008165E0')
IST1853I NUMBER OF NLPS ON OUT-OF-SEQUENCE QUEUE = 0
IST2230I MAXIMUM NUMBER OF NLPS ON OUT-OF-SEQUENCE QUEUE = 0
IST1854I NUMBER OF NLPS ON INBOUND SEGMENTS QUEUE = 0
IST1982I NUMBER OF NLPS ON INBOUND WORK QUEUE = 0
IST1983I MAXIMUM NUMBER OF NLPS ON INBOUND WORK QUEUE = 27
IST924I -------------------------------------------------------------
IST1984I PATH SWITCH INFORMATION:
IST2271I PATH SWITCH DELAY = 0
IST1856I LAST PATH SWITCH OCCURRENCE WAS ON 10/14/08 AT 09:34:59
IST1937I PATH SWITCH REASON: INITIATED BY REMOTE PARTNER
IST1985I PATH SWITCHES INITIATED FROM REMOTE RTP = 1
IST1986I PATH SWITCHES INITIATED FROM LOCAL RTP = 0
IST1987I PATH SWITCHES DUE TO LOCAL FAILURE = 0
IST1988I PATH SWITCHES DUE TO LOCAL PSRETRY = 0
IST924I -------------------------------------------------------------
IST1857I BACKPRESSURE REASON COUNTS:
IST1858I PATHSWITCH  SEND QUEUE MAX  STORAGE FAILURE  STALLED PIPE
IST2205I ----------  --------------  ---------------  ------------
IST1859I      0             0                0              0
IST2211I ACK QUEUE MAX
IST2205I -------------
IST2212I      0
IST924I -------------------------------------------------------------
IST2250I ALL DIAGNOSTIC COUNTERS CLEARED ON 10/14/08 AT 09:34:22
IST314I END
```

Displaying a Rapid Transport Protocol (RTP) physical unit with the diagnostic information and clearing the diagnostic counters:

```
D NET,ID=CNR00004,HPRDIAG=YES,CLEAR=ALL
IST097I DISPLAY ACCEPTED
IST075I NAME = CNR00004, TYPE = PU_T2.1
IST486I STATUS= ACTIV--LX-, DESIRED STATE= ACTIV
IST2244I HPRDIAG DISPLAY ISSUED ON 10/14/08 AT 09:43:53
IST1043I CP NAME = SSCP2A - CP NETID = NETA - DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = DELAY - FINAL USE = FINAL
```

```
IST1392I DISCNTIM = 00010 DEFINED AT PU FOR DISCONNECT
IST231I RTP MAJOR NODE = ISTRTPMN
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST2178I RPNCB ADDRESS 06639018
IST1963I APPNCOS = #INTER - PRIORITY = HIGH
IST1476I TCID X'246F137A0001000E' - REMOTE TCID X'246F178B0001000E'
IST1481I DESTINATION CP NETA.SSCP2A - NCE X'D000000000000000'
IST1587I ORIGIN NCE X'D000000000000000'
IST1966I ACTIVATED AS ACTIVE ON 10/14/08 AT 09:34:21
IST1479I RTP CONNECTION STATE = CONNECTED - MNPS = NO
IST1959I DATA FLOW STATE = NORMAL
IST1855I NUMBER OF SESSIONS USING RTP = 10
IST1480I RTP END TO END ROUTE - RSCV PATH
IST1460I TGN  CPNAME             TG TYPE      HPR
IST1461I  21  NETA.SSCP2A        APPN         RTP
IST875I ALSNAME TOWARDS RTP = AHHCPU1
IST1738I ANR LABEL               TP           ER NUMBER
IST1739I 8001000A00000000        *NA*         *NA*
IST924I -------------------------------------------------------------
IST1968I ARB INFORMATION:
IST1844I ARB MODE = GREEN
IST1697I RTP PACING ALGORITHM = ARB RESPONSIVE MODE
IST1477I ALLOWED DATA FLOW RATE = 1600 KBITS/SEC
IST1516I INITIAL DATA FLOW RATE = 1600 KBITS/SEC
IST1841I ACTUAL DATA FLOW RATE = 148 KBITS/SEC
IST1969I MAXIMUM ACTUAL DATA FLOW RATE = 164 KBITS/SEC
IST1862I ARB MAXIMUM SEND RATE = 32 MBITS/SEC
IST1846I CURRENT RECEIVER THRESHOLD = 36850 MICROSECONDS
IST1846I MAXIMUM RECEIVER THRESHOLD = 37000 MICROSECONDS
IST1846I MINIMUM RECEIVER THRESHOLD = 17000 MICROSECONDS
IST1970I RATE REDUCTIONS DUE TO RETRANSMISSIONS = 0
IST924I -------------------------------------------------------------
IST1971I TIMER INFORMATION:
IST1852I LIVENESS TIMER = 180 SECONDS
IST1851I SMOOTHED ROUND TRIP TIME = 9 MILLISECONDS
IST1972I SHORT REQUEST TIMER = 250 MILLISECONDS
IST2229I REFIFO TIMER = 68 MILLISECONDS
IST924I -------------------------------------------------------------
IST1973I OUTBOUND TRANSMISSION INFORMATION:
IST1974I NUMBER OF NLPS SENT = 210394 ( 210K )
IST1975I TOTAL BYTES SENT = 19553353 ( 19M )
IST1849I LARGEST NLP SENT = 140 BYTES
IST1980I SEQUENCE NUMBER = 10044954 (X'0099461A')
IST1842I NUMBER OF NLPS RETRANSMITTED = 0
IST2249I NLP RETRANSMIT RATE = 0.0000%
IST1976I BYTES RETRANSMITTED = 0 ( 0K )
IST1478I NUMBER OF UNACKNOWLEDGED BUFFERS = 1
IST1958I NUMBER OF ORPHANED BUFFERS = 0
IST1843I NUMBER OF NLPS ON WAITING-TO-SEND QUEUE = 0
IST1847I NUMBER OF NLPS ON WAITING-FOR-ACKNOWLEDGEMENT QUEUE = 1
IST2268I NUMBER OF BYTES ON WAITING-FOR-ACK QUEUE = 15
IST1977I MAXIMUM NUMBER OF NLPS ON WAITING-FOR-ACK QUEUE = 19
IST2269I MAXIMUM NUMBER OF BYTES ON WAITING-FOR-ACK QUEUE = 879
IST1978I WAITING-FOR-ACK QUEUE MAX REACHED ON 10/14/08 AT 09:34:21
IST2085I NUMBER OF NLPS ON OUTBOUND WORK QUEUE = 0
IST2086I MAXIMUM NUMBER OF NLPS ON OUTBOUND WORK QUEUE = 20
IST2087I OUTBOUND WORK QUEUE MAX REACHED ON 10/14/08 AT 09:34:21
IST1511I MAXIMUM NETWORK LAYER PACKET SIZE = 16410 BYTES
IST924I -------------------------------------------------------------
IST1979I INBOUND TRANSMISSION INFORMATION:
IST2059I NUMBER OF NLPS RECEIVED = 224100 ( 224K )
IST1981I TOTAL BYTES RECEIVED = 20319156 ( 20M )
IST1850I LARGEST NLP RECEIVED = 104 BYTES
IST1980I SEQUENCE NUMBER = 10306550 (X'009D43F6')
IST1853I NUMBER OF NLPS ON OUT-OF-SEQUENCE QUEUE = 0
IST2230I MAXIMUM NUMBER OF NLPS ON OUT-OF-SEQUENCE QUEUE = 0
```

```
IST1854I NUMBER OF NLPS ON INBOUND SEGMENTS QUEUE = 0
IST1982I NUMBER OF NLPS ON INBOUND WORK QUEUE = 0
IST1983I MAXIMUM NUMBER OF NLPS ON INBOUND WORK QUEUE = 27
IST924I -------------------------------------------------------------
IST1984I PATH SWITCH INFORMATION:
IST2271I PATH SWITCH DELAY = 0
IST1856I LAST PATH SWITCH OCCURRENCE WAS ON 10/14/08 AT 09:34:59
IST1937I PATH SWITCH REASON: INITIATED BY REMOTE PARTNER
IST1985I PATH SWITCHES INITIATED FROM REMOTE RTP = 1
IST1986I PATH SWITCHES INITIATED FROM LOCAL RTP = 0
IST1987I PATH SWITCHES DUE TO LOCAL FAILURE = 0
IST1988I PATH SWITCHES DUE TO LOCAL PSRETRY = 0
IST924I -------------------------------------------------------------
IST1857I BACKPRESSURE REASON COUNTS:
IST1858I PATHSWITCH  SEND QUEUE MAX  STORAGE FAILURE  STALLED PIPE
IST2205I ----------  --------------  ---------------  ------------
IST1859I      0             0                0              0
IST2211I ACK QUEUE MAX
IST2205I -------------
IST2212I      0
IST924I -------------------------------------------------------------
IST2250I ALL DIAGNOSTIC COUNTERS CLEARED ON 10/14/08 AT 09:34:21
IST2248I ALL DIAGNOSTIC COUNTERS CLEARED FOR 1 RTP PIPES
IST314I END
```

Displaying an HPR-capable PU:

```
d net,id=ahhcpu1
IST097I DISPLAY ACCEPTED
IST075I NAME = AHHCPU1, TYPE = PU_T2.1
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = YES - FINAL USE = NOT FINAL
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I AHHCPU1  AC/R    21 YES   988D000000000000000014C00808080
IST1482I HPR = RTP - OVERRIDE = N/A - CONNECTION = YES
IST1510I LLERP = REQUIRED - RECEIVED = REQUIRED
IST136I LOCAL SNA MAJOR NODE = LSAHHC1
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST1314I TRLE = TRLE1A    STATUS = ACTIV       CONTROL = MPC
IST314I END
```

Displaying a switched link station:

```
d net,id=swpux2a1,e
IST097I DISPLAY ACCEPTED
IST075I NAME = SWPUX2A1, TYPE = PU_T2.1
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = DELAY - FINAL USE = NOT FINAL
IST1392I DISCNTIM = 00010 DEFINED AT PU FOR DISCONNECT
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I SWPUX2A1 AC/R    22 YES   982D000000000000000017100808080
IST1482I HPR = NONE - OVERRIDE = N/A - CONNECTION = NO
IST136I SWITCHED SNA MAJOR NODE = SWND3AB8
IST081I LINE NAME = LN3AXN11, LINE GROUP = GP3AXN10, MAJNOD = NCP3AB8
IST1068I PHYSICAL RESOURCE (PHYSRSC) = P3AXN10
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST1656I VTAMTOPO = NOREPORT, NODE REPORTED - YES
IST1657I MAJOR NODE VTAMTOPO = INCLUDE
IST172I NO LOGICAL UNITS EXIST
IST314I END
```

Displaying a switched PU type 2:

```
d net,id=a04p501,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A04P501, TYPE = PU_T2
IST486I STATUS= CONCT      , DESIRED STATE = CONCT
IST2238I DISCNT = YES - FINAL USE = NOT FINAL
IST136I SWITCHED SNA MAJOR NODE = A04SG1
IST1934I  IDBLK = 002   IDNUM = 02345
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST1657I MAJOR NODE VTAMTOPO = INCLUDE
IST355I LOGICAL UNITS:
IST080I A04L501A CONCT      A04L501B CONCT      A04L501C CONCT
IST080I A04L501D CONCT      A04L501E CONCT      A04L501F CONCT
IST080I A04L501G CONCT      A04L501H CONCT      A04L501I CONCT
IST080I A04L501J CONCT      A04L501K CONCT      A04L501L CONCT
IST080I A04L501M CONCT      A04L501N CONCT      A04L501O CONCT
IST314I END
```

Displaying a switched PU type 2.1 (LAN capable):

```
D NET,ID=SOE10302,scope=all
IST097I DISPLAY  ACCEPTED
IST075I NAME = SOE10302         , TYPE = PU_T2.1
IST486I STATUS= ACTIV--LX-, DESIRED STATE= ACTIV
IST1058I MODEL LU GROUP = LUGR    , LUSEED =
IST1043I CP NAME = SOE10301, CP NETID = GBSOEL00, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = NO - FINAL USE = *NA*
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I SOE10302 AC/R    21 YES   98750000000000000000014C00808080
IST1482I HPR = NONE - OVERRIDE = N/A - CONNECTION = NO
IST956I PU   SAP=  4 MAC=000524E10156 MAXDATA= 1437
IST1935I RIF = 0AB000011910100210050
IST136I SWITCHED SNA MAJOR NODE = ISTDSWMN
IST081I LINE NAME = L530217D, LINE GROUP = G5302   , MAJNOD = SOE53F02
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST1656I VTAMTOPO = REPORT  , NODE REPORTED - YES
IST1657I MAJOR NODE VTAMTOPO = REPORT
IST355I LOGICAL UNITS:
IST080I SOE1030I ACTIV---X- SOE1030J ACTIV---X- SOE1030K ACTIV---X-
IST314I END
```

Displaying a switched PU type 2.1 (AS/400):

```
d net,id=a04p882,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A04P882, TYPE = PU_T2.1
IST486I STATUS= ACTIV--L-- , DESIRED STATE= ACTIV
IST1043I CP NAME = A04P882A, CP NETID = NETY, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = NO - FINAL USE = *NA*
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I A04P882  AC/R    21 YES   802D000000000000000017100000000
IST136I SWITCHED SNA MAJOR NODE = A04SMNC
IST081I LINE NAME = J000401B, LINE GROUP = A04BLG1, MAJNOD = A0462ZC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST355I LOGICAL UNITS:
IST080I A04I8823 ACT/S      A04I8822 ACT/S      A04P882A ACT/S----Y
IST080I A04I8821 ACT/S
IST314I END
```

Displaying a local SNA physical unit:

```
d net,id=pua,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = PUA, TYPE = PU_T2
IST486I STATUS = ACTIV      , DESIRED STATE= ACTIV
IST2238I DISCNT = YES - FINAL USE = FINAL
IST136I LOCAL    SNA MAJOR NODE = A50LSNA
IST077I SIO = *NA*  CUA = 0770
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST355I LOGICAL UNITS:
IST080I LSNALU1  ACTIV      LSNALU2  ACTIV      LSNALU3  ACTIV
IST080I LSNALU4  ACTIV
IST314I END
```

Displaying a dynamic XCF local SNA physical unit:

```
d net,id=istp0001,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = ISTP0001, TYPE = PU_T2.1
IST486I STATUS= ACTIV--LX-, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = NO - FINAL USE = *NA*
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I ISTP0001 AC/R    21 YES   988D000000000000000000014C0080808
IST1482I HPR = NONE - OVERRIDE = N/A - CONNECTION = NO
IST136I LOCAL SNA MAJOR NODE = ISTLSXCF
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST1314I TRLE = ISTT0001  STATUS = ACTIV----E  CONTROL = XCF
IST355I LOGICAL UNITS:
IST080I SSCP2A   ACT/S----Y
IST314I END
```

Displaying a dynamic XCF local SNA physical unit, specifying the control point name:

```
d net,id=sscp2a,idtype=xcfcp
IST097I DISPLAY ACCEPTED
IST075I NAME = ISTP0001, TYPE = PU_T2.1
IST486I STATUS= ACTIV--LX-, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = YES - FINAL USE = NOT FINAL
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I ISTP0001 AC/R    21 YES   988D000000000000000000014C00808080
IST1482I HPR = NONE - OVERRIDE = N/A - CONNECTION = NO
IST136I LOCAL SNA MAJOR NODE = ISTLSXCF
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST1314I TRLE = ISTT0001  STATUS = ACTIV----E  CONTROL = XCF
IST314I END
```

Displaying a logical unit under an NCP:

```
d net,id=a04dxxx1,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.A04DXXX1, TYPE = LOGICAL UNIT
IST486I STATUS= NEVAC----T , DESIRED STATE= INACT
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU INHIBITED,SLU INHIBITED,SESSION LIMIT 00000001
IST081I LINE NAME = A04VXX, LINE GROUP = A04XNPAX, MAJNOD = A0462ZC
IST135I PHYSICAL UNIT = A04NXXX
IST082I DEVTYPE = LU
```

```
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST172I NO SESSIONS EXIST
IST314I END
```

Displaying a switched logical unit:

```
d net,id=a31d0711,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = A31D0711, TYPE = LOGICAL UNIT
IST486I STATUS= NEVAC      , DESIRED STATE= INACT
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=CRYPTLOG USSTAB=AUSSTAB LOGTAB=INTERP
IST934I DLOGMOD=REQENCRP USS LANGTAB=***NA***
IST597I CAPABILITY-PLU INHIBITED,SLU INHIBITED,SESSION LIMIT 00000001
IST136I SWITCHED SNA MAJOR NODE = SMNDDNN
IST135I PHYSICAL UNIT = A31P021
IST082I DEVTYPE = LU
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1936I LOCADDR = 003
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST172I NO SESSIONS EXIST
IST314I END
```

Displaying a local SNA logical unit:

```
d net,id=lsnalu1,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.LSNALU1, TYPE = LOGICAL UNIT
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=AMODETAB USSTAB=AUSSTAB LOGTAB=***NA***
IST934I DLOGMOD=D4A32782 USS LANGTAB=***NA***
IST597I CAPABILITY-PLU INHIBITED,SLU INHIBITED,SESSION LIMIT 00000001
IST136I LOCAL    SNA MAJOR NODE = A50LSNA
IST135I PHYSICAL UNIT = PUA , CUA = 0770
IST082I DEVTYPE = LU
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1936I LOCADDR = 003
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST172I NO SESSIONS EXIST
IST314I END
```

Displaying a local non-SNA logical unit:

```
d net,id=a50a721,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.A50A721, TYPE = LOGICAL UNIT
IST486I STATUS= ACT/S      , DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=AMODETAB USSTAB=AUSSTAB LOGTAB=INTERP
IST934I DLOGMOD=M23270I  USS LANGTAB=***NA***
IST597I CAPABILITY-PLU INHIBITED,SLU ENABLED  ,SESSION LIMIT 00000001
IST351I LOCAL 3270 MAJOR NODE = A50LOCAL
IST077I SIO = 00010 CUA = 0721
IST1131I DEVICE = LU
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000001
IST206I SESSIONS:
IST634I NAME     STATUS         SID          SEND RECV VR TP NETID
IST635I ECHOC1C  ACTIV-P    D73BC0750F6AE8F3 0000 0001  0  0 NETC
IST635I ECHO50B  PREALC-P   ECC39EEE2AA3BC6E                 NETA
IST314I END
```

Displaying a native ATM permanent virtual channel (PVC):

```
d net,id=lnp1a2a1,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = LNP1A2A1, TYPE = LINE
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST087I TYPE = LEASED             , CONTROL = SDLC, HPDT = *NA*
IST1554I PVCNAME = PV11211
IST134I GROUP = GPP1A1, MAJOR NODE = XCAOSA1A
IST1500I STATE TRACE = OFF
IST084I NETWORK RESOURCES:
IST089I PP1A2A1  TYPE = PU_T2.1          , ACTIV
IST314I END
```

Displaying a remote node connected through a native ATM PVC:

```
d net,id=pp1a2a1,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = PP1A2A1, TYPE = PU_T2.1
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = NO - FINAL USE = *NA*
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I PP1A2A1  AC/R    21 YES   182D0000000000000000017100808080
IST1482I HPR = RTP - OVERRIDE = N/A - CONNECTION = YES
IST1510I LLERP = REQUIRED - RECEIVED = REQUIRED
IST1555I VPCI/VCI = 010100
IST081I LINE NAME = LNP1A2A1, LINE GROUP = GPP1A1, MAJNOD = XCAOSA1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST172I NO LOGICAL UNITS EXIST
IST314I END
```

Displaying a remote node connected through a native ATM switched virtual channel (SVC):

```
d net,id=sw1a2a,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = SW1A2A, TYPE = PU_T2.1
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = NO - FINAL USE = *NA*
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I SW1A2A   AC/R    22 YES   182D0000000000000000017100808080
IST1482I HPR = RTP - OVERRIDE = N/A - CONNECTION = YES
IST1510I LLERP = REQUIRED - RECEIVED = REQUIRED
IST1559I ATM ADDRESS                                    TYPE      FORMAT
IST1553I 11111111111111111111111111111111111111100    LOCAL     NSAP
IST1553I 21111111111111111111111111111111111111110    REMOTE    NSAP
IST1555I VPCI/VCI = 010200
IST136I SWITCHED SNA MAJOR NODE = SWXCA1A
IST081I LINE NAME = LN1A2A, LINE GROUP = GP1A2A, MAJNOD = XCAOSA1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST1656I VTAMTOPO = NOREPORT, NODE REPORTED - YES
IST1657I MAJOR NODE VTAMTOPO = INCLUDE
IST355I LOGICAL UNITS:
IST080I SW1A2AL  NEVAC
IST314I END
```

Displaying a remote node connected through Enterprise Extender when the connection uses IPv4 addresses without host names:

```
d net,id=sw1a2a,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = SW1A2A, TYPE = PU_T2.1
```

```
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = NO - FINAL USE = *NA*
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I SW1A2A AC/R 22 YES 182D0000000000000000017100808080
IST1482I HPR = RTP - OVERRIDE = N/A - CONNECTION = YES
IST1510I LLERP = REQUIRED - RECEIVED = REQUIRED
IST1680I LOCAL IP ADDRESS 9.18.100.2
IST1680I REMOTE IP ADDRESS 223.254.254.1
IST2114I LIVTIME:    INITIAL = 10   MAXIMUM =  0   CURRENT = 10
IST136I SWITCHED SNA MAJOR NODE = SWXCA1
IST081I LINE NAME = LN1A2A, LINE GROUP = GP1A2A, MAJNOD = XCAHPR1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST355I LOCAL UNITS:
IST080I SW1A2AL NEVAC
IST314I END
```

Displaying a remote node connected through Enterprise Extender when the connection uses IPv6 addresses:

```
d net,id=sw1a26a,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = SW1A26A, TYPE = PU_T2.1
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = NO - FINAL USE = *NA*
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I SW1A26A AC/R 22 YES 182D0000000000000000017100808080
IST1482I HPR = RTP - OVERRIDE = N/A - CONNECTION = YES
IST1510I LLERP = REQUIRED - RECEIVED = REQUIRED
IST1680I LOCAL IP ADDRESS 3FFE::9.18.100.2
IST1910I LOCAL HOSTNAME LOCALHOST.DOMAIN.COM
IST1680I REMOTE IP ADDRESS 3FFC:1001:1002:3451:7223:2254:4254:4441
IST1909I REMOTE HOSTNAME REMOTEHOST.DOMAIN.COM
IST2114I LIVTIME:    INITIAL = 10   MAXIMUM =  0   CURRENT = 10
IST136I SWITCHED SNA MAJOR NODE = SWXCA1
IST081I LINE NAME = LN1A26A, LINE GROUP = GP1A26A,MAJNOD = XCAHPR1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST355I LOCAL UNITS:
IST080I SW1A2A6L NEVAC
IST314I END
```

Displaying a remote node connected through Enterprise Extender when the connection uses IPv4 addresses:

```
d net,id=sw1a26b,scope=all
IST097I DISPLAY ACCEPTED
IST075I NAME = SW1A26B, TYPE = PU_T2.1
IST486I STATUS= ACTIV, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A, CP NETID = NETA, DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = NO - FINAL USE = *NA*
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I SW1A26B AC/R 22 YES 182D0000000000000000017100808080
IST1482I HPR = RTP - OVERRIDE = N/A - CONNECTION = YES
IST1510I LLERP = REQUIRED - RECEIVED = REQUIRED
IST1680I LOCAL IP ADDRESS 9.18.100.2
IST1910I LOCAL HOSTNAME LOCALHOST2.DOMAIN.COM
IST1680I REMOTE IP ADDRESS 09.26.130.4
IST2114I LIVTIME:    INITIAL = 10   MAXIMUM =  0   CURRENT = 10
IST136I SWITCHED SNA MAJOR NODE = SWXCA1
IST081I LINE NAME = LN1A26B, LINE GROUP = GP1A26B, MAJNOD = XCAHPR1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
```

```
IST1500I STATE TRACE = OFF
IST355I LOCAL UNITS:
IST080I SW1A2B6L NEVAC
IST314I END
```

Displaying a dynamic Enterprise Extender PU:

```
d net,id=e2000018
IST097I DISPLAY ACCEPTED
IST075I NAME = E2000018, TYPE = PU_T2.1
IST486I STATUS= ACTIV---X-, DESIRED STATE= ACTIV
IST1043I CP NAME = SSCP2A - CP NETID = NETA - DYNAMIC LU = YES
IST1589I XNETALS = YES
IST2238I DISCNT = NO - FINAL USE = *NA*
IST1105I RESOURCE STATUS TGN CP-CP TG CHARACTERISTICS
IST1106I E2000018 AC/R     5 YES   98750000000000000000017100808080
IST1482I HPR = RTP - OVERRIDE = N/A - CONNECTION = YES
IST1510I LLERP = NOTPREF - RECEIVED = NOTALLOW
IST1680I LOCAL IP ADDRESS 9.67.1.1
IST1910I LOCAL HOSTNAME VIPA14.SSCP1A
IST1680I REMOTE IP ADDRESS 9.67.1.2
IST2114I LIVTIME:    INITIAL =   10   MAXIMUM =    0   CURRENT =   10
IST136I SWITCHED SNA MAJOR NODE = ISTDSWMN
IST081I LINE NAME = LNEE2000, LINE GROUP = GPEE2, MAJNOD = XCAEE2
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST1656I VTAMTOPO = REPORT, NODE REPORTED - YES
IST1657I MAJOR NODE VTAMTOPO = REPORT
IST314I END
```

Displaying a resource name that is known in several networks:

```
d net,id=*.applb12,max=3
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.APPLB12, TYPE = APPL
IST486I STATUS= CONCT      , DESIRED STATE= CONCT
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1938I APPC = NO
IST597I CAPABILITY-PLU INHIBITED,SLU INHIBITED,SESSION LIMIT NONE
IST231I APPL  MAJOR NODE = APPL1A
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST271I JOBNAME = ***NA***, STEPNAME = ***NA***, DSPNAME = ***NA***
IST228I ENCRYPTION = OPTIONAL, TYPE = DES
IST1563I CKEYNAME = APPLB12 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST924I -------------------------------------------------------------
IST075I NAME = NETB.APPLB12, TYPE = CDRSC
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1632I VPACING = 7
IST1938I APPC = NO
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = CDRSC1A
IST479I CDRM NAME = SSCP7B  , VERIFY OWNER = NO
IST1131I DEVICE = CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = APPLB12 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
```

```
IST924I -------------------------------------------------------------
IST075I NAME = NETC.APPLB12, TYPE = CDRSC
IST486I STATUS= ACTIV      , DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = CDSERVR
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I CDRSC MAJOR NODE = CDRSC1A
IST479I CDRM NAME = SSCP9C  , VERIFY OWNER = NO
IST1131I DEVICE = CDRSC
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST228I ENCRYPTION = NONE, TYPE = DES
IST1563I CKEYNAME = APPLB12 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST171I ACTIVE SESSIONS = 0000000000, SESSION REQUESTS = 0000000000
IST314I END
```

Displaying a generic resource:

```
d net,id=GRAPPL,idtype=generic
IST097I DISPLAY ACCEPTED
IST075I NAME = GRAPPL, TYPE = GENERIC RESOURCE
IST1359I MEMBER NAME        OWNING CP   SELECTABLE  APPC
IST1360I NETA.NETAPPL1      SSCP2A         YES       NO
IST1360I NETA.APPL1         SSCP1A         NO        NO
IST1360I NETA.APPLAA1       SSCPAA         DEL       NO
IST2210I GR PREFERENCE TABLE ENTRY = **NAMELESS**
IST2202I GREXIT   = YES      WLM      = YES      LOCLU  = YES
IST2204I LOCAPPL  = YES      PASSOLU  = YES
IST1393I GENERIC RESOURCE NAME RESOLUTION EXIT IS ISTEXCGR
IST314I END
```

Displaying an IP address in dotted decimal format when there is only one TN3270 client connected at this IP address:

```
d net,idtype=ipaddr,ID=9.67.113.58
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.TCPM1001, TYPE = APPL
IST486I STATUS= ACT/S, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = CDSERVR
IST599I REAL NAME = NETA.TCPM1001
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=ISTINCLM USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1632I VPACING =  7
IST1938 APPC = YES
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT 00000001
IST231I APPL MAJOR NODE = TCPAPPLS
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST271I JOBNAME = TCPCS, STEPNAME = TCPCS, DSPNAME = ISTD629B
IST228I ENCRYPTION = OPTIONAL, TYPE = DES
IST1563I CKEYNAME = TCPM1001 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST1633I ASRCVLM = 1000000
IST1634I DATA SPACE USAGE: CURRENT = 0 MAXIMUM = 0
IST1669I IPADDR..PORT 9.67.113.58..1029
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000000
IST314I END
```

Displaying an IP address in colon-hexadecimal format when there is only one TN3270 client connected at this IPv6 address.

```
d net,id=2001:0DB8::9:67:115:17,idtype=ipaddr
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.TCPM2013, TYPE = DYNAMIC APPL
IST486I STATUS= ACT/S, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = CDSERVR
IST599I REAL NAME = NETA.TCPM2013
IST1629I MODSRCH = NEVER
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=ISTINCLM USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1632I VPACING =  7
IST1938I APPC = YES
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT 00000001
IST231I APPL MAJOR NODE = TCPAPPLS
IST1425I DEFINED USING MODEL TCPM*
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST271I JOBNAME = TCPCS, STEPNAME = TCPCS, DSPNAME = ISTF27CE
IST228I ENCRYPTION = OPTIONAL , TYPE = DES
IST1563I CKEYNAME = TCPM2013 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST1633I ASRCVLM = 1000000
IST1634I DATA SPACE USAGE: CURRENT = 0 MAXIMUM = 0
IST1669I IPADDR..PORT 2001:0DB8::9:67:115:17..1027
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000000
IST314I END
```

Displaying a resource with TN3270 characteristics.

```
d net,id=tcpm2013
IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.TCPM2013, TYPE = DYNAMIC APPL
IST486I STATUS= ACT/S, DESIRED STATE= ACTIV
IST1447I REGISTRATION TYPE = CDSERVR
IST1629I MODSRCH = NEVER
IST977I MDLTAB=***NA*** ASLTAB=***NA***
IST861I MODETAB=ISTINCLM USSTAB=***NA*** LOGTAB=***NA***
IST934I DLOGMOD=***NA*** USS LANGTAB=***NA***
IST1632I VPACING =  7
IST1938I APPC = YES
IST597I CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT 00000001
IST231I APPL MAJOR NODE = TCPAPPLS
IST1425I DEFINED USING MODEL TCPM*
IST654I I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I STATE TRACE = OFF
IST271I JOBNAME = TCPCS, STEPNAME = TCPCS, DSPNAME = ISTF27CE
IST228I ENCRYPTION = OPTIONAL , TYPE = DES
IST1563I CKEYNAME = TCPM2013 CKEY = PRIMARY CERTIFY = NO
IST1552I MAC = NONE MACTYPE = NONE
IST1050I MAXIMUM COMPRESSION LEVEL - INPUT = 0, OUTPUT = 0
IST1633I ASRCVLM = 1000000
IST1634I DATA SPACE USAGE: CURRENT = 0 MAXIMUM = 0
IST1669I IPADDR..PORT 2001:0DB8::9:67:115:17..1027
IST171I ACTIVE SESSIONS = 0000000001, SESSION REQUESTS = 0000000000
IST314I END
```

Displaying an IP address with multiple TN3270 client connections.

```
d net,id=2001:0DB8::9:67:115:17,idtype=ipaddr

IST097I DISPLAY ACCEPTED
IST1912I IP ADDRESS 2001:0DB8::9:67:115:17 102
IST1913I LUNAME            PORT
IST1914I NETA.TCPM2013     1027
IST1914I NETA.TCPM2012     1026
IST314I END
```

Displaying a TSO user ID when the SLU is a Telnet client:

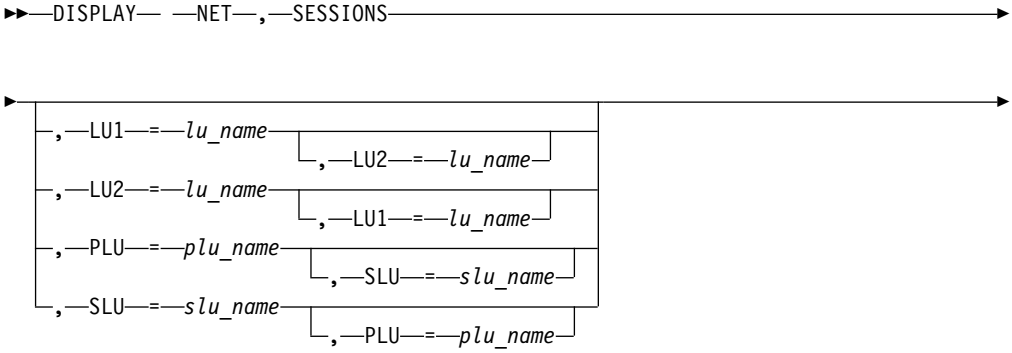
```
d net,tsouser,id=user1
IST097I DISPLAY ACCEPTED
IST075I NAME = USER1, TYPE = TSO USERID
IST486I STATUS= ACTIV, DESIRED STATE= N/A
IST576I TSO TRACE = OFF
IST262I ACBNAME = TSO0003, STATUS = ACT/S
IST262I LUNAME = TCPM1002, STATUS = ACT/S
IST1669I IPADDR..PORT 2001:0DB8::9:67:115:17..1026
IST2203I CHARACTER SET 0065 CODE PAGE 0025
IST314I END
```

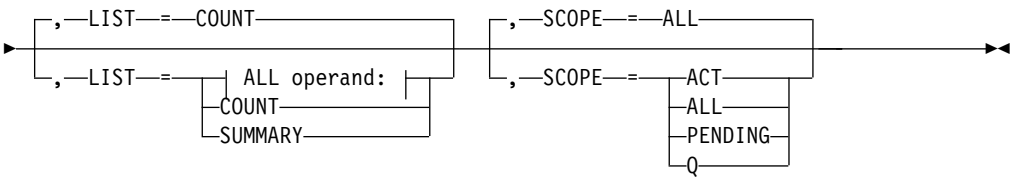
Displaying a DLUR CDRSC:

```
d net,id=NNP7
IST075I  NAME = D7NET.NNP7       , TYPE = ADJACENT CP
IST486I  STATUS= ACT/S----Y, DESIRED STATE= ACTIV
IST1402I      SRTIMER = 30           SRCOUNT = 100
IST1447I  REGISTRATION TYPE = NO
IST977I  MDLTAB=***NA*** ASLTAB=***NA***
IST1333I  ADJLIST = ***NA***
IST861I  MODETAB=***NA*** USSTAB=***NA*** LOGTAB=***NA***
IST934I  DLOGMOD=CPSVCMG  USS LANGTAB=***NA***
IST597I  CAPABILITY-PLU ENABLED  ,SLU ENABLED  ,SESSION LIMIT NONE
IST231I  CDRSC    MAJOR NODE = ISTCDRDY
IST1184I  CPNAME = D7NET.NNP7        - NETSRVR = ***NA***
IST1044I  ALSLIST = ISTAPNPU
IST1131I  DEVICE = ILU/CDRSC
IST654I  I/O TRACE = OFF, BUFFER TRACE = OFF
IST1500I  STATE TRACE = OFF
IST171I  ACTIVE SESSIONS = 0000000003, SESSION REQUESTS = 0000000000
IST206I  SESSIONS:
IST1081I  ADJACENT LINK STATION = PBB7N10
IST634I  NAME     STATUS         SID          SEND RECV VR TP NETID
IST635I  CDRMD730 ACTIV/CP-P F8B7DBABF0AB700C 0001 015D  0  0 D7NET
IST1355I  PHYSICAL UNITS SUPPORTED BY DLUR D7NET.NNP7
IST089I  D779AP1  TYPE = PU_T2            , PAPU2
IST924I  ------------------------------------------------------------
IST075I        NAME=D7NET.NNP7       ,TYPE=DIRECTORY ENTRY
IST1186I      DIRECTORY ENTRY = DYNAMIC  NN
IST1184I      CPNAME = D7NET.NNP7           -NETSRVR = ***NNA***
IST1402I       SRTIMER = 30           SRCOUNT = 100
IST134I        END
```

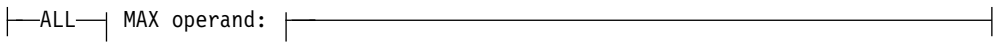
DISPLAY SESSIONS command

Display all sessions:

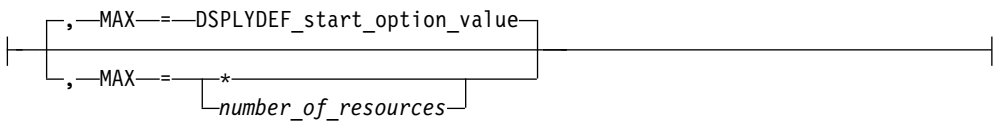




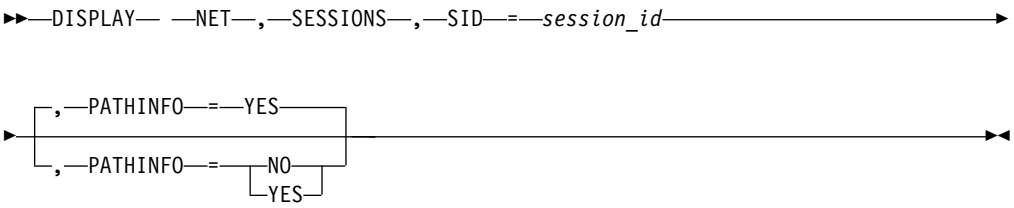
ALL operand:



MAX operand:



Display a specific session:



Abbreviations

Operand	Abbreviation
DISPLAY	D
PATHINFO=YES	PATH
SCOPE=ACT	ACT or A
SCOPE=ALL	EVERY or E
SCOPE=PENDING	SCOPE=PEND or PEND
SESSIONS	SESSION

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

Purpose

The DISPLAY SESSIONS command displays LU-LU session status information. The command can display status information for:

- A single session identified by its session identifier
- All sessions in which a specified logical unit is the primary session partner
- All sessions in which a specified logical unit is the secondary session partner

- All sessions in which a pair of logical units have a specified primary/secondary relationship as session partners
- All sessions in which a specified logical unit is a session partner (without regard to its primary or secondary status)
- All sessions between a pair of logical units regardless of their primary/secondary relationship as session partners
- All sessions known to VTAM, limited with the SCOPE operand to all pending sessions, all queued sessions, or all active sessions

Note:

1. To display sessions between specified logical units, one of the session partners must be in the host VTAM network.
2. If you issue the DISPLAY SESSIONS command at a network node server that is not an interchange node, control point, or SSCP for either session partner, this command might show duplicate information for some sessions. This might occur briefly during BIND processing in a normal session setup or it might indicate a hung session. If subsequent displays continue to show duplicate information for the same session, the session might be hung.

Operands

LIST
Specifies the level of detail to display.

LIST=ALL
Displays all session status information for sessions with the status specified in the SCOPE operand. If SCOPE=ALL, the display includes active, pending, and queued sessions.

LIST=COUNT
Displays only the total number of sessions with the status specified in the SCOPE operand. If SCOPE=ALL, the number includes all sessions, regardless of whether they are active, pending, or queued.

LIST=SUMMARY
Displays the total number of sessions with the status specified in the SCOPE operand (same as LIST=COUNT), plus the actual session state codes for pending and queued sessions. For a description of possible session initiation and termination states, see z/OS Communications Server: SNA Messages.

LU1=lu_name
Identifies the logical unit for which sessions are displayed. *lu_name* can be specified as a network-qualified name. If you also specify the LU2 operand, the command displays only sessions involving both named logical units.

If *lu_name* is a generic resource name, VTAM will display session status information for all members known by that generic name.

LU2=lu_name
Identifies the logical unit for which sessions are displayed. *lu_name* can be specified as a network-qualified name. If you also specify the LU1 operand, the command displays only sessions involving both named logical units.

If *lu_name* is a generic resource name, VTAM will display session status information for all members known by that generic name.

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

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

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

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

PATHINFO
Specifies whether path information is displayed.

PATHINFO=NO
Specifies that no path information is to be displayed.

PATHINFO=YES
Displays the following information for each hop in the session path known to this node:

- The TG number
- The partner CP name
- The TG type
- The level of HPR support provided by this node for this TG; the value displayed depends on the HPR start option value and the HPR operand value on the corresponding PU definition (which can be used to override the HPR start option)

The preceding information is displayed in addition to the information currently being displayed.

Additional information such as RSCV and/or HPR path RSCV information is reported to z/OS by a DLUR node.

PLU=plu_name
Identifies the logical unit that is the primary session partner. *plu_name* can be specified as a network-qualified name. If you specify the PLU operand, the command displays only sessions in which this logical unit is the primary session partner. If you also specify the SLU operand, the command displays only sessions involving both named logical units in the specified primary/secondary relationship.

If *plu_name* is a generic resource name, VTAM will display session status information for all members known by that generic name.

SCOPE
Specifies the status of the sessions to display. See z/OS Communications Server: SNA Messages for a description of the initiation states “queued”, “pending active”, and “active” for each session status. You cannot use this operand with the SID operand.

SCOPE=ACT
Displays only active sessions.

SCOPE=ALL
Displays all sessions, whether active, pending, or queued.

SCOPE=PENDING
Displays only pending sessions. A pending state is:

- A transient state to or from a fully active state.
- A state of "recovery pending" or "recovery in progress" for sessions that have been retained because of the failure or takeover of an application enabled for persistence.

  Note: In either situation, the state of the half-session as seen by the PLU is the status reported for the session. Because of this, you must enter the DISPLAY command on the system that contains the application.

SCOPE=Q
Displays only queued sessions.

SID=session_id
Identifies the VTAM LU-LU session to display. To display the session identifier named in this operand, issue either the DISPLAY SESSIONS,SCOPE=ALL command or a DISPLAY ID=*resource name*,SCOPE=ALL command. The session ID is identified by SID on the display and is 16 characters long.

If you specify the SID operand, you cannot specify SCOPE or LIST on the same command.

SLU=slu_name
Identifies the logical unit that is the secondary session partner. *slu_name* can be specified as a network-qualified name. If you specify the SLU operand, the command displays only sessions in which this logical unit is the secondary session partner. If you also specify the PLU operand, the command displays only sessions involving both named logical units in the specified primary/secondary relationship.

If *slu_name* is a generic resource name, VTAM will display session status information for all members known by that generic name.

Resulting display

The resulting display shows:

- For LIST=COUNT:
  - The number of sessions with the status specified in the SCOPE operand, optionally limited by LU1, LU2, PLU, or SLU.
  - A summary of active SSCP sessions, showing the number of SSCP-LU sessions, the number of SSCP-PU sessions, and the number of SSCP-SSCP sessions. This includes both active and pending sessions. These counts of SSCP sessions are not included in the number of total sessions (message IST878I). This summary of active SSCP sessions does not appear if the display has been limited by the LU1, LU2, PLU, or SLU operands, or if SCOPE excludes active sessions.
- For LIST=SUMMARY:
  - The number of sessions with the status specified in the SCOPE operand, optionally limited by LU1, LU2, PLU, or SLU.

  - For queued and pending sessions, the number of sessions with each status code.
  - For active sessions, the number of LU-LU sessions, the number of CP-CP contention winner sessions, and the number of CP-CP contention loser sessions.
  - A summary of active SSCP sessions, showing the number of SSCP-LU sessions, the number of SSCP-PU sessions, and the number of SSCP-SSCP sessions. This includes both active and pending sessions. These counts of SSCP sessions are not included in the number of total sessions (message IST878I). This summary of active SSCP sessions does not appear if the display has been limited by the LU1, LU2, PLU, or SLU operands, or if SCOPE excludes active sessions.
- For LIST=ALL:
  - The names of the resources in the sessions.
  - Each session's identifier.
  - Each session's status code.
  - The number of sessions with the status specified in the SCOPE operand, optionally limited by LU1, LU2, PLU, or SLU.
  - For queued and pending sessions, the number of sessions with each status code.

    Note: If the value of the MAX operand is exceeded, *count* displays 10 asterisks (**********).
  - For active sessions, the number of LU-LU sessions, the number of CP-CP or CPSVRMGR contention winner sessions, and the number of CP-CP or CPSVRMGR contention loser sessions.

    Note: If the value of the MAX operand is exceeded, *count* for the LU-LU sessions displays 10 asterisks (**********).
  - A summary of active SSCP sessions, showing the number of SSCP-LU sessions, the number of SSCP-PU sessions, and the number of SSCP-SSCP sessions. This includes both active and pending sessions. These counts of SSCP sessions are not included in the number of total sessions (message IST878I). This summary of active SSCP sessions does not appear if the display has been limited by the LU1, LU2, PLU, or SLU operands, or if SCOPE excludes active sessions.
- For SID:
  - The real and alias (if available) names of the primary session partner.
  - The real and alias (if available) names of the secondary session partner.
  - The session status.
  - The adjacent SSCP toward the PLU or SLU, if cross-domain (if available).
  - The rapid transport protocol (RTP) physical unit as the ALSNAME toward the PLU or SLU, if the session is using high performance routing (HPR).
  - The gateway NCP toward the PLU or SLU, if cross-network (if available).
  - The signals needed to complete a session, if the session is pending session setup or takedown.
  - The Class of Service table entry and logon mode entry used.
  - The APPN Class of Service toward the PLU or SLU, (if available).
  - Compression information, if compression is being used on the session in either the PLU-to-SLU or the SLU-to-PLU direction.

- The compression-level values (0–4) in use for input and output messages
- The percentage of reduction in length for input and output messages
- The indicator "NA" (not applicable) if there has been no message traffic or if compression is not being used on either the inbound or outbound half-session.

If compression is not being used in either direction, this information is not displayed.

– If the command is issued on the application owning host, DSMONITR status and RU size information are displayed.
– Path information for each hop in the session known to this node.

Examples

Displaying a specific session:

```
d net,sessions,sid=eaabeec3e5a79ccb
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST879I PLU/OLU REAL = NETA.APPL2        ALIAS = ***NA***
IST879I SLU/DLU REAL = NETA.APPL1        ALIAS = ***NA***
IST880I SETUP STATUS = ACTIV
IST933I LOGMODE=INTERACT, COS=*BLANK*
IST1635I PLU HSCB TYPE: FMCB LOCATED AT ADDRESS X'0155F5B8'
IST1635I SLU HSCB TYPE: FMCB LOCATED AT ADDRESS X'0155F720'
IST2436I DSMONITR = NO
IST2064I PLU TO SLU RU SIZE = 65535    SLU TO PLU RU SIZE = 65535
IST1636I PACING STAGE(S) AND VALUES:
IST1637I PLU--STAGE 1--SLU
IST1638I STAGE1: PRIMARY TO SECONDARY DIRECTION - ADAPTIVE
IST1639I         PRIMARY SEND: CURRENT   =     7     NEXT =     8
IST1640I         SECONDARY RECEIVE       = 32767
IST1641I STAGE1: SECONDARY TO PRIMARY DIRECTION - ADAPTIVE
IST1642I         SECONDARY SEND: CURRENT =     7     NEXT =     8
IST1643I         PRIMARY RECEIVE         = 32767
IST314I END
```

Displaying all sessions:

```
d net,sessions,scope=all,list=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST873I        PLU               SLU              SID        STATUS
IST874I NETA.SSCP1A       NETA.ENCPA4       EAABEEC3297ED9FC ACTIV/DL
IST874I NETB.SSCP7B       NETA.SSCP1A       C2BB19BC57AD196C ACTIV/CP
IST874I NETA.SSCP1A       NETB.SSCP7B       EAABEEC3297ED9FA ACTIV/CP
IST874I NETA.SSCP2A       NETA.SSCP1A       F6ABEEC32C7EDA76 ACTIV/CP
IST874I NETA.SSCP1A       NETA.SSCP2A       EAABEEC3297ED9F8 ACTIV/CP
IST874I NETA.ENCPA4       NETA.SSCP1A       E2C5E2E2D6D50013 ACTIV/DL
IST924I -------------------------------------------------------------
IST878I NUMBER OF PENDING SESSIONS =          0
IST924I -------------------------------------------------------------
IST878I NUMBER OF ACTIVE  SESSIONS =          6
IST1162I    LU-LU                  =          2
IST1162I    CP-CP CONWINNER        =          2
IST1162I    CP-CP CONLOSER         =          2
IST924I -------------------------------------------------------------
IST878I NUMBER OF QUEUED  SESSIONS =          0
IST924I -------------------------------------------------------------
IST878I NUMBER OF TOTAL   SESSIONS =          6
IST924I -------------------------------------------------------------
IST1161I SSCP SESSIONS
```

```
IST1162I    SSCP-LU                =          6
IST1162I    SSCP-PU                =          4
IST1162I    SSCP-SSCP              =          0
IST314I END
```

Displaying sessions, limiting output to six sessions:

```
d net,sessions,list=all,max=6
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST873I        PLU               SLU              SID        STATUS
IST874I NETA.MECHZ1A      NETA.ECHOZHA      D9F389C8E5517F35 ACTIV/MI
IST874I NETA.MECHZ1A      NETA.ECHOZHA      D9F389C8E5517F38 ACTIV/MI
IST874I NETA.ECHOZIA      NETA.ECHOZHA      E7F38956127BB9F6 ACTIV
IST874I NETA.ECHOZIA      NETA.ECHOZHA      E7F38956127BB9F4 ACTIV
IST874I NETA.MECHZIA      NETA.ECHOZHA      E7F38956127BB9F3 ACTIV/M
IST874I NETA.MECHZIA      NETA.ECHOZHA      E7F38956127BB9F1 ACTIV/M
IST1315I DISPLAY TRUNCATED AT MAX = 6
IST924I -------------------------------------------------------------
IST878I NUMBER OF PENDING SESSIONS = **********
IST924I -------------------------------------------------------------
IST878I NUMBER OF ACTIVE  SESSIONS = **********
IST1162I    LU-LU                  = **********
IST1162I    CP-CP CONWINNER        =          1
IST1162I    CP-CP CONLOSER         =          1
IST924I -------------------------------------------------------------
IST878I NUMBER OF QUEUED  SESSIONS = **********
IST924I -------------------------------------------------------------
IST878I NUMBER OF TOTAL   SESSIONS = **********
IST924I -------------------------------------------------------------
IST1161I SSCP SESSIONS
IST1162I    SSCP-LU                =         25
IST1162I    SSCP-PU                =          1
IST1162I    SSCP-SSCP              =          0
IST314I END
```

Displaying a summary of all sessions:

```
d net,sessions,scope=all,list=summary
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST924I -------------------------------------------------------------
IST878I NUMBER OF PENDING SESSIONS =          0
IST924I -------------------------------------------------------------
IST878I NUMBER OF ACTIVE  SESSIONS =          4
IST1162I    LU-LU                  =          2
IST1162I    CP-CP CONWINNER        =          1
IST1162I    CP-CP CONLOSER         =          1
IST924I -------------------------------------------------------------
IST878I NUMBER OF QUEUED  SESSIONS =          0
IST924I -------------------------------------------------------------
IST878I NUMBER OF TOTAL   SESSIONS =          4
IST924I -------------------------------------------------------------
IST1161I SSCP SESSIONS
IST1162I    SSCP-LU                =         10
IST1162I    SSCP-PU                =          4
IST1162I    SSCP-SSCP              =          0
IST314I END
```

Displaying all sessions for a specific LU:

```
d net,sessions,lu1=appl0001,scope=all,list=summary
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST924I -------------------------------------------------------------
IST878I NUMBER OF PENDING SESSIONS =          0
IST924I -------------------------------------------------------------
IST878I NUMBER OF ACTIVE  SESSIONS =          1
```

```
IST924I -------------------------------------------------------------
IST878I NUMBER OF QUEUED  SESSIONS =          0
IST924I -------------------------------------------------------------
IST878I NUMBER OF TOTAL   SESSIONS =          1
IST314I END
```

Displaying active sessions for a specific LU:

```
d net,sessions,lu1=appl1,scope=act,list=count
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST878I NUMBER OF ACTIVE  SESSIONS =          1
IST314I END
```

Displaying pending sessions for a specific LU:

```
d net,sessions,lu1=appl1,scope=pending,list=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST873I        PLU               SLU              SID        STATUS
IST874I NETA.APPL1        NETA.NETAPPL1     EAABEEC3FD825DEA PSEST/B
IST878I NUMBER OF PENDING SESSIONS =          1
IST1237I    PSEST    = 1
IST314I END
```

Displaying queued sessions between two LUs:

```
d net,sessions,lu1=appl1,lu2=appl0001,scope=q,list=count
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST1284I LUALIAS APPL0001 IS NETA.NETAPPL1 FOR APPLICATIONS
IST878I NUMBER OF QUEUED  SESSIONS =          2
IST314I END
```

Displaying a count of active sessions with a USERVAR:

```
d net,sessions,lu1=echo01a,scope=act,list=count
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST113I ECHO01A IS A USERVAR WITH VALUE ECHO01A IN NETWORK NETA
IST1057I NETA.ECHO01A IS ALSO A REAL RESOURCE
IST878I NUMBER OF ACTIVE  SESSIONS =         61
IST314I END
```

Displaying a generic resource name for LU1:

```
d net,sessions,lu1=cics,list=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST1364I CICS IS A GENERIC RESOURCE NAME FOR:
IST1154I NETA.CICS1        NETA.CICS2        NETA.CICS3
IST924I -------------------------------------------------------------
IST873I        PLU               SLU              SID        STATUS
IST874I NETA.CICS1        NETA.APPL1A2      EAABEEC3F8FE476C ACTIV
IST874I NETA.APPL1A1      NETA.CICS2        EAABEEC3F8FE476B ACTIV
IST874I NETA.APPL1A1      NETA.CICS2        EAABEEC3F8FE476A ACTIV
IST874I NETA.CICS3        NETA.APPL1A5      EAABEEC3F8FE4769 ACTIV
IST874I NETA.CICS3        NETA.APPL1A9      EAABEEC3F8FE4768 ACTIV
IST878I NUMBER OF PENDING SESSIONS =          0
IST878I NUMBER OF ACTIVE  SESSIONS =          5
IST878I NUMBER OF QUEUED  SESSIONS =          0
IST878I NUMBER OF TOTAL   SESSIONS =          5
IST314I END
```

Displaying PATHINFO with HPR (including all the types of session/paths):

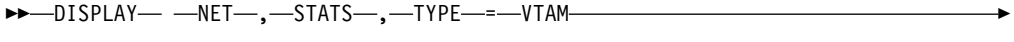
```
d net,sessions,sid=f6abeec39de53b70,pathinfo=yes
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST879I PLU/OLU REAL = NETA.NETAPPL1     ALIAS = ***NA***
IST879I SLU/DLU REAL = NETA.AA2LUA1      ALIAS = ***NA***
IST880I SETUP STATUS = ACTIV
IST875I ADJSSCP TOWARDS PLU = ISTAPNCP
IST875I ALSNAME TOWARDS PLU = CNR00004
IST875I ALSNAME TOWARDS SLU = P3A4956N
IST933I LOGMODE=INTERACT, COS=*BLANK*
IST875I APPNCOS TOWARDS PLU = #INTER
IST875I APPNCOS TOWARDS SLU = #INTER
IST1635I PLU HSCB TYPE: BSB LOCATED AT ADDRESS X'02FF6228'
IST1636I PACING STAGE(S) AND VALUES:
IST1644I PLU--STAGE 1-----|-----STAGE 2--SLU
IST1638I STAGE1: PRIMARY TO SECONDARY DIRECTION - ADAPTIVE
IST1640I         SECONDARY RECEIVE       =     1
IST1641I STAGE1: SECONDARY TO PRIMARY DIRECTION - ADAPTIVE
IST1642I         SECONDARY SEND: CURRENT =     1     NEXT =     1
IST1638I STAGE2: PRIMARY TO SECONDARY DIRECTION - ADAPTIVE
IST1639I         PRIMARY SEND: CURRENT   =     0     NEXT =     1
IST1641I STAGE2: SECONDARY TO PRIMARY DIRECTION - ADAPTIVE
IST1643I         PRIMARY RECEIVE         =    15
IST1710I RSCV FROM PLU SAVED AT SESSION ACTIVATION
IST1460I TGN  CPNAME             TG TYPE      HPR
IST1461I  21  NETA.SSCP1A        APPN         RTP
IST1461I  21  NETA.NNCPA2        APPN         *NA*
IST1713I RTP RSCV IN THE DIRECTION OF THE PLU
IST1460I TGN  CPNAME             TG TYPE      HPR
IST1461I  21  NETA.SSCP2A        APPN         RTP
IST1758I RSCV TOWARDS DLUR SAVED AT SESSION ACTIVATION
IST1460I TGN  CPNAME             TG TYPE      HPR
IST1461I  21  NETA.SSCP1A        APPN         RTP
IST1461I  21  NETA.NNCPA2        APPN         *NA*
IST1759I RTP RSCV FROM THE DIRECTION OF THE DLUR
IST1460I TGN  CPNAME             TG TYPE      HPR
IST1461I  22  NETA.SSCP1A        APPN         RTP
IST1461I  21  NETA.NNCPA2        APPN         *NA*
IST314I END
```

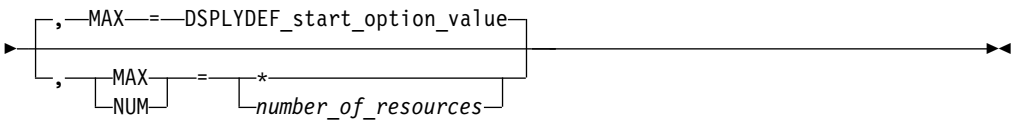
Displaying PATHINFO without HPR:

```
d net,sessions,sid=F6ABEEC350FC32A6,path
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = SESSIONS
IST879I PLU/OLU REAL = NETA.NETAPPL1     ALIAS = ***NA***
IST879I SLU/DLU REAL = NETA.APPLAA1      ALIAS = ***NA***
IST880I SETUP STATUS = ACTIV
IST875I ADJSSCP TOWARDS SLU = ISTAPNCP
IST875I ALSNAME TOWARDS SLU = AHHCPU1
IST933I LOGMODE=INTERACT, COS=*BLANK*
IST875I APPNCOS TOWARDS SLU = #INTER
IST1711I RSCV TOWARDS SLU SAVED AT SESSION ACTIVATION
IST1460I TGN  CPNAME             TG TYPE      HPR
IST1461I  21  NETA.SSCP1A        APPN         *NA*
IST1461I  21  NETA.SSCPAA        APPN         *NA*
IST314I END
```

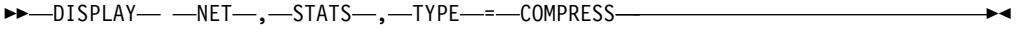
DISPLAY STATS command

Display resource statistics:

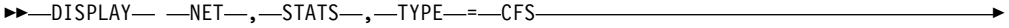


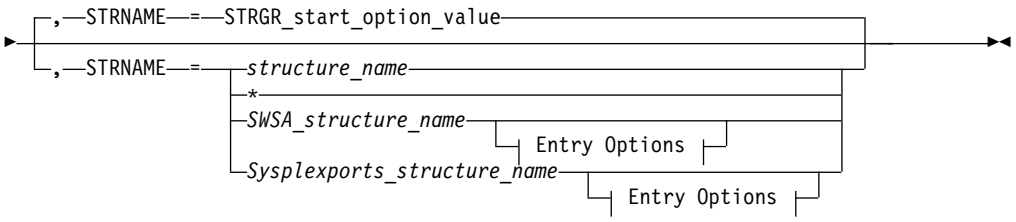


Display data compression statistics:

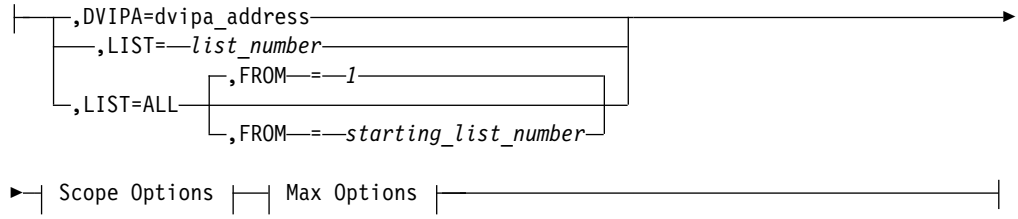


Display coupling facility structure statistics:



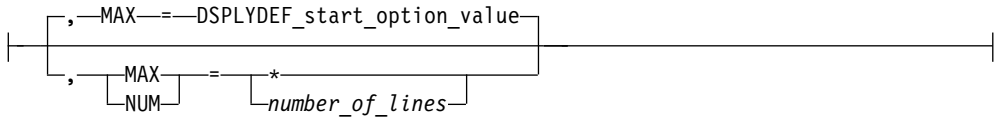


Entry Options:



Scope Options:

Max Options:



Abbreviations

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

Operand	Abbreviation
STRNAME	STRNM

Purpose

The DISPLAY STATS (statistics) command displays information about the network, such as the number of resources of each type, the values of certain start options, the MVS™ coupling facility structure, and data compression.

This information can be used with z/OS Communications Server: New Function Summary to calculate the amount of storage required for VTAM. For information about how to use the host-based storage information in this display, see the z/OS Communications Server: New Function Summary.

Attention: Depending on the size and configuration of your network, issuing this command from the console or from the ISTSTATS program operator might affect system performance. Issuing the DISPLAY STATS command from the console is not recommended.

When issued with the value TYPE=CFS to display the SWSA structure (STRNAME=*SWSA_structure_name*), additional keywords can be specified to display information from the lists and list entries in the SWSA structure.

More specifically, for each claimed list, the output will display:

- The list number
- The DVIPA address
- The stack name (job name) and system name of the owning TCP stack
- The number of entries in the list
- For a list that is not being used for sequence number tracking, the takeover or giveback count
- For a list that is used for sequence number tracking, the next available sequence number is displayed.

A *claimed list* is one which has been associated with a DVIPA address and assigned an owning TCP stack.

Base your choice on the following conditions. If all claimed lists in the structure are displayed, the sum of the number of entries of all the lists will be one less than the current number of entries shown in message IST1377I. This is because list 0, which is used for structure maintenance, is never displayed.

If you specify . . .	Then . . .
A specific list number, but the list is not claimed	A message specifying LIST *listnumber* IS UNCLAIMED will be displayed.
A specific DVIPA address, but there are no claimed lists associated with that DVIPA	A message specifying NO CLAIMED LIST FOUND FOR THE SPECIFIED DVIPA will be displayed.
LIST=ALL and there are no claimed lists within the range requested	A message specifying NO CLAIMED LISTS FOUND will be displayed.
Requested list entry information (by the way of the SCOPE=ALL keyword)	The list entry key for each entry on the list will be displayed in hexadecimal format.

You can now perform the steps to display a specific claimed list.

When issued with the value TYPE=CFS to display the Sysplexports structure (STRNAME=*Sysplexports_structure_name*), additional keywords can be specified to display information from the lists and list entries in the Sysplexports structure.

More specifically, for each claimed list (that is, a list associated to a DVIPA), the output will display:

- The list number
- The DVIPA address
- The number of assigned ephemeral ports
- For each TCPIP stack associated with the DVIPA, the stack name (job name), system name of that TCP stack, and the number of ephemeral ports assigned to that stack

Base your choice on the following conditions:

If you specify . . .	Then . . .
A specific list number, but the list is not claimed	A message specifying LIST *listnumber* IS UNCLAIMED will be displayed.
A specific DVIPA address, but there are no claimed lists associated with that DVIPA	A message specifying NO CLAIMED LIST FOUND FOR THE SPECIFIED DVIPA will be displayed.
LIST=ALL and there are no claimed lists within the range requested	A message specifying NO CLAIMED LISTS FOUND will be displayed.
Requested list entry information (by the way of the SCOPE=ALL keyword)	The set of ephemeral ports for each TCPIP stack associated with that list will be displayed.

You can now perform the steps to display a specific claimed list.

Operands

DVIPA
Specifies a DVIPA address in dotted decimal format or colon-hexadecimal format. All list headers pertaining to this DVIPA will be displayed.

FROM
Indicates the starting list number at which the search for claimed lists to be displayed begins. Valid only when LIST=ALL is specified.

LIST
Specifies the list number to display. If LIST=ALL is specified, the FROM keyword may be used to indicate where to begin searching for claimed lists.

MAX
Specifies the maximum number of output lines that VTAM displays for this command. The MAX operand is valid only when TYPE=VTAM or TYPE=CFS and STRNAME=*SWSA_structure_name* or STRNAME=*Sysplexports_structure_name* are specified.

Guideline: The value MAX=* might generate an undesirably large display. Do not specify MAX=* until you understand the potential effect of this command on your console.

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

MAX=*number_of_resources*
Specifies the maximum number of statistics to display. The valid range is 1 - value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

MAX=*number_of_lines*
Specifies the maximum number of lines of output to display when displaying information from the structure specified by the *SWSA_structure_name* value or the structure specified by the *Sysplexports_structure_name* value. The valid range is 1 to the value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

NUM
A synonym for the MAX operand.

SCOPE
Specifies the scope of the display. This keyword is valid only when you specify TYPE=CFS, STRNAME=*SWSA_structure_name* or STRNAME=*Sysplexports_structure_name*, and you specify either the DVIPA keyword or the LIST keyword.

SCOPE=ALL
If you specify STRNAME=*SWSA_structure_name*, the information from the list headers and the list entry key for each entry on the list is displayed. If you specify STRNAME=*Sysplexports_structure_name*, the assigned ephemeral ports for each TCP/IP stack are displayed.

SCOPE=ONLY
Displays the information from the list headers only.

STRNAME
Specifies which VTAM or TCP/IP coupling facility structure to display.

STRNAME=*structure_name*
Specifies the name of a VTAM coupling facility structure to display. The structure name can be 1 - 16 characters long. If subplexing is being used (that is, start option XCFGRPID has been specified), the *structure_name* value must include the 2-digit suffix specified on the XCFGRPID start option.

STRNAME=*
Specifies that all VTAM structures are to be displayed.

STRNAME=*SWSA_structure_name*
The *SWSA_structure_name* value has the form EZBDVIPA*vvtt*, where *vv* is the 2-digit VTAM XCF group ID suffix provided on the XCFGRPID start option, and *tt* is the 2-digit TCP/IP XCF group ID suffix provided with the XCFGRPID parameter on the GLOBALCONFIG statement in the TCP/IP profile.

Guidelines:

- If no VTAM XCF group ID suffix was provided, but a TCP/IP XCF group ID was specified, the format of the name is EZBDVIPA01*tt*.
- If no TCP/IP XCF group ID suffix was specified, but a VTAM XCF group ID was specified, the format of the name is EZBDVIPA*vv*.

- If neither XCF group ID is provided, the structure name is EZBDVIPA.

When the structure name explicitly specifies the SWSA structure, you can specify additional keywords to display information from the list headers and list entries within the SWSA structure.

STRNAME=*Sysplexports_structure_name*
The *Sysplexports_structure_name* value has the form EZBEPORT*vvtt*, where *vv* is the 2-digit VTAM XCF group ID suffix provided on the XCFGRPID start option, and *tt* is the 2-digit TCP/IP XCF group ID suffix provided with the XCFGRPID parameter on the GLOBALCONFIG statement in the TCP/IP profile.

Guidelines:

- If no VTAM XCF group ID suffix was provided, but a TCP/IP XCF group ID was specified, the format of the name is EZBEPORT01*tt*.
- If no TCP/IP XCF group ID suffix was specified, but a VTAM XCF group ID was specified, the format of the name is EZBEPORT*vv*.
- If neither XCF group ID is provided, the structure name is EZBEPORT.

When the structure name explicitly specifies the Sysplexports structure, you can specify additional keywords to display information from the list headers and list entries within the Sysplexports structure.

TYPE
Specifies what type of statistical information to display.

TYPE=VTAM
Displays information about the type and number of resources in the network and the values of certain start options.

TYPE=COMPRESS
Displays information about data compression.

TYPE=CFS
Displays attributes for the MVS coupling facility structure.

Resulting display

The resulting display shows:

- For TYPE=VTAM, a function ID for each resource type, the number of resources of each type, and the values of certain start options.
- For TYPE=COMPRESS, the number of half-sessions by active compression level that use data compression on input and output flows.

  Output values for adaptive compression levels are split into BASIC and FROZEN. BASIC indicates the number of half-sessions currently using compression tables in the adaptive mode. FROZEN indicates the number of half-sessions currently using static compression tables.

  Output values for sessions using run-length encoding (RLE) compression levels are also split into BASIC and FROZEN. BASIC indicates the number of half-sessions currently using compression tables in the basic mode. FROZEN does not apply to RLE compression.
- For TYPE=CFS, the attributes for the MVS coupling facility structure identified on the STRNAME operand.

- For TYPE=CFS with STRNAME=*SWSA_structure_name* specified and either DVIPA or LIST specified, information about the contents of the list headers within the SWSA structure, and, if SCOPE=ALL is specified, the list entry keys for each list entry on the list.
- For TYPE=CFS with option STRNAME=*Sysplexports_structure_name* specified:
  - The range of sysplex-wide unique ephemeral ports is displayed, if such a range has been defined using the TCP GLOBALCONFIG EXPLICITBINDPORTRANGE profile statement.
  - If DVIPA is specified, the display shows information about the number of ephemeral ports that are assigned for the specified DVIPA, each TCP/IP stack associated with the DVIPA, and the number of ephemeral ports assigned to each of those stacks.
  - If LIST is specified, the display shows information about the DVIPA address associated with the specified list number, the number of ephemeral ports assigned for that DVIPA, and information about each TCP/IP stack that is associated with that DVIPA. The display also shows the number of ephemeral ports that are assigned to each of those stacks.
  - If LIST=0 is specified, the display shows the number of assigned sysplex-wide unique ephemeral ports that are included in the explicit bind port range (EXPLICITBINDPORTRANGE). The display also shows each TCP/IP stack that is using the explicit bind port range and the number of explicit bind port range ports that are assigned to each of those stacks.
  - If SCOPE=ALL is specified, the set of ephemeral ports that are assigned to each stack is displayed. The ports displayed for the explicit bind port range (list 0) might include ports that are not in the current explicit bind port range if the ports were assigned before when the current explicit bind port range was set.

Examples

Displaying statistical information:

```
d net,stats,type=vtam
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=VTAM
IST1349I COMPONENT ID IS 5695-11701-10A
IST1345I    ID      VALUE        DESCRIPTION
IST1227I   151          0 = DEPENDENT LU TOTAL FOR ISTPUS
IST1227I   151         32 = DEPENDENT LU TOTAL FOR NCP3AB8
IST1227I    11          0 = CHANNEL-TO-CHANNEL ATTACHMENTS
IST1227I    61          0 = SNA DATA COMPRESSION SESSIONS
IST1227I    63         27 = RECOVERABLE SESSIONS
IST1227I    56          1 = TOTAL APPL SESSIONS
IST1227I    58          0 = LU6.2 SESSIONS
IST1227I    60          1 = ICSF ENCRYPTION SERVICES
IST1227I    67         33 = PU STATEMENTS UNDER SW LINES
IST1227I    15          0 = SNA PU TOTAL MAXBFRU
IST1227I    21          0 = ICA DEVICES
IST1227I    51         49 = ACTIVE LU TOTAL
IST1227I    10          0 = TOTAL LINE STATEMENTS FOR XCA MAJOR NODES
IST1227I    14          0 = CA CLUSTER CONTROLLER TOTAL
IST1227I     2        200 = VIT TABLE SIZE
IST1227I    65         70 = NUMBER OF LINES DEFINED
IST1227I     3        256 = IOBUF SIZE
IST1227I    47        511 = MAXIMUM SUBAREA
IST1227I    48         60 = DEFINED PU TOTAL
IST1227I    49          4 = ACTIVE PU TOTAL
IST1227I    16         39 = LOCAL NON-SNA TERMINALS
IST1227I    80         28 = NETWORK INDEPENDENT LU TOTAL
IST1227I    81          0 = DYNAMICALLY DEFINED LU TOTAL
```

```
IST1227I     6         17 = MAXBFRU FOR CHANNEL-ATTACHED CONTROLLERS
IST1227I     8          0 = XCA MAJOR NODES
IST1227I    74          0 = CROSS NETWORK APPL SESSIONS
IST1227I    17          0 = NETVIEW PIU TRACE BUFFER SIZE
IST1227I    18          2 = NETVIEW PIU TRACE BUFFERS
IST1227I    19          0 = NETVIEW SAW BUFFER SIZE
IST1227I    46         28 = INDEPENDENT LU TOTAL
IST1227I    52          0 = ACTIVE DEPENDENT LU TOTAL
IST1227I    66          0 = SWNET STATEMENTS
IST1227I    99        ICN = VTAM CONFIGURATION
IST1227I    70          0 = PATH STATEMENTS
IST1227I    77          0 = SAME DOMAIN LU6.2 SESSIONS
IST1227I    78          0 = SAME NETWORK MULTI-NODE LU6.2 SESSIONS
IST1227I    79          0 = CROSS NETWORK LU6.2 SESSION
IST1227I    50         71 = DEFINED LU TOTAL
IST1227I    57          1 = LU6.2 APPLICATIONS
IST1227I    53          0 = LOCAL LU-LU SESSIONS
IST1227I    55          1 = LU TOTAL TSO SESSIONS
IST1227I    71          0 = APPL - LU SESSIONS
IST1227I    73          0 = SAME NETWORK MULTI-NODE LU SESSIONS
IST1227I     5          2 = CHANNEL-ATTACHED CONTROLLERS
IST1227I    12          0 = TOTAL MAXBFRU FOR CTC ATTACHMENTS
IST1227I    13          0 = CTC TOTAL MAXBFRU CROSS DOMAIN
IST1227I    54          0 = PERSISTENT LU-LU SESSIONS
IST1227I    20          0 = NETVIEW SAW BUFFERS
IST1227I    22          2 = DESTINATION SUBAREAS
IST1227I   101         NO = CENTRAL DIRECTORY SERVER SUPPORT
IST1227I   123          0 = MPC READ BUFFER
IST1227I    64          2 = CURRENT NUMBER OF SESSION PARTNERS
IST1227I   100         13 = DYNAMIC DIRECTORY ENTRIES
IST1227I   102          1 = REGISTERED DIRECTORY ENTRIES
IST1227I   103          0 = SYSTEM DEFINED DIRECTORY ENTRIES
IST1227I   104          0 = ADJACENT END NODES
IST1227I   106          0 = CENTRAL DIRECTORY SERVER
IST1227I   107          0 = ADJACENT NETWORK NODES
IST1227I   108          7 = APPN CLASS OF SERVICE
IST1227I   109          1 = NETWORK NODES IN THE NETWORK
IST1227I   111          0 = CONNECTION NETWORKS
IST1227I   116          0 = INTERMEDIATE ROUTED SESSIONS
IST1227I   119          0 = CROSS NETWORK LU SESSIONS
IST1227I   120          0 = MULTIPATH CHANNEL MAJOR NODES
IST1227I   121         73 = MPC READ SUBCHANNEL ADDRESSES
IST1227I   122         73 = MPC WRITE SUBCHANNEL ADDRESSES
IST1227I   124          0 = MPC WRITE BUFFER
IST1227I   125          1 = APPLICATION SESSIONS
IST1227I   113          0 = PARALLEL SESSION PER LU
IST1227I   112          0 = SAME NETWORK MULTI-NODE APPL SESSIONS
IST1227I   140          0 = MAXIMUM DIRECTORY SIZE
IST1227I   141        100 = MAXIMUM TRS ROUTING TREES
IST1227I   142          0 = END NODE TRANSMISSION GROUPS
IST1227I   143          0 = NETWORK NODE TRANSMISSION GROUPS
IST1227I   144          0 = VIRTUAL NODE TRANSMISSION GROUPS
IST1227I   152          0 = ACTIVE DEPENDENT LU REQUESTERS
IST1227I   153          0 = ACTIVE DLUR SERVED PU TOTAL
IST1227I   154          0 = ACTIVE DLUR SERVED LU TOTAL
IST1227I   155          0 = VR-BASED TRANSMISSION GROUPS
IST1227I   156          0 = CONNECTION NETWORK DYNAMIC TGS
IST1227I   157          1 = TRANSPORT RESOURCE LIST ENTRIES
IST1227I   159          0 = ADJACENT CLUSTER TABLE CPNAME ENTRIES
IST1227I   160          0 = CP-CP SESSIONS
IST1227I   161        170 = HIGHEST ELEMENT ADDRESS ASSIGNED
IST1227I   162        433 = HIGHEST EXTENDED ELEMENT ADDRESS ASSIGNED
IST1227I   164        143 = CURRENT ELEMENT ADDRESS TOTAL
IST1227I   165        371 = CURRENT EXTENDED ELEMENT ADDRESS TOTAL
IST1227I   170          1 = IDS3270 TOTAL SESSIONS MONITORED
IST1227I   171          0 = IDS3270 CURRENT SESSIONS MONITORED
IST1227I   172          0 = IDS3270 SESSIONS MONITORED SINCE ENABLE
```

```
IST1227I   173          0 = IDS3270 TOTAL INCIDENTS FOUND
IST1227I   174          0 = IDS3270 TOTAL SUPPRESSED CONSOLE REPORTS
IST1454I 92 STATISTICS DISPLAYED
IST314I END
```

Displaying statistical information, limiting output to five resources:

```
d net,stats,type=vtam,max=5
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=VTAM
IST1349I COMPONENT ID IS 5695-11701-401
IST1345I    ID      VALUE        DESCRIPTION
IST1227I   151          0 = DEPENDENT LU TOTAL FOR ISTPUS
IST1227I    11          0 = CHANNEL-TO-CHANNEL ATTACHMENTS
IST1227I    61          0 = SNA DATA COMPRESSION SESSIONS
IST1227I    63          2 = RECOVERABLE SESSIONS
IST1227I    56          0 = TOTAL APPL SESSIONS
IST1315I DISPLAY TRUNCATED AT MAX = 5
IST1454I 5 STATISTICS DISPLAYED
IST314I END
```

Displaying data compression statistics:

```
d net,stats,type=compress
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=COMPRESS
IST1435I LEVEL     INPUT                OUTPUT
IST1176I                              BASIC    FROZEN
IST1177I   0       13910              13800    **NA**
IST1177I   1         489                164    **NA**
IST1177I   2         701                833       404
IST1177I   3         286                 55        20
IST1177I   4          90                147        53
IST314I END
```

Displaying the default coupling facility structure:

```
d net,stats,type=cfs
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=CFS
IST1370I NETA.A01N IS CONNECTED TO STRUCTURE ISTGENERIC
IST1797I STRUCTURE TYPE = LIST
IST1517I LIST HEADERS = 4 - LOCK HEADERS = 4
IST1373I STORAGE ELEMENT SIZE = 1024
IST924I -------------------------------------------------------------
IST1374I                             CURRENT     MAXIMUM  PERCENT
IST1375I STRUCTURE SIZE               10240K      25088K      41
IST1376I STORAGE ELEMENTS                  0         972       0
IST1377I LIST ENTRIES                      1       48595       0
IST314I END
```

Displaying all coupling facility structures:

```
d net,stats,type=cfs,strname=*
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=CFS
IST1370I NETA.A01N IS CONNECTED TO STRUCTURE ISTMNPS
IST1797I STRUCTURE TYPE = LIST
IST924I -------------------------------------------------------------
IST350I DISPLAY TYPE = STATS,TYPE=CFS
IST1370I NETA.A01N IS CONNECTED TO STRUCTURE ISTGENERIC
IST1797I STRUCTURE TYPE = LIST
IST314I END
```

Displaying a multinode persistent session coupling facility structure:

```
d net,stats,type=cfs,strname=istmnps
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=CFS
IST1370I NETA.A01N IS CONNECTED TO STRUCTURE ISTMNPS
IST1797I STRUCTURE TYPE = LIST
IST1517I LIST HEADERS = 256 - LOCK HEADERS = 0
IST1373I STORAGE ELEMENT SIZE = 256
IST924I -------------------------------------------------------------
IST1374I                            CURRENT     MAXIMUM  PERCENT
IST1375I STRUCTURE SIZE              10240K      25088K       41
IST1376I STORAGE ELEMENTS              1188       25401        4
IST1377I LIST ENTRIES                  1050       12700        8
IST314I END
```

Displaying a multinode persistent session coupling facility structure with alternate structures:

```
d net,stats,type=cfs,strname=istmnps
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=CFS
IST1370I NETA.A81N IS CONNECTED TO STRUCTURE ISTMNPS
IST1797I STRUCTURE TYPE = LIST
IST1517I LIST HEADERS = 256 - LOCK HEADERS = 0
IST1373I STORAGE ELEMENT SIZE = 256
IST924I -------------------------------------------------------------
IST1374I                            CURRENT     MAXIMUM  PERCENT
IST1375I STRUCTURE SIZE               6144K      12288K       50
IST1376I STORAGE ELEMENTS             3617       15422       23
IST1377I LIST ENTRIES                  696        7711        9
IST924I -------------------------------------------------------------
IST1519I ALTERNATE STRUCTURES ARE:
IST1567I ISTMNPS02         ISTMNPS01
IST314I END
```

Displaying the contents of an SWSA structure for all lists associated with DVIPA addresses:

```
d net,stats,type=cfs,strname=ezbdvipa1121,list=all,scope=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=CFS
IST1370I NETA.A01N IS CONNECTED TO STRUCTURE EZBDVIPA1121
IST1797I STRUCTURE TYPE = LIST
IST1517I LIST HEADERS = 2048 - LOCK HEADERS = 0
IST1373I STORAGE ELEMENT SIZE = 256
IST924I  ------------------------------------------------------------
IST1374I                            CURRENT     MAXIMUM  PERCENT
IST1375I STRUCTURE SIZE               6144K      10240K       60
IST1376I STORAGE ELEMENTS                32       16821        0
IST1377I LIST ENTRIES                     4        1682        0
IST924I  ------------------------------------------------------------
IST1834I LIST DVIPA SYSNAME TCPNAME    #ENTRIES    TGCOUNT SEQNUMBER
IST1835I    1 203.3.1.165
IST1836I            MVS165  TCPCS3            0          1
IST1835I    3 203.1.1.11
IST1836I            VIC011  TCPCS             2          2
IST1838I               LIST ENTRY KEYS:
IST1839I                 01000000000000001000000100000000
IST1839I                 02000000000000001077A83D0000000000
IST1835I    4 203.1.1.11
IST1837I            VIC011  TCPCS             1                  18
IST1838I               LIST ENTRY KEYS:
IST1839I                 00000000000000000000000000000011
IST314I END
```

Displaying the contents of the Sysplexports structure for all lists associated with DVIPA addresses:

```
d net,stats,type=cfs,strname=ezbeport1122,list=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=CFS
IST1370I NETA.A01N IS CONNECTED TO STRUCTURE EZBEPORT1122
IST1797I STRUCTURE TYPE = LIST
IST1517I LIST HEADERS = 1024 - LOCK HEADERS = 1024
IST1373I STORAGE ELEMENT SIZE = 256
IST924I -------------------------------------------------------------
IST1374I                            CURRENT     MAXIMUM  PERCENT
IST1375I STRUCTURE SIZE               6144K      10240K      60
IST1376I STORAGE ELEMENTS                32       16821       0
IST1377I LIST ENTRIES                     8        1682       0
IST924I -------------------------------------------------------------
IST1823I LIST DVIPA SYSNAME  TCPNAME      # Assigned Ports
IST1824I    1 203.3.1.165                              3
IST1825I            VIC011   TCPCS2                    2
IST1825I            VIC011   TCPCS                     0
IST1825I            MVS165   TCPCS                     1
IST1824I    4 203.1.1.11                               5
IST1825I            MVS165   TCPCS3                    2
IST1825I            VIC011   TCPCS                     3
IST314I END
```

Displaying the contents of the Sysplexports structure, including a set of all the ephemeral ports associated with each TCP/IP stack for lists that are not empty:

```
d net,stats,type=cfs,strname=ezbeport1222,list=all,scope=all
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=CFS
IST1370I NETA.SSCP1A IS CONNECTED TO STRUCTURE EZBEPORT1222
IST1797I STRUCTURE TYPE = LIST
IST1517I LIST HEADERS = 1024 - LOCK HEADERS = 1024
IST1373I STORAGE ELEMENT SIZE = 256
IST924I -------------------------------------------------------------
IST1374I                            CURRENT     MAXIMUM  PERCENT
IST1375I STRUCTURE SIZE               6144K      10240K      60
IST1376I STORAGE ELEMENTS                32       16821       0
IST1377I LIST ENTRIES                     8        1682       0
IST924I -------------------------------------------------------------
IST2221I EXPLICITBINDPORTRANGE - START: 50000 END: 51023
IST1823I LIST DVIPA SYSNAME  TCPNAME      # Assigned Ports
IST1824I    0 EXPLICITBINDPORTRANGE                   66
IST1825I            VIC011   TCPCS2                   64
IST1826I               PORTS: 50000 50001 50002 50003 50004 50005
IST1827I                      50006 50007 50008 50009 50010 50011
IST1827I                      50012 50013 50014 50015 50016 50017
IST1827I                      50018 50019 50020 50021 50022 50023
IST1827I                      50024 50025 50026 50027 50028 50029
IST1827I                      50030 50031 50032 50033 50034 50035
IST1827I                      50036 50037 50038 50039 50040 50041
IST1827I                      50042 50043 50044 50045 50046 50047
IST1827I                      50048 50049 50050 50051 50052 50053
IST1827I                      50054 50055 50056 50057 50058 50059
IST1827I                      50060 50061 50062 50063
IST1825I            VIC011   TCPCS                     1
IST1826I               PORTS: 50064
IST1825I            MVS165   TCPCS                     1
IST1826I               PORTS: 50065
IST1824I    1 203.3.1.165                              3
IST1825I            VIC011   TCPCS2                    2
IST1826I               PORTS:  1025 60234
IST1825I            VIC011   TCPCS                     0
IST1825I            MVS165   TCPCS                     1
IST1826I               PORTS: 24051
IST1824I    4 203.1.1.11                              12
IST1825I            MVS165   TCPCS3                    2
IST1826I               PORTS: 11576 23000
```

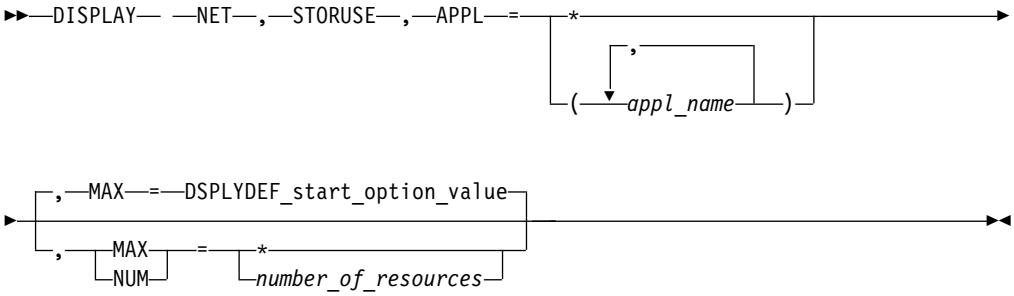
```
IST1825I            VIC011   TCPCS                      10
IST1826I               PORTS:  1027  2145  9815 20471 47611 48001
IST1827I                      51225 60223 61427 63000
IST314I END
```

Displaying the contents of the Sysplexports structure, including a set of all the ephemeral ports associated with the specified IPv6 DVIPA address:

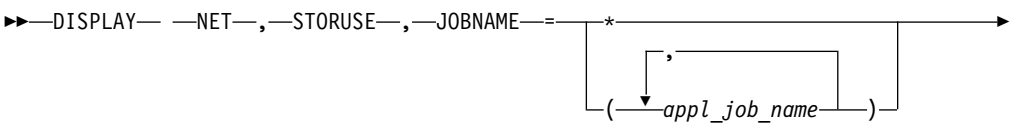
```
d net,stats,type=cfs,strname=ezbeport3131,scope=all,dvipa=2003::38:1:1
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STATS,TYPE=CFS
IST1370I NETA.SSCP1A IS CONNECTED TO STRUCTURE EZBEPORT3131
IST1797I STRUCTURE TYPE = LIST
IST1517I LIST HEADERS = 1024 - LOCK HEADERS = 1024
IST1373I STORAGE ELEMENT SIZE = 256
IST924I -------------------------------------------------------------
IST1374I                              CURRENT     MAXIMUM  PERCENT
IST1375I STRUCTURE SIZE                8192K      15104K    *NA*
IST1376I STORAGE ELEMENTS                 64       25711       0
IST1377I LIST ENTRIES                      3         804       0
IST924I -------------------------------------------------------------
IST2221I EXPLICITBINDPORTRANGE - START: 50000 END: 51023
IST1823I LIST DVIPA SYSNAME  TCPNAME               # ASSIGNED PORTS
IST1824I    1 2003::38:1:1                                      64
IST1825I            VIC038   TCPCS                              64
IST1826I               PORTS:  1024  1025  1026  1027  1028  1029
IST1827I                       1030  1031  1032  1033  1034  1035
IST1827I                       1036  1037  1038  1039  1040  1041
IST1827I                       1042  1043  1044  1045  1046  1047
IST1827I                       1048  1049  1050  1051  1052  1053
IST1827I                       1054  1055  1056  1057  1058  1059
IST1827I                       1060  1061  1062  1063  1064  1065
IST1827I                       1066  1067  1068  1069  1070  1071
IST1827I                       1072  1073  1074  1075  1076  1077
IST1827I                       1078  1079  1080  1081  1082  1083
IST1827I                       1084  1085  1086  1087
IST314I END
```

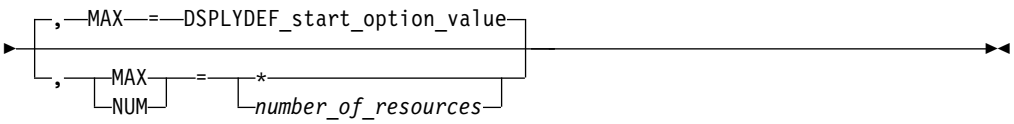
DISPLAY STORUSE command

Display storage usage for applications:

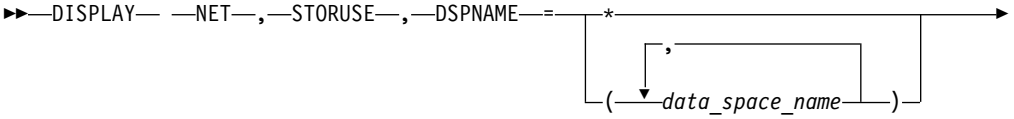


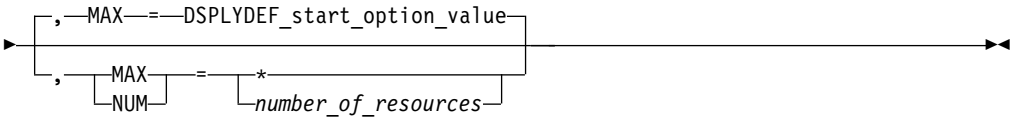
Display storage usage for application jobs:



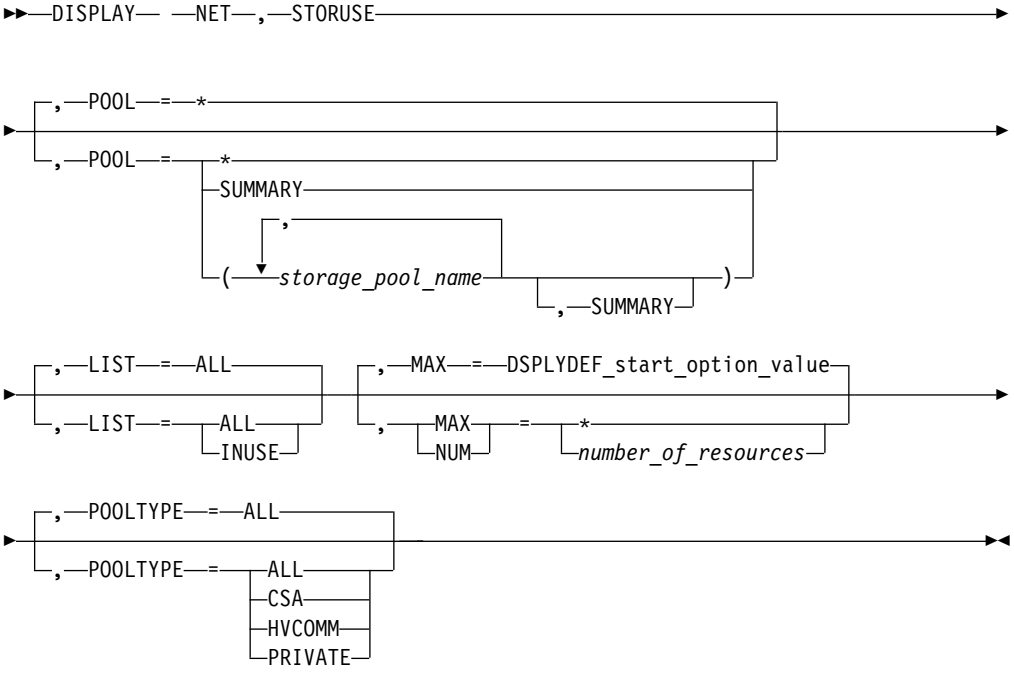


Display storage usage for data spaces:





Display storage usage for storage pools:



Abbreviations

Operand	Abbreviation
DISPLAY	D

Purpose

The DISPLAY STORUSE (storage usage) command provides storage usage information for VTAM data spaces, modules, and storage pools.

You can specify one of the following names:

- Application name
- Application job name
- Data space name
- Storage pool name

Operands

APPL
Specifies the applications for which storage usage will be displayed.

APPL=appl_name
Displays storage usage for one or more applications.

APPL=*
Displays storage usage for all applications.

DSPNAME
Specifies the data spaces for which storage usage information will be displayed.

DSPNAME=data_space_name
Displays storage usage for one or more VTAM data spaces.

DSPNAME=*
Displays storage usage for all VTAM data spaces.

JOBNAME
Specifies the VTAM application jobs for which storage usage will be displayed.

JOBNAME=appl_job_name
Displays storage usage for one or more VTAM application jobs.

JOBNAME=*
Displays storage usage for all VTAM application jobs.

LIST
Specifies whether storage information should be displayed about all pools or only those currently in use.

The LIST operand is valid only when all GETBLK pools are being displayed and the POOL, DSPNAME, APPLNAME, and JOBNAME operands are omitted from the DISPLAY STORUSE command.

LIST=ALL
Displays storage information about all pools, regardless of whether storage is currently allocated from that storage pool.

LIST=INUSE
Displays storage information only for pools that have been currently allocated from that storage pool.

MAX
Specifies the maximum number of output lines that VTAM displays for this command.

MAX=*
Specifies that the value of the DSPLYMAX start option limits the display output.

MAX=number_of_resources
Specifies the number of applications, application jobs, data spaces, or

storage pools for which VTAM displays storage usage. The valid range is 1–value of DSPLYMAX. The default is the value specified for the DSPLYDEF start option.

Specifying MAX limits the display output. VTAM searches only for the number of instances that you have specified, stopping when it reaches that number. VTAM does not search any further. This saves processing time and gives you control over the amount of display output generated by the command. If fewer applications, application jobs, data spaces, or storage pools are found than you have specified on MAX, VTAM displays only the storage usage information for those found.

NUM
A synonym for the MAX operand.

POOL
Specifies the VTAM storage pools for which storage usage will be displayed. Use * to display a list of valid pool names available in your system.

POOL=storage_pool_name
Displays storage usage for one or more VTAM storage pools.

POOL=SUMMARY
Displays storage usage collectively for all storage pools and modules.

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

POOL=*
Displays storage usage collectively and individually for all VTAM storage pools, and collectively for all VTAM modules.

For descriptions of the functions and characteristics of the storage pools displayed, see the z/OS Communications Server: SNA Network Implementation Guide.

POOLTYPE
Specifies the type of pools for which storage information is to be displayed.

The POOLTYPE operand is valid only when all GETBLK pools are being displayed and the POOL, DSPNAME, APPLNAME, and JOBNAME operands are omitted from the DISPLAY STORUSE command.

POOLTYPE=ALL
Displays storage information about all pools.

POOLTYPE=CSA
Displays storage information only for pools in common service area (CSA) storage.

POOLTYPE=HVCOMM
Displays storage information only for pools in 64-bit high virtual common (HVCOMM) storage.

POOLTYPE=PRIVATE
Displays storage information only for pools in VTAM private storage.

Resulting display

The resulting display shows:

- Pool name or data space name

- Job name
- Application name
- Number of applications
- Current storage
- Maximum storage

Examples

Displaying storage usage for a specific pool:

```
d net,storuse,pool=sibext
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STORAGE USAGE
IST1242I POOL     CURRENT MAXIMUM
IST1243I SIBEXT       128     128
IST1454I 1 POOL(S) DISPLAYED
IST314I END
```

Displaying storage usage for pools, limiting output to five resources:

```
d net,storuse,max=5
IST097I  DISPLAY ACCEPTED
IST350I  DISPLAY TYPE = STORAGE USAGE
IST1242I  POOL     CURRENT MAXIMUM  POOL     CURRENT MAXIMUM
IST1243I  ACDEB          4       4  ACPCB          0       0
IST1243I  ADJCP          8       8  ADJNODE        0       0
IST1243I  ANDCB          0       0
IST1315I  DISPLAY TRUNCATED AT MAX = 5
IST1454I  5 RESOURCE(S) DISPLAYED
IST924I  -------------------------------------------------------
IST1244I  TOTAL PRIVATE  POOL STORAGE USAGE:     228     228
IST1244I  TOTAL COMMON   POOL STORAGE USAGE:      64      64
IST1244I  TOTAL HVCOMM   POOL STORAGE USAGE:     768     842
IST924I -------------------------------------------------------------
IST981I  VTAM PRIVATE: CURRENT = 5208K, MAXIMUM USED = 5253K
IST924I -------------------------------------------------------------
IST1565I CSA MODULES = 1384K
IST1565I CSA24 MODULES = 40K
IST1565I PRIVATE MODULES = 5205K
IST314I  END
```

Displaying storage usage for pools, in CSA storage that have been currently allocated from that storage pool:

```
d net,storuse,pooltype=csa,list=inuse
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STORAGE USAGE
IST1242I POOL     CURRENT MAXIMUM  POOL     CURRENT MAXIMUM
IST1243I COS           16      16  CPWACSA        4       4
IST1243I CPWAPVT        4       4  EPTDVT         8       8
IST1243I ERICPOOL       8       8  ERTE           4       4
IST1243I FMCB          16      16  NDREC          8       8
IST1243I RUPEPRIV      16      16  UTILPVTS      20      20
IST1454I 10 POOL(S) DISPLAYED
IST924I -------------------------------------------------------------
IST1244I TOTAL PRIVATE  POOL STORAGE USAGE:     220     220
IST1244I TOTAL COMMON   POOL STORAGE USAGE:      68      68
IST1244I TOTAL HVCOMM   POOL STORAGE USAGE:     768     842
IST924I -------------------------------------------------------------
IST981I VTAM PRIVATE: CURRENT = 585K, MAXIMUM USED = 639K
IST924I -------------------------------------------------------------
IST1565I CSA MODULES = 1384K
IST1565I CSA24 MODULES = 32K
IST1565I PRIVATE MODULES = 5500K
IST314I END
```

Displaying storage usage for pools, in private storage that have been currently allocated from that private storage pool:

```
d net,storuse,pooltype=private,list=inuse
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STORAGE USAGE
IST1242I POOL     CURRENT MAXIMUM  POOL     CURRENT MAXIMUM
IST1243I ACDEB          4       4  CDRSC         32      32
IST1243I DECB           4       4  DISKIO         8       8
IST1243I DMTSQ          4       4  FMCBEXT        4       4
IST1243I LMTABLE        4       4  NIDCB          4       4
IST1243I PAQ            8       8  POWEPRIV       8       8
IST1243I POWMPRIV       8       8  PULURDTE       4       4
IST1243I RUPECOMM       4       4  SRTE          20      20
IST1243I SSCPFMCB      16      16  UTILCSAL       4       4
IST1243I UTILCSAS      20      20  UTILPVTL      20      20
IST1243I WREEID         8       8
IST1454I 19 POOL(S) DISPLAYED
IST924I -------------------------------------------------------------
IST1244I TOTAL PRIVATE  POOL STORAGE USAGE:     220     220
IST1244I TOTAL COMMON   POOL STORAGE USAGE:      68      68
IST1244I TOTAL HVCOMM   POOL STORAGE USAGE:     768     842
IST924I -------------------------------------------------------------
IST981I VTAM PRIVATE: CURRENT = 585K, MAXIMUM USED = 639K
IST924I -------------------------------------------------------------
IST1565I CSA MODULES = 1384K
IST1565I CSA24 MODULES = 32K
IST1565I PRIVATE MODULES = 5500K
IST314I END
```

Displaying storage usage for pools, in high virtual common:

```
d net,storuse,pooltype=hvcomm
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STORAGE USAGE
IST1242I POOL     CURRENT MAXIMUM
IST1243I SM3270       120     412
IST1454I 1 POOL(S) DISPLAYED
IST924I -------------------------------------------------------------
IST1244I TOTAL PRIVATE  POOL STORAGE USAGE:     424     436
IST1244I TOTAL COMMON   POOL STORAGE USAGE:     108     108
IST1244I TOTAL HVCOMM   POOL STORAGE USAGE:     120     412
IST924I -------------------------------------------------------------
IST981I VTAM PRIVATE: CURRENT = 1218K, MAXIMUM USED = 1436K
IST924I -------------------------------------------------------------
IST1565I CSA MODULES = 1840K
IST1565I CSA24 MODULES = 40K
IST1565I PRIVATE MODULES = 7578K
IST314I END
```

Displaying storage usage for all data spaces, limiting output to 6 resources:

```
d net,storuse,dspname=*,max=6
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STORAGE USAGE
IST1238I DSPNAME  CURRENT MAXIMUM  QUEUED
IST1239I ISTNMPDS       0       0       0
IST1239I ISTNMSDS       0       0       0
IST924I -------------------------------------------------------------
IST1240I DSPNAME  CURRENT MAXIMUM JOBNAME  APPL     COUNT
IST1241I ISTFC8E0       8       8 VTAM     SSCP1A   1
IST1241I IST68072       0       0 ECHO     APPL1    1
IST1241I IST72596       0       0 ECHO     APPL2    1
IST1241I IST30B99       0       0 ECHO     APPL3    1
IST1454I 6 DSPNAME(S) DISPLAYED
IST314I END
```

Displaying storage usage for a specific data space:

```
d net,storuse,dspname=istnmsds
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STORAGE USAGE
IST1238I DSPNAME  CURRENT MAXIMUM  QUEUED
IST1239I ISTNMSDS       0       0       0
IST1454I 1 DSPNAME(S) DISPLAYED
IST314I END
```

Displaying storage usage for all applications, limiting output to four resources:

```
d net,storuse,appl=*,max=4
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STORAGE USAGE
IST1240I DSPNAME  CURRENT MAXIMUM JOBNAME  APPL     COUNT
IST1241I ISTFC8E0       8       8 VTAM     SSCP1A   1
IST1241I IST68072       0       0 ECHO     APPL1    1
IST1241I IST72596       0       0 ECHO     APPL2    1
IST1241I IST30B99       0       0 ECHO     APPL3    1
IST1315I DISPLAY TRUNCATED AT MAX = 4
IST1454I 4 APPL(S) DISPLAYED
IST314I END
```

Displaying storage usage for a specific job:

```
d net,storuse,jobname=echo31e
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STORAGE USAGE
IST1240I DSPNAME  CURRENT MAXIMUM JOBNAME  APPL     COUNT
IST1241I 00002IST       0       0 ECHO31E  ECHO50A  1
IST1241I 00003IST       0       0 ECHO31E  ECHO50   1
IST314I END
```

Displaying storage usage for a specific application:

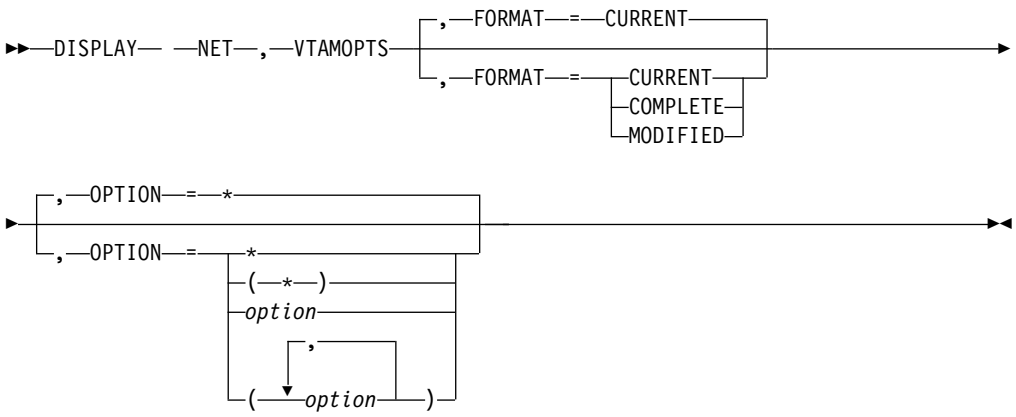
```
d net,storuse,appl=echo02a
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STORAGE USAGE
IST1240I DSPNAME  CURRENT MAXIMUM JOBNAME  APPL     COUNT
IST1241I 00001IST       4      16 ECHO31E  ECHO02A  1
IST314I END
```

Displaying storage usage summary information:

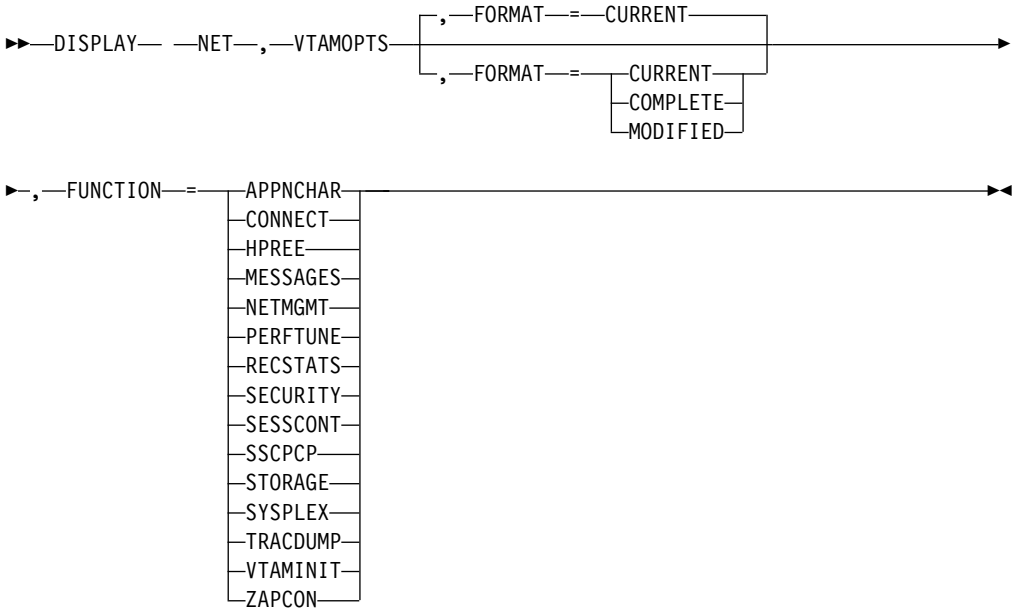
```
d net,storuse,pool=summary
IST097I DISPLAY ACCEPTED
IST350I DISPLAY TYPE = STORAGE USAGE
IST1244I TOTAL PRIVATE  POOL STORAGE USAGE:     228     228
IST1244I TOTAL COMMON   POOL STORAGE USAGE:      76      76
IST1244I TOTAL HVCOMM   POOL STORAGE USAGE:     768     842
IST924I -------------------------------------------------------------
IST981I VTAM PRIVATE: CURRENT = 4550K, MAXIMUM USED = 4603K
IST924I -------------------------------------------------------------
IST1565I CSA MODULES = 1384K
IST1565I CSA24 MODULES = 40K
IST1565I PRIVATE MODULES = 5205K
IST314I END
```

DISPLAY VTAMOPTS command

Display selected start options:



Display a group of related start options:



Abbreviations

Operand	Abbreviation
DISPLAY	D
FORMAT=COMPLETE	COMP
FORMAT=CURRENT	CUR
FORMAT=MODIFIED	MOD
OPTION	OPT

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for FORMAT=CURRENT, code only CUR. Do not code FORMAT=CUR.

Purpose

The DISPLAY VTAMOPTS (VTAM start options) command displays information about VTAM start options. The VTAM version and release, the date and time when VTAM was started, the component ID, and VTAM's node type are also displayed.

Operands

FORMAT
Specifies the type of information to be displayed.

FORMAT=CURRENT
Displays the current value of one or more start options.

FORMAT=COMPLETE
Displays detailed information about one or more start options. For each start option, VTAM displays the current value, the value that VTAM initialized with, and the source of the value that VTAM initialized with. The source can be a value specified in an ATCSTRxx start option list, a value entered by the operator during VTAM start, or a default value used in the absence of any other specification.

FORMAT=MODIFIED
Displays information about start options that have been modified since VTAM initialization. If an option has not been modified, it is not displayed.

For each modified start option, VTAM displays the current value, the value that VTAM initialized with, and the source of the value that VTAM initialized with. The source can be a value specified in an ATCSTRxx start option list, a value entered by the operator during VTAM start, or a default value used in the absence of any other specification.

FUNCTION
Specifies a group of related start options to display. If you specify FUNCTION, do not specify OPTION on the same command.

FUNCTION=APPNCHAR
Displays the start options that define APPN characteristics. The start options displayed using FUNCTION=APPNCHAR are also displayed using other specifications for FUNCTION. The start options displayed using FUNCTION=APPNCHAR are:

APPNCOS	BN	BNDYN
BNORD	CDSERVR	CDSREFER
CONNTYPE	CPCP	DIRSIZE
DIRTIME	DLURSAW	DUPDEFS
DYNADJCP	EEHPRANR	EEPORTCK
EEVERIFY	GVBKDLY	HOSTNAME
HPR	HPRARB	HPRCLKRT
HPRNCPBF	HPRPSDLY	HPRPST
HPRSESLM	HPRSTALL	INITDB
IOPURGE	IPADDR	MAXLOCAT
MULTPATH	NETID	NNSPREF
NODETYPE	NUMTREES	PMTUD
PSRETRY	PSWEIGHT	RESUSAGE
ROUTERES	SACONNS	SAVERSCV
SECLVLCP	SNVC	SORDER
SRCHRED	SRCOUNT	SRTIMER

SSCPNAME	SSEARCH	TCPNAME
TDUDIAG	TOPOTIME	UNRCHTIM
VERIFYCP	VFYRED	VFYREDTI
VRTG	VRTGCPCP	XCFINIT

FUNCTION=CONNECT
Displays the start options that affect connectivity. The start options displayed using FUNCTION=CONNECT are:

AIMON	ALSREQ	AUTHLEN
CONNTYPE	CPCP	DISCNTIM
DYNHPPFX	DYNPUPFX	DYNVNPFX
ENSEMBLE	HPR	HPRNCPBF
IQDCHPID	MPCACT	NNSPREF
SACONNS	SLOWVAL	SNVC
SSDTMOUT	VRTG	VRTGCPCP
XCFGRPID	XCFINIT	XNETALS

FUNCTION=HPREE
Displays the start options that affect High Performance Routing (HPR) and Enterprise Extender (EE). The start options displayed using FUNCTION=HPREE are also displayed using other specifications for FUNCTION. The following start options are displayed using FUNCTION=HPREE:

DYNHPPFX	EEHPRANR	EEPORTCK
EEVERIFY	GVBKDLY	HOSTNAME
HPR	HPRARB	HPRCLKRT
HPRITMSG	HPRNCPBF	HPRPSDLY
HPRPSMSG	HPRPST	HPRSESLM
HPRSTALL	IPADDR	MAXEETST
MAXHNRES	MULTPATH	PMTUD
PSRETRY	PSWEIGHT	TCPNAME
UNRCHTIM		

FUNCTION=MESSAGES
Displays the start options that affect messages. The start options displayed using FUNCTION=MESSAGES are:

ASIRFMSG	CNMTAB	CNNRTMSG
DSIRFMSG	DSPLYDEF	DSPLYMAX
DSPLYWLD	ESIRFMSG	FLDTAB
FSIRFMSG	HPRITMSG	HPRPSMSG
IOINT	IOMSGLIM	LSIRFMSG
MSGLEVEL	MSGMOD	PLUALMSG
PPOLOG	RSIRFMSG	SIRFMSG
SLOWVAL	VARYWLD	

FUNCTION=NETMGMT
Displays the start options that affect network management. The start options displayed using FUNCTION=NETMGMT are also displayed using other specifications for FUNCTION. The following start options are displayed using FUNCTION=NETMGMT:

CNMTAB	DLURSAW	IPINFO

MXSAWBUF	NMVTLOG	OSIEVENT
OSIMGMT	OSITOPO	PDTRCBUF
SAWMAXDS	SAWMXQPK	SNAMGMT
UPDDELAY		

FUNCTION=PERFTUNE
Displays the start options that affect performance and tuning. The start options displayed using FUNCTION=PERFTUNE are:

AUTOTI	BSCTMOUT	CACHETI
CDRSCTI	CINDXSIZ	DIRSIZE
DIRTIME	HNTSIZE	HPRARB
HPRCLKRT	HPRITMSG	HPRPSDLY
HPRPSMSG	HPRPST	HPRSESLM
HSRTSIZE	IOINT	IOPURGE
IQDIOSTG	MAXEETST	MAXHNRES
MAXLOCAT	MAXLURU	MIHTMOUT
MULTPATH	MXSAWBUF	MXSSCPRU
NCPBUFSZ	NSRTSIZE	NUMTREES
OSIEVENT	OSITOPO	OSRTSIZE
PDTRCBUF	PIUMAXDS	PMTUD
PSRETRY	PSWEIGHT	QDIOSTG
SAWMAXDS	SAWMXQPK	SONLIM
SRCHRED	SRCOUNT	SRTIMER
UPDDELAY	VFYRED	VFYREDTI
VOSDEACT	VTAMEAS	

FUNCTION=RECSTATS
Displays the start options that affect recording and statistics. The start options displayed using FUNCTION=RECSTATS are:

BSCMDRS	NMVTLOG	PPOLOG
SDLCMDRS	TNSTAT	

FUNCTION=SECURITY
Displays the start options that affect session security. The start options displayed using FUNCTION=SECURITY are:

DSACTION	DSCOUNT	DSMONITR
DSTRUST	ENCRPREF	ENCRYPTN
IPINFO	SECLVLCP	VERIFYCP

FUNCTION=SESSCONT
Displays the start options that affect session control. The start options displayed using FUNCTION=SESSCONT are:

AFFDELAY	APPNCOS	ASYDE
AUTORTRY	BNDYN	BNORD
CDRDYN	CMPMIPS	CMPVTAM
CPCDRSC	DIALRTRY	DLRORDER
DUPDEFS	DYNADJCP	DYNASSCP
DYNDLGMD	DYNLU	DYNMODTB
EXPFLTRM	HOTIOTRM	HPRSESLM
ISTCOSDF	RESUSAGE	ROUTERES
SMEAUTH	SORDER	SSCPDYN

SSCPORD	SSEARCH	SWNORDER
UNRCHTIM		

FUNCTION=SSCPCP

Displays the start options that define SSCP or CP characteristics. The start options displayed using FUNCTION=SSCPCP are:

BN	CDSERVR	DATEFORM
ENHADDR	GWSSCP	HOSTPU
HOSTSA	LIMINTCP	MAINTLVL
MAXSSCPS	MAXSUBA	MXSUBNUM
NETID	NNSPREF	NODETYPE
NQNMODE	SSCPID	SSCPNAME
STRGR	STRMNPS	TRANSLAT
USSTAB		

FUNCTION=STORAGE

Displays the start options that define storage usage, except for the buffer pool start options. The start options displayed using FUNCTION=STORAGE are:

API64R	CSALIMIT	CSA24
DLRTCB	IRNSTRGE	MAXHNRES
VTAMEAS		

FUNCTION=SYSPLEX

Displays the start options that affect coupling facility and the sysplex. The start options displayed using FUNCTION=SYSPLEX are also displayed using other specifications for FUNCTION. The following start options are displayed using FUNCTION=SYSPLEX:

AFFDELAY	STRGR	STRMNPS
XCFGRPID	XCFINIT	

FUNCTION=TRACDUMP

Displays the start options that affect traces and dumps. The start options displayed using FUNCTION=TRACDUMP are:

INOPDUMP	NACPROBE	PSSTRACE	SNAPREQ

FUNCTION=VTAMINIT

Displays the start options that affect VTAM initialization. The start options displayed using FUNCTION=VTAMINIT are:

COLD	CONFIG	INITDB
LIST	NODELST	OSIMGMT
SNAMGMT	WARM	

FUNCTION=ZAPCON

Displays the start options that once were zappable constants. The start options displayed using FUNCTION=ZAPCON are also displayed using other specifications for FUNCTION. The start options displayed using FUNCTION=ZAPCON are:

ASIRFMSG	BSCTMOUT	CINDXSIZ

ESIRFMSG	FSIRFMSG	HNTSIZE
HSRTSIZE	INOPDUMP	IOMSGLIM
IRNSTRGE	MAXLURU	MAXSSCPS
MIHTMOUT	MXSAWBUF	MXSSCPRU
MXSUBNUM	NCPBUFSZ	OSRTSIZE
PDTRCBUF	PIUMAXDS	PLUALMSG
PSSTRACE	SAWMAXDS	SAWMXQPK
SDLCMDRS	SIRFMSG	SLUALMSG
SNAPREQ	SSDTMOUT	TRANSLAT
VTAMEAS		

OPTION=option
Specifies one or more start options to display. If you specify OPTION, do not specify FUNCTION on the same command. If OPTION=* is specified or assumed by default, VTAM displays information about all start options except INOPCODE, PROMPT, NOPROMPT, LISTBKUP, and the trace and buffer pool start options. The dic.dita#dic can be used to display the current dump attributes. The DISPLAY TRACES command and the DISPLAY BFRUSE command can be used to display trace and buffer pool information. See the z/OS Communications Server: SNA Resource Definition Reference for a description of each start option.

For OPTION=LIST, VTAM displays the name of the start option list used during start processing. The value can be a supplemental list, such as LIST=1A. However, if the supplemental list contains errors and VTAM reverts to using defaults during start processing because LISTBKUP=DEFAULTS is in effect, the user-defined default list will be displayed. You can also issue a D NET,VTAMOPTS,FORMAT=COMPLETE command to find out the origin of the start option values.

For OPTION=CNMTAB, VTAM displays *BLANKS* if a user-defined table was not loaded. You can issue a D NET,VTAMOPTS,FORMAT=COMPLETE command to find out the origin of the start option value.

For OPTION=ENCRYPTN, the display might not exactly match the value specified for the ENCRYPTN start option.

The following list shows the values that can be displayed for ENCRYPTN for each value specified on the start option:

Start value
Display value

NO NO

YES, 24, or 31
24 or 31

CCA CCA_24 or CCA_31

CUSP CUSP_24 or CUSP_31

For OPTION=OSIMGMT, VTAM displays only the value of the OSIMGMT start option. It does not indicate whether CMIP services is active.

For OPTION=STRGR or OPTION=STRMNPS, if no coupling facility is in use, this command shows the value as ***NA***. See z/OS MVS Setting Up a Sysplex for more information about coupling facilities and CFRM.

See the z/OS Communications Server: SNA Network Implementation Guide for more information about the sources of start options and which source takes precedence.

For OPTION=INOPDUMP, the display might not match the values that are coded for the INOPDUMP start option. The following values are valid:

- ON, which represents an encoding of INOPDUMP=ON.
- OFF, which represents an encoding of INOPDUMP=OFF.
- One or more INOPDUMP control groups in the following format, where the INOPDUMP control group is listed if the current setting for the control group is INOPDUMP=ON.

  ```
  control_group1, ... ,control_group-x
  ```

Example 1

1. VTAM is started with INOPDUMP=OFF.
2. The operator issues MODIFY VTAMOPTS,INOPDUMP=(ON,ISM,ROCE).
3. A DISPLAY VTAMOPTS,OPT=INOPDUMP displays a start option value of (ISM,ROCE), because those two control groups settings are INOPDUMP=ON.

Example 2

1. VTAM is started with INOPDUMP=ON.
2. Subsequently, the operator issues MODIFY VTAMOPTS,INOPDUMP=(OFF,BASE,XCF,QDIO).
3. A DISPLAY VTAMOPTS,OPT=INOPDUMP displays a start option value of (IQDIO,ISM,ROCE,TCP), because those four control groups settings are still INOPDUMP=ON.

See z/OS Communications Server: SNA Resource Definition Reference for more information about coding the INOPDUMP start option.

Resulting display

The resulting display shows:

- The VTAM version and release
- The time and date that VTAM was started
- The component ID
- The node type
- Information about the specified start options

If a start option is not applicable to your configuration, it is displayed with ***NA***. For example, ROUTERES is applicable only when VTAM is a network node. At an end node, it would be displayed as ROUTERES=***NA***.

Examples

Displaying start options that have been modified:

```
d net,vtamopts,opt=(sscpid,dsplydef,cmpvtam,cpcp,tnstat,hostname),format=modified
IST097I DISPLAY ACCEPTED
IST1188I ACF/VTAM CSV2R10 STARTED AT 11:54:32 ON 03/23/00
IST1349I COMPONENT ID IS 5695-11701-10A
IST1348I VTAM STARTED AS INTERCHANGE NODE
IST1309I START OPTION  CURRENT VALUE     ORIGINAL VALUE    ORIGIN
IST1310I CMPVTAM       2                 0                 DEFAULT
```

```
IST1310I CPCP          NO               YES              ATCSTR1A
IST1310I DSPLYDEF      32767            65535            ATCSTR00
IST1310I TNSTAT        OFF              CNSL,TIME=1      OPERATOR
IST924I -------------------------------------------------------------
IST19051 START OPTION   = HOSTNAME
IST1906I CURRENT VALUE  = NODENAME.NETID.REALLYLONGDOMAIN.COM
IST1907I ORIGINAL VALUE = NODENAME.NETID.SHORTDOMAIN.COM
IST1908I ORIGIN         = OPERATOR
IST314I END
```

Displaying complete information about selected start options:

```
d net,vtamopts,opt=(dynlu,dsplydef,list,cmpvtam,supp,cpcp,tnstat,hostname),
format=complete
IST097I DISPLAY ACCEPTED
IST1188I ACF/VTAM CSV2R10 STARTED AT 11:54:32 ON 03/23/00
IST1349I COMPONENT ID IS 5695-11701-10A
IST1348I VTAM STARTED AS INTERCHANGE NODE
IST1309I START OPTION  CURRENT VALUE     ORIGINAL VALUE    ORIGIN
IST1310I CMPVTAM       2                 0                 DEFAULT
IST1310I CPCP          NO                YES               ATCSTR1A
IST1310I DSPLYDEF      32767             65535             ATCSTR00
IST1310I DYNLU         YES               YES               ATCSTR1A
IST1310I LIST          1A                1A                OPERATOR
IST1310I SUPP          NOSUP             NOSUP             ATCSTR00
IST1310I TNSTAT        OFF               CNSL,TIME=1       OPERATOR
IST924I -------------------------------------------------------------
IST1905I START OPTION   = HOSTNAME
IST1906I CURRENT VALUE  = NODENAME.NETID.REALLYLONGDOMAIN.COM
IST1907I ORIGINAL VALUE = NODENAME.NETID.SHORTDOMAIN.COM
IST1908I ORIGIN         = OPERATOR
IST314I END
```

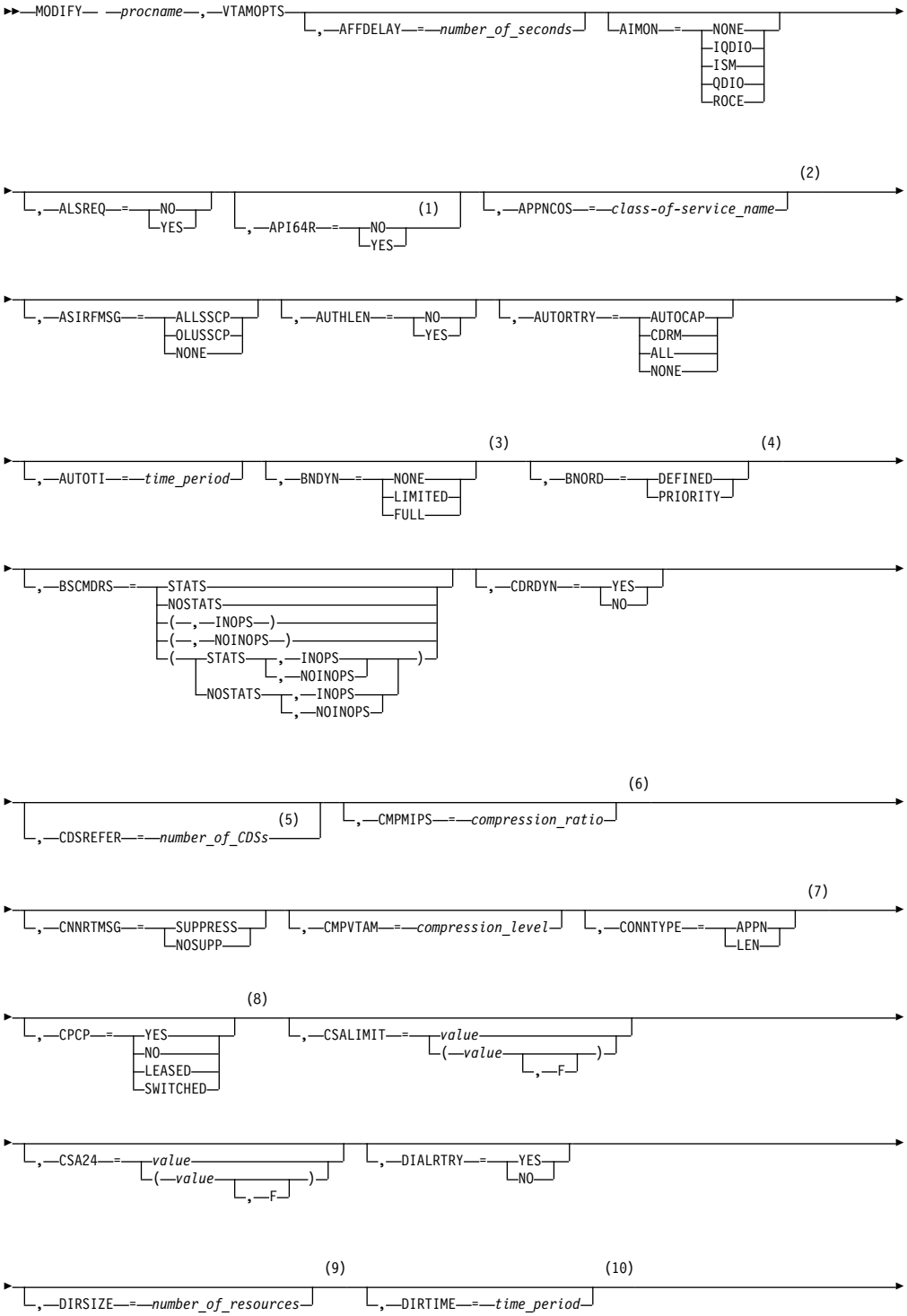
Displaying all VTAM start options:

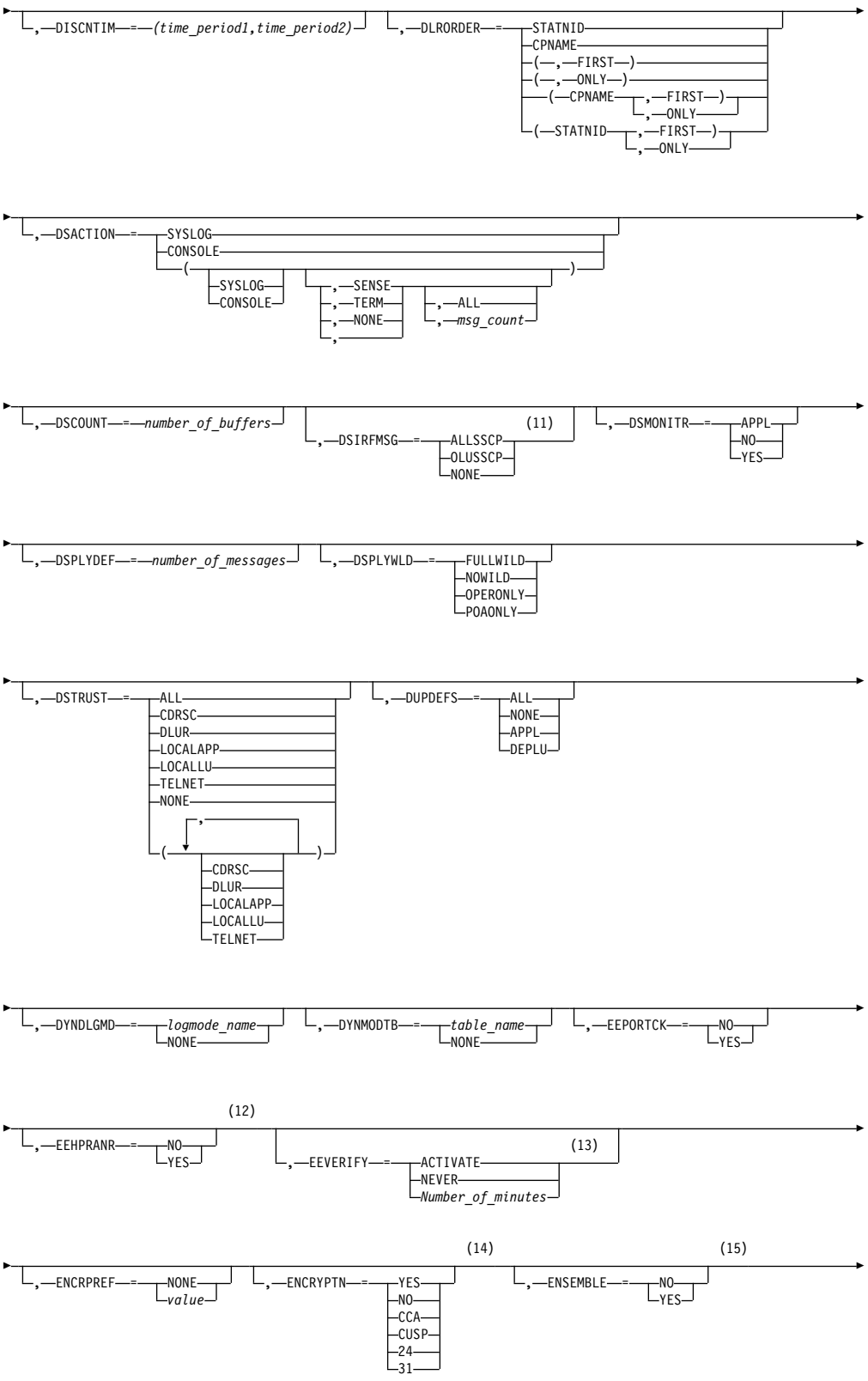
```
d net,vtamopts
IST097I DISPLAY ACCEPTED
IST1188I VTAM CSV2R1 STARTED AT 10:27:51 ON 11/24/15
IST1349I COMPONENT ID IS 5695-11701-210
IST1348I VTAM STARTED AS INTERCHANGE NODE
IST1189I AFFDELAY = 600                 AIMON    = NONE
IST1189I ALSREQ   = NO                  API64R   = YES
IST1189I APPNCOS  = NONE                ASIRFMSG = OLUSSCP
IST1189I ASYDE    = TERM                AUTHLEN  = YES
IST1189I AUTORTRY = AUTOCAP             AUTOTI   = 0
IST1189I BN       = NO                  BNDYN    = ***NA***
IST1189I BNORD    = ***NA***            BSCMDRS  = (STATS,INOPS)
IST1189I BSCTMOUT = 286                 CACHETI  = 8
IST1189I CDRDYN   = YES                 CDRSCTI  = 480S
IST1189I CDSERVR  = NO                  CDSREFER = 1
IST1189I CINDXSIZ = 8176                CMPMIPS  = 100
IST1189I CMPVTAM  = 0                   CNMTAB   = ISTMGC00
IST1189I CNNRTMSG = SUPPRESS            COLD     = YES
IST1189I CONFIG   = 1A                  CONNTYPE = APPN
IST1189I CPCDRSC  = NO                  CPCP     = YES
IST1189I CSALIMIT = 240919K             CSA24    = NOLIMIT
IST1189I DATEFORM = MDY                 DIALRTRY = YES
IST1189I DIRSIZE  = 0                   DIRTIME  = 691200S
IST1189I DISCNTIM = (15,0)              DLRORDER = (STATNID,FIRST)
IST1189I DLRTCB   = 5                   DLURSAW  = YES
IST1189I DSACTION = (SYSLOG,NONE,ALL)   DSCOUNT  = 1
IST1189I DSIRFMSG = NONE                DSMONITR = YES
IST1189I DSPLYDEF = 65535               DSPLYMAX = 65535
IST1189I DSPLYWLD = FULLWILD            DSTRUST  = NONE
IST1189I DUPDEFS  = ALL                 DYNADJCP = YES
IST1189I DYNASSCP = YES                 DYNDLGMD = NONE
IST1189I DYNHPPFX = CNR                 DYNLU    = YES
IST1189I DYNMODTB = NONE                DYNPUPFX = CN
```

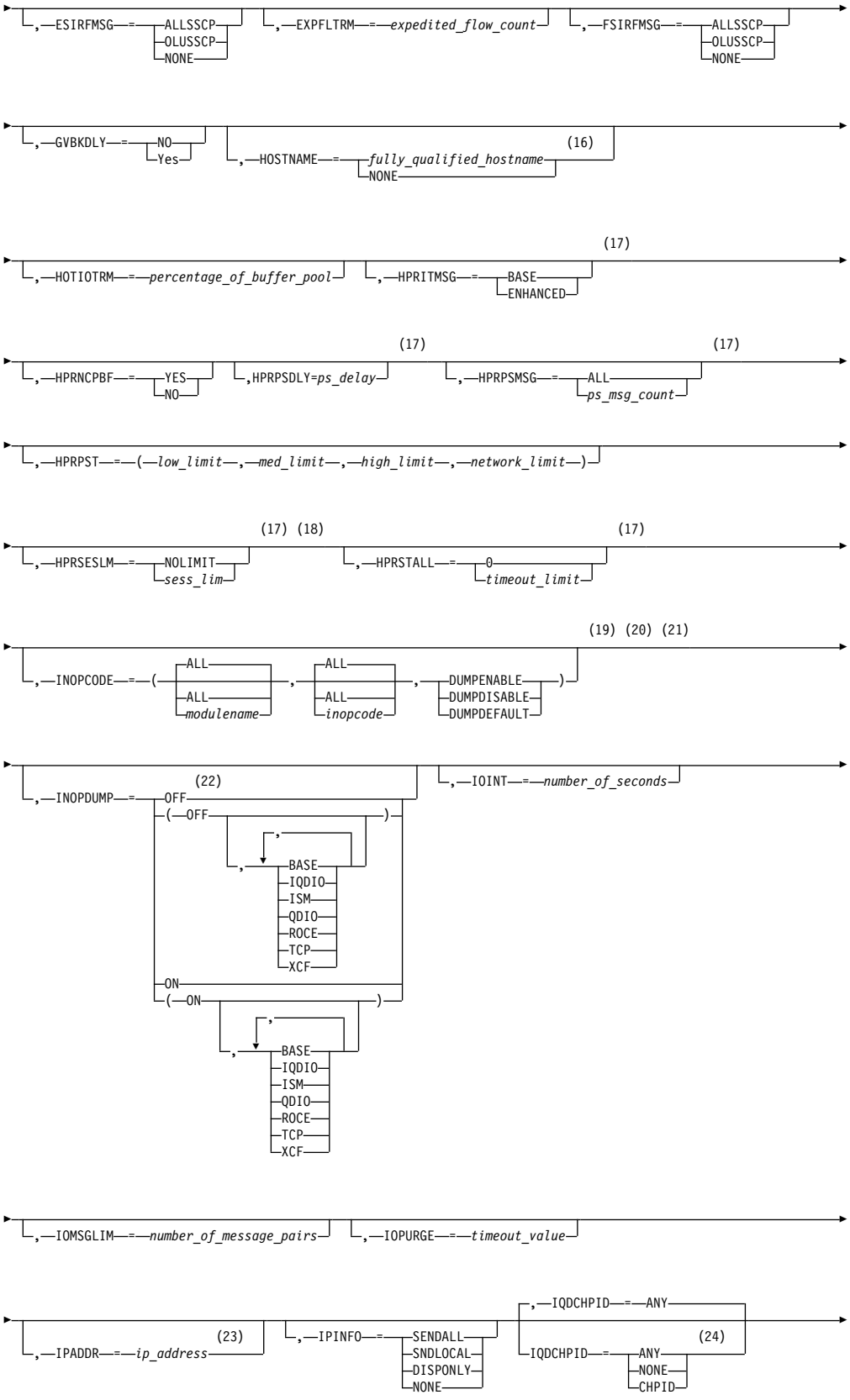
```
IST1189I DYNVNPFX = CNV                 EEHPRANR = NO
IST1189I EEPORTCK = NO                  EEVERIFY = ACTIVATE
IST1189I ENCRPREF = NONE                ENCRYPTN = 31
IST1189I ENHADDR  = YES                 ENSEMBLE = NO
IST1189I ESIRFMSG = ALLSSCP             EXPFLTRM = 0
IST1189I FLDTAB   = ISTMSFLD            FSIRFMSG = OLUSSCP
IST1189I GVBKDLY  = NO                  GWSSCP   = YES
IST1189I HNTSIZE  = 4080                HOSTNAME = *BLANKS*
IST1189I HOSTPU   = ISTPUS              HOSTSA   = 1
IST1189I HOTIOTRM = 0                   HPR      = (RTP,RTP)
IST1189I HPRARB   = RESPMODE            HPRCLKRT = STANDARD
IST1189I HPRITMSG = BASE                HPRNCPBF = NO
IST1189I HPRPSDLY = 0                   HPRPSMSG = ALL
IST1189I HPRPST   = LOW          480S   HPRPST   = MEDIUM       240S
IST1189I HPRPST   = HIGH         120S   HPRPST   = NETWRK        60S
IST1189I HPRSESLM = NOLIMIT             HPRSTALL = 0
IST1189I HSRTSIZE = 9973                INITDB   = ALL
IST1189I INOPDUMP = OFF                 IOINT    = 180
IST1189I IOMSGLIM = 100                 IOPURGE  = 0
IST1189I IPADDR   = 0.0.0.0             IPINFO   = SENDALL
IST1189I IQDCHPID = ANY                 IQDIOSTG = 7.8M(126 SBALS)
IST1189I IRNSTRGE = 0                   ISTCOSDF = INDLU
IST1189I LIMINTCP = ***NA***            LIST     = 1A
IST1189I LSIRFMSG = NONE                MAINTLVL = *BLANKS*
IST1189I MAXEETST = 500                 MAXHNRES = 100
IST1189I MAXLOCAT = 5000                MAXLURU  = 6144
IST1189I MAXSSCPS = 10                  MAXSUBA  = 255
IST1189I MIHTMOUT = 1800                MPCACT   = WAIT
IST1189I MSGLEVEL = BASE                MSGMOD   = NO
IST1189I MULTPATH = NO                  MXSAWBUF = 10000
IST1189I MXSSCPRU = 4096                MXSUBNUM = 511
IST1189I NACPROBE = NODUMP              NCPBUFSZ = 512
IST1189I NETID    = NETA                NMVTLOG  = NPDA
IST1189I NNSPREF  = ***NA***            NODELST  = *BLANKS*
IST1189I NODETYPE = NN                  NQNMODE  = NAME
IST1189I NSRTSIZE = *BLANKS*            NUMTREES = 100
IST1189I OSIEVENT = PATTERNS            OSIMGMT  = NO
IST1189I OSITOPO  = ILUCDRSC            OSRTSIZE = 43
IST1189I PDTRCBUF = 2                   PIUMAXDS = 200
IST1189I PLUALMSG = NOSUPP              PMTUD    = TCPVALUE
IST1189I PPOLOG   = NO                  PSRETRY  = LOW            0S
IST1189I PSRETRY  = MEDIUM         0S   PSRETRY  = HIGH           0S
IST1189I PSRETRY  = NETWRK         0S   PSRETRY  = SCHED
IST1189I PSSTRACE = NORB                PSWEIGHT = LESSTHAN
IST1189I QDIOSTG  = 4.0M(64 SBALS)      RESUSAGE = 100
IST1189I ROUTERES = 1                   RSIRFMSG = ALLSSCP
IST1189I SACONNS  = YES                 SAVERSCV = (NO,KEEP)
IST1189I SAWMAXDS = 100                 SAWMXQPK = 0
IST1189I SDLCMDRS = (STATS,INOPS)       SECLVLCP = ***NA***
IST1189I SIRFMSG  = ALLSSCP             SLOWVAL  = (0,0)
IST1189I SLUALMSG = NOSUPP              SMEAUTH  = DISCARD
IST1189I SNAMGMT  = NO                  SNAPREQ  = 1000
IST1189I SNVC     = ***NA***            SONLIM   = (60,30)
IST1189I SORDER   = APPN                SRCHRED  = OFF
IST1189I SRCOUNT  = 10                  SRTIMER  = 30S
IST1189I SSCPDYN  = YES                 SSCPID   = 1
IST1189I SSCPNAME = SSCP1A              SSCPORD  = PRIORITY
IST1189I SSDTMOUT = 30                  SSEARCH  = YES
IST1189I STRGR    = ***NA***            STRMNPS  = ***NA***
IST1189I SUPP     = NOSUP               SWNORDER = (CPNAME,FIRST)
IST1189I TCPNAME  = *BLANKS*            TDUDIAG  = 1000
IST1189I TNSTAT   = OFF                 TOPOTIME = 10:28
IST1189I TRANSLAT = (0,1,2,3,4,5,6,7)   UNRCHTIM = (0,0)
IST1189I UPDDELAY = 60S                 USSTAB   = *BLANKS*
IST1189I VARYWLD  = FULLWILD            VERIFYCP = NONE
IST1189I VFYRED   = YES                 VFYREDTI = OFF
IST1189I VITCTRL  = BASE                VOSDEACT = NO
```

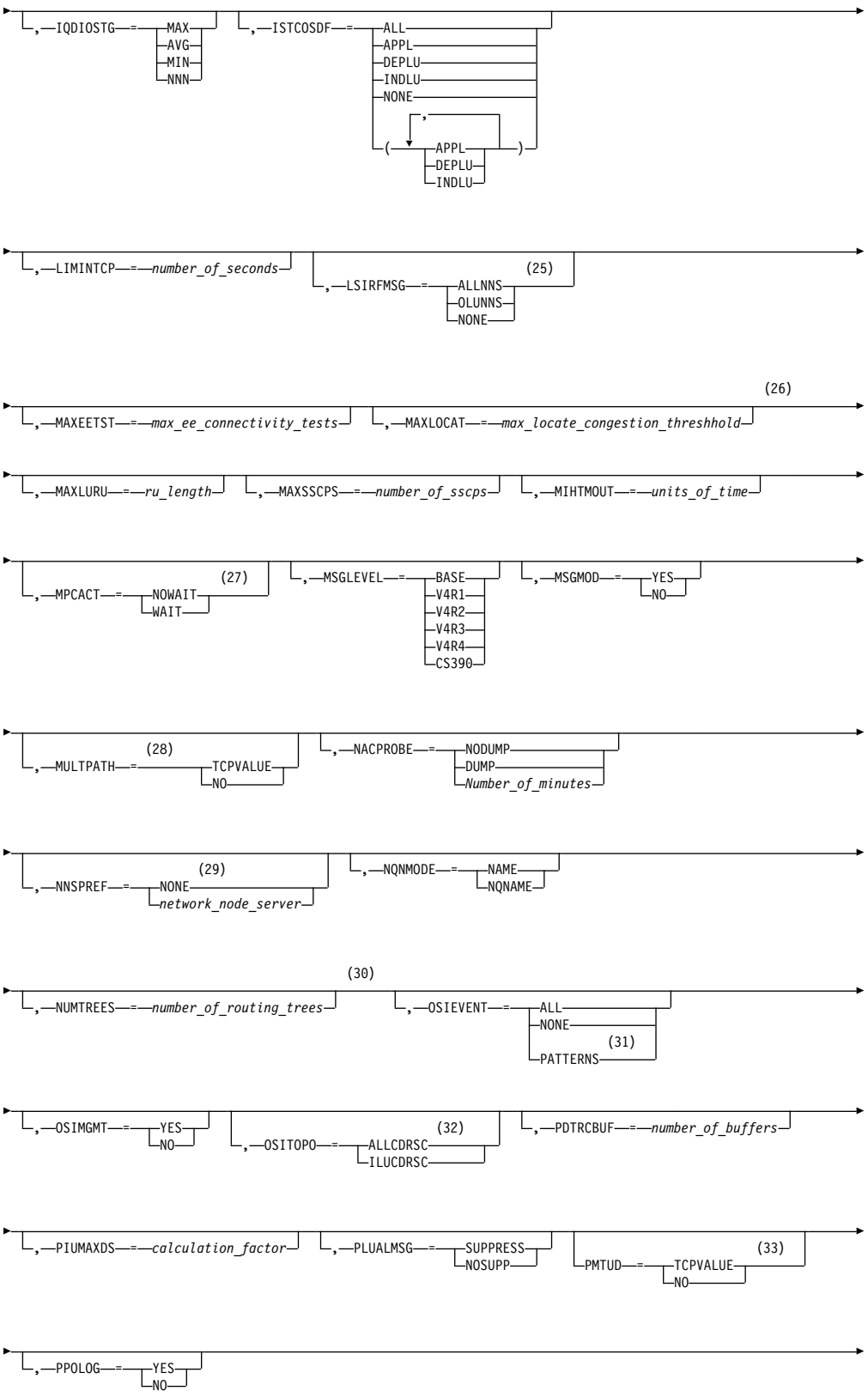
```
| IST1189I VRTG     = NO                  VRTGCPCP = YES
| IST1189I VTAMEAS  = 32001               WARM     = NO
| IST1189I XCFGRPID = ***NA***            XCFINIT  = ***NA***
| IST1189I XNETALS  = NO
| IST314I END
```

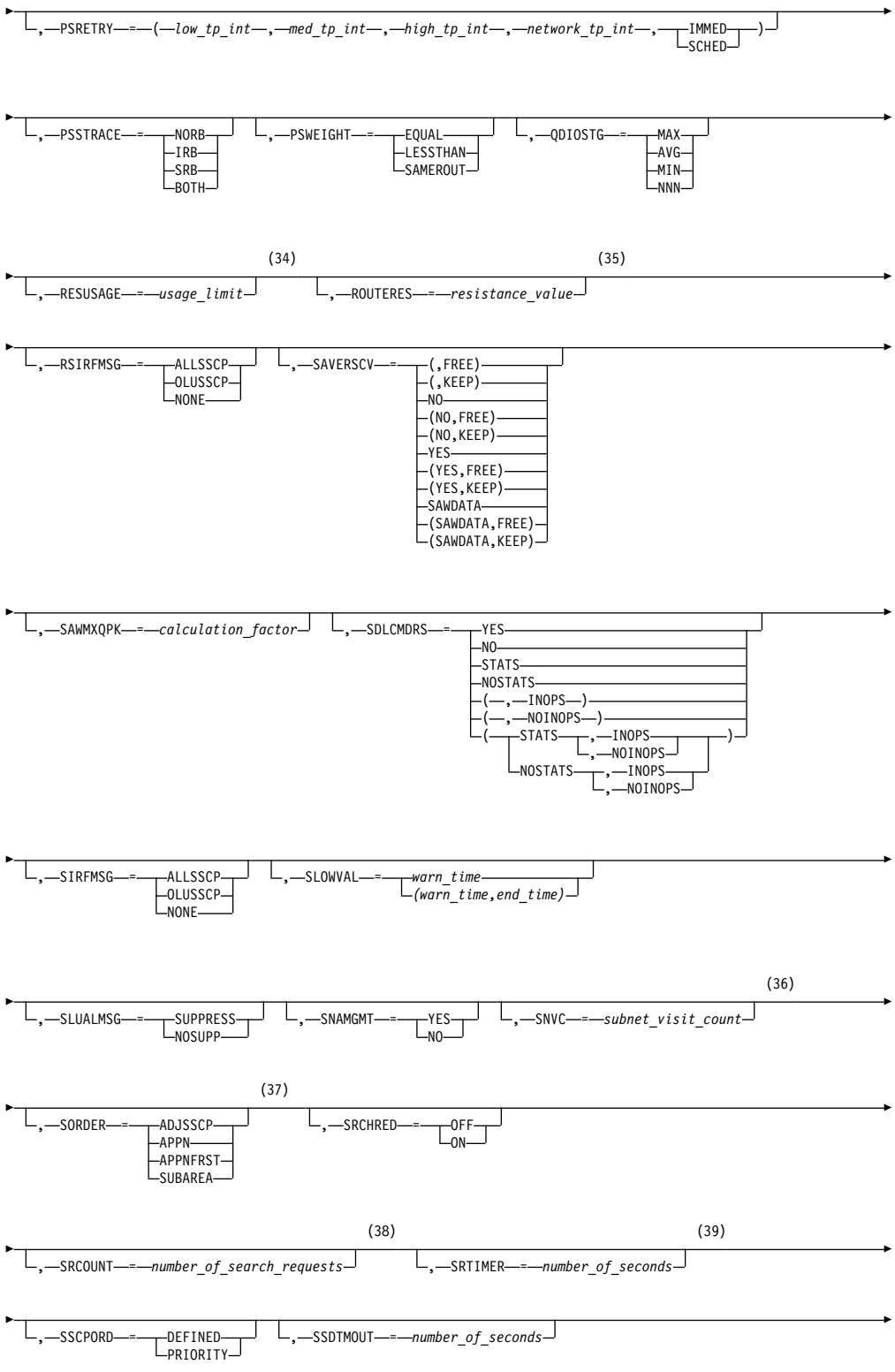
MODIFY VTAMOPTS command

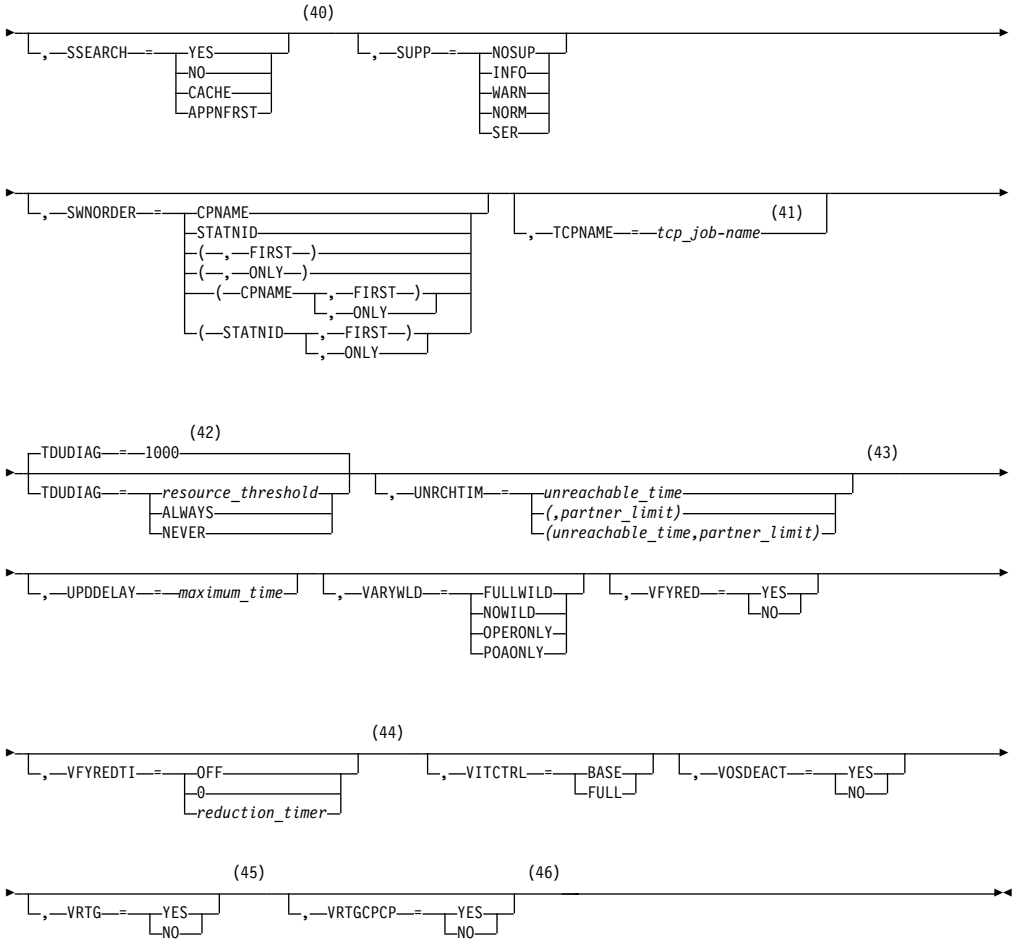



,DISCNTIM=(time_period1,time_period2)
,DLRORDER=STATNID
CPNAME
(,FIRST)
(,ONLY)
(CPNAME ,FIRST)
,ONLY
(STATNID ,FIRST)
,ONLY
,DSACTION=SYSLOG
CONSOLE
(SYSLOG
CONSOLE
,SENSE
,TERM
,NONE
,
,ALL
,msg_count
)
,DSCOUNT=number_of_buffers
,DSIRFMSG=(11) ALLSSCP
OLUSSCP
NONE
,DSMONITR=APPL
NO
YES
,DSPLYDEF=number_of_messages
,DSPLYWLD=FULLWILD
NOWILD
OPERONLY
POAONLY
,DSTRUST=ALL
CDRSC
DLUR
LOCALAPP
LOCALLU
TELNET
NONE
(, CDRSC DLUR LOCALAPP LOCALLU TELNET)
,DUPDEFS=ALL
NONE
APPL
DEPLU
,DYNDLGMD=logmode_name
NONE
,DYNMODTB=table_name
NONE
,EEPORTCK=NO
YES
,EEHPRANR=(12) NO
YES
,EEVERIFY=(13) ACTIVATE
NEVER
Number_of_minutes
,ENCRPREF=NONE
value
,ENCRYPTN=(14) YES
NO
CCA
CUSP
24
31
,ENSEMBLE=(15) NO
YES


,—ESIRFMSG—=—ALLSSCP—
OLUSSCP—
NONE—
,—EXPFLTRM—=—expedited_flow_count—
,—FSIRFMSG—=—ALLSSCP—
OLUSSCP—
NONE—
,—GVBKDLY—=—NO—
Yes—
,—HOSTNAME—=—fully_qualified_hostname—(16)
NONE—
,—HOTIOTRM—=—percentage_of_buffer_pool—
(17)
,—HPRITMSG—=—BASE—
ENHANCED—
,—HPRNCPBF—=—YES—
NO—
,HPRPSDLY=ps_delay—(17)
,—HPRPSMSG—=—ALL—(17)
ps_msg_count—
,—HPRPST—=—(—low_limit—,—med_limit—,—high_limit—,—network_limit—)—
(17) (18)
,—HPRSESLM—=—NOLIMIT—
sess_lim—
,—HPRSTALL—=—0—(17)
timeout_limit—
(19) (20) (21)
,—INOPCODE—=—(—ALL—
ALL—
modulename—
,—ALL—
ALL—
inopcode—
,—DUMPENABLE—
DUMPDISABLE—
DUMPDEFAULT—)—
,—INOPDUMP—=—OFF—(22)
(—OFF—)—
,—BASE—
IQDIO—
ISM—
QDIO—
ROCE—
TCP—
XCF—
ON—
(—ON—)—
,—BASE—
IQDIO—
ISM—
QDIO—
ROCE—
TCP—
XCF—
,—IOINT—=—number_of_seconds—
,—IOMSGLIM—=—number_of_message_pairs—
,—IOPURGE—=—timeout_value—
,—IPADDR—=—ip_address—(23)
,—IPINFO—=—SENDALL—
SNDLOCAL—
DISPONLY—
NONE—
,—IQDCHPID—=—ANY—
IQDCHPID—=—ANY—(24)
NONE—
CHPID—


,IQDIOSTG=MAX
AVG
MIN
NNN
,ISTCOSDF=ALL
APPL
DEPLU
INDLU
NONE
,
(APPL)
DEPLU
INDLU
,LIMINTCP=number_of_seconds
,LSIRFMSG=(25) ALLNNS
OLUNNS
NONE
,MAXEETST=max_ee_connectivity_tests
,MAXLOCAT=(26) max_locate_congestion_threshhold
,MAXLURU=ru_length
,MAXSSCPS=number_of_sscps
,MIHTMOUT=units_of_time
,MPCACT=(27) NOWAIT
WAIT
,MSGLEVEL=BASE
V4R1
V4R2
V4R3
V4R4
CS390
,MSGMOD=YES
NO
,MULTPATH=(28) TCPVALUE
NO
,NACPROBE=NODUMP
DUMP
Number_of_minutes
,NNSPREF=(29) NONE
network_node_server
,NQNMODE=NAME
NQNAME
,NUMTREES=(30) number_of_routing_trees
,OSIEVENT=ALL
NONE
PATTERNS(31)
,OSIMGMT=YES
NO
,OSITOPO=(32) ALLCDRSC
ILUCDRSC
,PDTRCBUF=number_of_buffers
,PIUMAXDS=calculation_factor
,PLUALMSG=SUPPRESS
NOSUPP
PMTUD=(33) TCPVALUE
NO
,PPOLOG=YES
NO


,—PSRETRY—=—(—low_tp_int—,—med_tp_int—,—high_tp_int—,—network_tp_int—,—IMMED—)—
SCHED
,—PSSTRACE—=—NORB—
IRB—
SRB—
BOTH—
,—PSWEIGHT—=—EQUAL—
LESSTHAN—
SAMEROUT—
,—QDIOSTG—=—MAX—
AVG—
MIN—
NNN—
(34)
,—RESUSAGE—=—usage_limit—
(35)
,—ROUTERES—=—resistance_value—
,—RSIRFMSG—=—ALLSSCP—
OLUSSCP—
NONE—
,—SAVERSCV—=—(,FREE)—
(,KEEP)—
NO—
(NO,FREE)—
(NO,KEEP)—
YES—
(YES,FREE)—
(YES,KEEP)—
SAWDATA—
(SAWDATA,FREE)—
(SAWDATA,KEEP)—
,—SAWMXQPK—=—calculation_factor—
,—SDLCMDRS—=—YES—
NO—
STATS—
NOSTATS—
(—,—INOPS—)—
(—,—NOINOPS—)—
(—STATS—,—INOPS—)—
,—NOINOPS—
NOSTATS—,—INOPS—
,—NOINOPS—
,—SIRFMSG—=—ALLSSCP—
OLUSSCP—
NONE—
,—SLOWVAL—=—warn_time—
(warn_time,end_time)—
(36)
,—SLUALMSG—=—SUPPRESS—
NOSUPP—
,—SNAMGMT—=—YES—
NO—
,—SNVC—=—subnet_visit_count—
(37)
,—SORDER—=—ADJSSCP—
APPN—
APPNFRST—
SUBAREA—
,—SRCHRED—=—OFF—
ON—
(38)
,—SRCOUNT—=—number_of_search_requests—
(39)
,—SRTIMER—=—number_of_seconds—
,—SSCPORD—=—DEFINED—
PRIORITY—
,—SSDTMOUT—=—number_of_seconds—



Notes:

1 API64R can be modified only when running in z/Architecture mode.

2 APPNCOS can be modified only if NODETYPE was specified during VTAM START processing.

3 BNDYN can be modified only if BN=YES was specified during VTAM START processing.

4 BNORD can be modified only if BN=YES was specified during VTAM START processing.

5 CDSREFER can be modified only if NODETYPE=NN and CDSERVR=NO were specified during VTAM START processing.

6 CMPMIPS is meaningful only if the value for CMPVTAM is greater than 1.

7 CONNTYPE can be modified only if NODETYPE was specified during VTAM START processing.

8 CPCP can be modified only if NODETYPE was specified during VTAM START processing.

9 DIRSIZE can be modified only if NODETYPE=NN was specified during VTAM START processing.

10 DIRTIME can be modified only if NODETYPE=NN was specified during VTAM START processing.

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

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

13 The EEVERIFY start option is meaningful only if VTAM provides RTP-level HPR support. The EEVERIFY start option can be modified only if the NODETYPE start option is specified and the RTP value is specified on the HPR start option.

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

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

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

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

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

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

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

21 INOPCODE has no effect unless INOPDUMP is active for the resource when an inoperative condition is detected. See the section called MODIFY INOPCODE command for more details.

22 When altering the INOPDUMP VTAM start option, the resulting INOPDUMP status is propagated to all TRLEs in the TRL major node if the command is globally set, or it is propogated to a subset of resources that are identified by

one or more INOPDUMP control groups. The INOPDUMP setting becomes the default status for any subsequently activated TRLEs.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

38 SRCOUNT is meaningful only when SRCHRED=ON.

39 SRTIMER is meaningful only when SRCHRED=ON.

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

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

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

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

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

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

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

Abbreviations

Operand	Abbreviation
MODIFY	F
MSGLEVEL	MSGLVL
PLUALMSG=NOSUPP	PLUALMSG=NOSUP
PLUALMSG=SUPPRESS	PLUALMSG=SUPP
SLUALMSG=NOSUPP	SLUALMSG=NOSUP
SLUALMSG=SUPPRESS	SLUALMSG=SUPP

When using an abbreviation in place of an operand, code the abbreviation exactly as shown in the table. For example, when coding the abbreviation for PLUALMSG=SUPPRESS, code only PLUALMSG=SUPP.

Purpose

The MODIFY VTAMOPTS (VTAM start options) command enables you to change certain values that might have been specified on VTAM start options. See the z/OS Communications Server: SNA Resource Definition Reference for descriptions of each of the start options that you can change with this command.

There are no default values on the MODIFY VTAMOPTS command. In general, only the values that you specify are affected, and operands that are not specified

on the command are unaffected. The exceptions are the IPADDR and HOSTNAME operands, which do affect each other when specified on the MODIFY VTAMOPTS command.

Note: If a start option affects individual resources, and you change the value of the start option with this command, the change does not go into effect until the major nodes for those resources are deactivated and reactivated. The command takes effect for major nodes that are activated after you issue this command and for dynamic cross-network resources that are dynamically defined after the command is issued.

Operands

procname

The procedure name for the command. If *procname* in the START command was specified as *startname.ident*, where *startname* is the VTAM start procedure and *ident* is the optional identifier, either *startname.ident* or *ident* can be specified for *procname*.

If *procname* in the START command was *startname*, *startname* must be specified for *procname*.

Chapter 4. SNA Diagnosis Volume 1: Techniques and Procedures

Missing VTAM trace records

Problem statement
The expected output data is missing from a VTAM trace that was run with GTF active.

Common symptoms
There is no VTAM data, missing VTAM data, or unwanted data in the GTF trace data set.

Probable cause
When TRACE=USR is specified, GTF collects all USR events issued in the MVS system.

User response
To select the events you want to trace, specify USRP on the GTF macroinstruction and select the required event identifiers (EIDs) as shown in the following examples:

VTAM buffer EIDs: FEF FF1 FF0 (EFEF EFF1 EFF0)

VTAM line trace EIDS (not formatted by GTFTRACE): FE4 FF2 (EFE4 EFF2)

VTAM I/O trace EID: FE1 (EFE1)

VTAM internal trace EID: FE1 (EFE1)

VTAM 3270 IDS trace EID: F90 (EF90)

See Activating network traces for more information.

Note: To prompt the system for VTAM records, specify USRP in the parameter field of the GTF procedure. You must code a GTF procedure that is used by VTAM only. If you do not, you will get GTF USR output that contains unwanted records.

Using VTAM dump analysis tools

SPANC

SPANC analyzes any or all of the VTAM storage pool anchors (SPANCS). If you use no operands, the number of pages in use, the page size, and where the storage is allocated (common, private, or high virtual common) for every SPANC pool are displayed. Options are available to:

- Designate a specific SPANC pool to be analyzed
- Limit the output to CSA, PRIVATE, or HVCOMM SPANCs
- Determine the number of FBQEs on each page
- Determine the size of each FBQE on each page
- Display a sample of storage from each page
- Determine the page addresses associated with pools
- Process data in a specific pool through the use of an exit

Operands

Pool

Specify the name of a specific SPANC pool to be analyzed. If the pool operand is not used, all SPANCs are processed. If a pool name other than one from the list of valid pool names is specified, no output will be produced.

Note:

1. Pools named 'AVAIL' are not valid and are used only as placeholders. They are displayed in the event storage overlays occur.
2. The FBQE Count, FBQE List, Process, and Exit operands are mutually exclusive; use only one of them.

Pooltype

Specifies to format ALL, CSA, PRIVATE, or HVCOMM SPANCS. The default value is ALL. This is valid only when POOL value ALL is specified.

FBQE count

Specify Y to have the number of FBQEs on each page of the selected pool (or all pools if no pool was selected) listed. The FBQE contains the length of the free storage it describes. Use this option for performance or storage fragmentation problems. Long chains of FBQEs can cause VTAM performance problems.

FBQE list

Specify Y to have each FBQE on each page of the selected pool (or all pools if no pool was selected) listed. The FBQE contains the length of the free storage it describes. Use this option for storage fragmentation problems.

Length

Specify the number of bytes of storage you want displayed from the beginning of each page of the selected pool (or all pools if no pool was selected). Any hexadecimal number from X'001' to X'FF8' or any decimal number from 1 to 4088 may be specified. Use this option to get a sample of storage from each page of a specific SPANC pool.

Process

Specify **Map** to display the address of each page that is associated with the selected pool (or all pools if no pool was selected). Use this option with VSMDATA to determine the SPANC pages mapped by each MVS subpool.

Exit

Use Exit to have one of the four exit functions process information on each page of selected SPANC pools. Specify exit FMCB, RU, RUPE, or SIB.

- The FMCB exit searches SPANC pools FMCB, PLUSFMCB, or SSCPFMCB for FMCBs and formats those found.
- The RU exit searches SPANC pools UTILCSAS, UTILCSAL, UTILPVTL, or UTILPVTS for all RUs or a specific RU on a page of storage and displays the address and data for those found.

  Note: These pools may contain data that is not an RU. To locate a specific RU, specify the actual RU in the Value field, a Type of X, and a displacement of X'06'.
- The RUPE exit searches SPANC pools RUPECOMM or RUPEPRIV for all RUPEs in the pool. SPANC displays the RUPE address, CPCBOPC, RUPEOAF, RUPEDAF, and RU data for those found.

- The SIB exit searches SPANC pool SIB for all SIBs in the pool. SPANC displays the SIB address, FSMs, sensecode, PLU NetID, PLU name, SLU NetID, SLU name, and procedure correlation identifier (PCID) for SIBs that are found.

  Note: For all EXIT routines, an address followed by an asterisk (*) indicates that the buffer pool is allocated.

Note: The following three operands, Displacement, Value, and Value Type, must be used together with the Exit operand. The Exit operand may be used alone.

Displacement
Enter the displacement into the data portion of a page where Value is to be found. The maximum decimal displacement is 4095, and the maximum hexadecimal displacement is X'FFF'.

Value
Enter a character, hex, or binary value to be searched for at the displacement specified by Displacement.

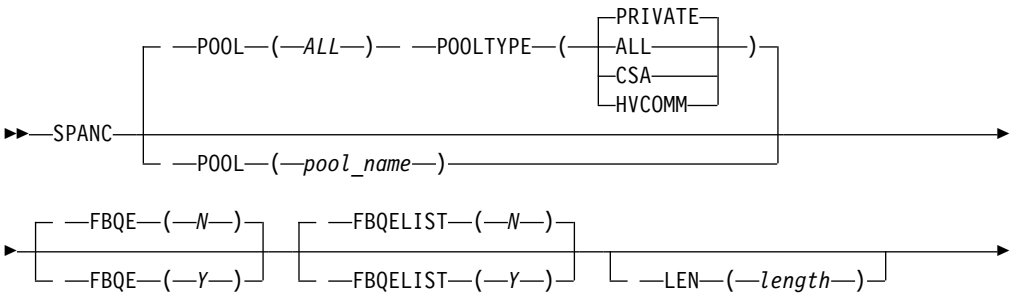
Value may contain character or hexadecimal data of 1–8 bytes in length. Character data should consist of alphanumeric characters. Hexadecimal data should contain an even number of hexadecimal digits in the form X'xx..', otherwise, the high-order half-byte is assumed to be 0.

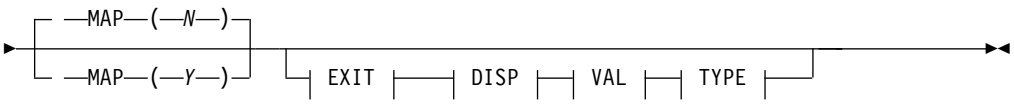
Binary data can be used to look at a particular bit within a byte. You may specify 1 byte of binary data in the form X'xx'. Only 1 bit within the byte may be selected. Therefore, you can specify only the following hexadecimal values: 01, 02, 04, 08, 10, 20, 40, and 80. A value with more than 1 bit set (for example, 82) will not be accepted.

Value type
Enter B for binary, C for character, or X for hexadecimal to indicate the type of data entered for Value.

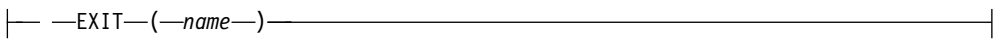
Use the following syntax as an alternative to the panel interface.

Syntax

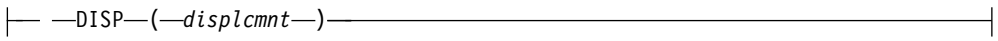




EXIT



DISP



VAL

TYPE

Sample output

SPANC

```
                            SPANC Analysis
Page addresses for pool: RUPEPRIV
08D18008
Pages in use for pool RUPEPRIV =        1    Page size = 00001000  PRIVATE
Page addresses for pool: RUPECOMM
080D4010
Pages in use for pool RUPECOMM =        1    Page size = 00001000  COMMON
Page addresses for pool: SIB
091ED008
Pages in use for pool SIB      =        1    Page size = 00001000  PRIVATE
Page addresses for pool: SSCPFMCB
08D65008  0915E008
Pages in use for pool SSCPFMCB =        2    Page size = 00001000  PRIVATE
Page addresses for pool: NQDAT
09123008
Pages in use for pool NQDAT    =        1    Page size = 00001000  PRIVATE
Page addresses for pool: EPTDVT
08388010  08389010
Pages in use for pool EPTDVT   =        2    Page size = 00001000  COMMON
Page addresses for pool: CDRSC
090F4008  091F5008
Pages in use for pool CDRSC    =        2    Page size = 00001000  PRIVATE
Page addresses for pool: ACDEB
080D0010
Pages in use for pool ACDEB    =        1    Page size = 00001000  COMMON
Page addresses for pool: HSQH
 08474010
Pages in use for pool HSQH     =        1    Page size = 00001000  COMMON
Page addresses for pool: ERTE
08D2C008
Pages in use for pool ERTE     =        1    Page size = 00001000  PRIVATE
```

```
Page addresses for pool: WREEID
08D60008  08D62008
Pages in use for pool WREEID   =        2    Page size = 00001000  PRIVATE
Page addresses for pool: FMCBEXT
0837E010
Pages in use for pool FMCBEXT  =        1    Page size = 00001000  COMMON
Pages in use for pool SIBEXT   =        0    Page size = 00001000  PRIVATE
Pages in use for pool AVAIL    =        0    Page size = 00001000  PRIVATE
⋮
Pages in use for pool HPRINFO  =        0    Page size = 00001000  PRIVATE
```

SPANC POOL(SIB) EXIT(SIB)

```
                            SPANC Analysis
 SIB ADDR   FSMs Sensecode PLUNETID  PLUNAME  SLUNETID   SLUNAME        PCID
 ---------  ---- --------- --------  -------- --------   --------- ---------------
 02CCA020*  F400 00000000  NETA      APPCAP05 NETC       APPCAP06  D5376DF4EA88AAB
 Matches found in exit =               1
 Pages in use for pool SIB      =        1    Page size = 00010000  PRIVATE
```

SPANC POOL(FMCB) EXIT(FMCB)

```
                            SPANC Analysis
 02908028*
 TSPLNGTH   2C    TSPEPTA    0291A1F0   TSPDEBA    02923140
 TSPTCFL1   DC    TSPPSFL1   00         TSPSTAT1   8000
  FMCB: 02908028
     +0000  032C8000  02907028  0292A3D8  00000000  | .........ktQ.... |
     +0010  0291A1F0  00000000  00000000  00000000  | .j~0............ |
     +0020  02919270  00000000  1C016000  00000018  | .jk.......-..... |
     +0030  00000000  00000000  00000000  00000000  | ................ |
     +0040  00000000  00000000  02919040  00000000  | .........j. .... |
⋮
 02908160*
 TSPLNGTH   2C    TSPEPTA    0291A1F0   TSPDEBA    02923370
 TSPTCFL1   DC    TSPPSFL1   00         TSPSTAT1   0000
  FMCB: 02908160
     +0000  032C0000  029070B0  0292AE88  00000000  | .......[.k_h.... |
     +0010  0291A1F0  00000000  00000000  00000000  | .j~0............ |
     +0020  02919270  00000000  1C016000  00000018  | .jk.......-..... |
     +0030  00000000  00000000  0101001D  0101001D  | ................ |
     +0040  00000000  00000000  02919040  00000000  | .........j. .... |
⋮
 Matches found in exit =               2
 Pages in use for pool FMCB     =        1    Page size = 00010000  COMMON
```

SPANC POOL(UTILPVTS) EXIT(RU)

```
                            SPANC Analysis
 RU ADDR                           RU Data
 ---------  ------------------------------------------------------------------
 02C72020   0E000000000100
 02C64020*  000000030DD5C5E3C14BE3C8C9E2C8D6E2E3000000000000000000000000000000
 02C64048   0000001F0019D4D6C4C9C6E840C9C47EC4C1E5C56BE3C1C2D3C54040404040
 02CBB020   0000003D00378106801040020200 00E2D5C1E2E5C3D4C7F308C1D7D7C3C1D7F0
 02C74020   000E1C1C02C6709002C6706802C6706800000000000000000000000000000000
 02C740A8*  0000005F00598106200302D5376DF4EA88AAB0000000000006F308C1D7D7C3C1
 Matches found in exit =               6
 Pages in use for pool UTILPVTS =        4    Page size = 00001000  PRIVATE
```

SPANC POOL(RUPEPRIV) EXIT(RUPE)

```
                            SPANC Analysis
 RUPE ADDR  Op code     RUPEOAF      RUPEDAF              RU Data
 ---------  --------  ------------  ------------  ----------------------
 02C53020*  08810620  000000010001  000000010010  REQ=8106200302D5376DF4EA
 02C530C0*  0F310000  00000001000F  000000010012  REQ=31001307B0B050B30080
 02C53160*  0F310000  00000001000F  000000010012  REQ=31001307B0B050B30080
 02C53200*  04000000  000000010003  000000010003  REQ=C4C9E2D7D3C1E840C9C4
 02C532A0   04000000  000000010003  000000010003
```

```
02C53340*  0B310000  00000001000F  000000010012   REQ=FF310281A02801880002
Matches found in exit =               6
Pages in use for pool RUPEPRIV =        1    Page size = 00010000  PRIVATE
```

STORAGE

Use STORAGE to format BPCBs, BPDTYs, PXBs, SPANCs, and SPTAEs.

Use the following syntax as an alternative to the panel interface.

Syntax

Sample output

STORAGE

```
                       STORAGE Analysis
⋮
 BPD
  DATA: 02952000
     +0000  000C000C  00000000  02952508  00000000  | .........n...... |
     +0010  00000000  00002000  7FFFFFFF  02952390  | ........"....n.. |
     +0020  029521A8  00CC41F8  00000000  000003E8  | .n.y.".8.......Y |
     +0030  013400FD  02952054  0281E000  02957000  | .....n...a\..n.. |
     +0040  00000000  00000000  00000000  00000000  | ................ |
⋮
 Buffer pool ID SMS1
  BPCB: 02952390
     BPCBRPHA. 00000000  BPCBRPHB. 00000000  BPCBRPH1. 00000000
     BPCBRPH2. 00000000  BPCBAVNO. 00000000
  DATA: 02952390
     +0000  00000000  00000000  600000E7  02953FF8  | ........-..X.n.8 |
     +0010  00000000  00000000  00000000  00000000  | ................ |
     +0020  00000000  00000000  02952000  00000000  | .........n...... |
     +0030  00000000  00000000  00000000  00000000  | ................ |
     +0040  00000000  00000000  00000000  00000000  | ................ |
⋮
 SPANC  02957204
 POOLNUM 0000       POOLNAME RUPEPRIV  ASSOCID N/A
  DATA: 02957204
     +0000  D9E4D7C5  D7D9C9E5  000C0002  00000000  | RUPEPRIV........ |
     +0010  00000000  00000000                      | ........         |
⋮
  SPTAE: 0295721C
     SPTFLAGS. 10        SPTALLOC. 00000000  SPTFREE.. 02C53008
     SPTSIDEQ. 00000000  SPTUSECT. 00000320  SPTHIUSE. 000003C0
     SPTNBRPG. 00000001  SPTLNGTH. 000000A0
⋮
  DATA: 0295721C
     +0000  02957204  0295725C  00000000  00000000  | .n...n.*........ |
     +0010  00000000  00100000  00000000  02C53008  | .............E.. |
     +0020  00000000  00000320  000003C0  00000001  | ...........{.... |
     +0030  00000000  000000A0  00000199  00000001  | .......μ...r.... |
⋮
  SPTAE: 0295725C
     SPTFLAGS. 00        SPTALLOC. 00000000  SPTFREE.. 00000000
     SPTSIDEQ. 00000000  SPTUSECT. 00000000  SPTHIUSE. 00000000
     SPTNBRPG. 00000000  SPTLNGTH. 00000178
⋮
  DATA: 0295725C
     +0000  02957204  00000000  00000000  00000000  | .n.............. |
```

```
     +0010  00000000  00000000  00000000  00000000  | ................ |
     +0020  00000000  00000000  00000000  00000000  | ................ |
     +0030  00000000  00000178  0000000A  00000000  | ................ |
⋮
SPANC  18450568
POOLNUM 0086       POOLNAME SM3270    ASSOCID N/A
 DATA: 18450568
    +0000  E2D4F3F2  F7F04040  86190007  00000000  | SM3270  f....... |
    +0010  00000000  00000000                      | ........         |

 SPTAE: 18450580
    SPTFLAGS. 02        SPTNBRPG. 00000001  SPTLNGTH. 000007F0
    SPTNBRCS. 00000000
    SPTALLOC. 00000000  00000000            SPTFREE6. 000001EF  8580EFC0
    SPTSIDEQ. 00000000  00000000            SPTUSECT. 00000000  00000000
    SPTHIUSE. 00000000  000007F0
 DATA: 18450580
    +0000  18450568  18450618  00000000  00000000  | ................ |
    +0010  00000000  00020000  00000000  00000000  | ................ |
    +0020  000001EF  8580EFC0  00000000  00000000  | ....e..{........ |
    +0030  00000000  00000000  00000000  000007F0  | ...............0 |
    +0040  00000001  00000001  00000000  00000000  | ................ |
    +0050  CFD2DEC8  69632953  00000000  0000F000  | .K.H..........0. |
    +0060  00000000  0000F000  CFD2DEC8  69632A53  | ......0..K.H.... |
    +0070  00000000  000007F0  001E001E  00000000  | .......0........ |
    +0080  00000000  00000000  00000000  0000F000  | ..............0. |
    +0090  0000F000  00000000                      | ..0.....         |
⋮
  SPTAE: 18450910
     SPTFLAGS. 00        SPTNBRPG. 00000000  SPTLNGTH. 0002CFC0
     SPTNBRCS. 00000001
     SPTALLOC. 00000000  00000000            SPTFREE6. 00000000  00000000
     SPTSIDEQ. 00000000  00000000            SPTUSECT. 00000000  00000000
     SPTHIUSE. 00000000  0002CFC0
  DATA: 18450910
     +0000  18450568  00000000  00000000  00000000  | ................ |
     +0010  00000000  00000000  00000000  00000000  | ................ |
     +0020  00000000  00000000  00000000  00000000  | ................ |
     +0030  00000000  00000000  00000000  0002CFC0  | ..............{ |
     +0040  00000000  00000001  00000000  00000000  | ................ |
     +0050  00000000  00000000  00000000  00000000  | ................ |
     +0060  00000000  00000000  00000000  00000000  | ................ |
     +0070  00000000  0002CFC0  00010001  00000000  | .......{........ |
     +0080  00000000  00000001  00000000  0002D000  | ..............}. |
     +0090  0002D000  00000000                      | ..}.....         |
```

Using traces

This topic describes when to use traces and shows where in the network you can use each trace to collect data (see Figure 1 on page 147). Examples are included to help you interpret trace output.

This topic includes the following information:

- "Traces provided by VTAM"
- Traces provided by NCP

Traces provided by VTAM

The VTAM program provides several kinds of traces to record the flow of network events. Each trace occurs at a different point in the network (see Figure 1 on page 147). This difference allows you to narrow down the problem by following a request/response unit (RU) through the network and determining where in the

network the RU is incorrect. (The RU could be out of sequence or lost, the data in the RU could have been changed, and so on.)

This topic includes the following information:

- Activating network traces
- Starting the generalized trace facility (GTF)
- "Formatting and printing trace records" on page 147
- Trace output
- The APPN route selection trace shows the flow of information throughout the APPN session setup route selection process. See APPN route selection trace for more information
- VTAM traces and their results:
  - The buffer contents trace shows the contents of inbound and outbound message buffers. See Buffer contents trace for more information.
  - The I/O trace shows (in order) all I/O sent between VTAM and a particular network resource. See I/O trace for more information.
  - The QDIOSYNC trace is used to synchronize host and OSA-Express2 or later diagnostic data. See QDIOSYNC trace for more information.
  - The resource state trace creates VTAM internal trace (VIT) entries when the current state or desired state, or both, of a resource for which tracing has been requested changes. See Resource state trace for more information.
  - The session management exit (SME) buffer trace shows the input and output of the session management exit (SME) ISTEXCAA. See Session management exit (SME) buffer trace for more information.
  - The SMS (buffer use) trace shows information about the use of buffers, including how often a buffer pool has expanded, how many buffers are currently being used, and what was the maximum number of buffers used since the last trace record was written. See SMS (buffer use) trace for more information.
  - The TGET/TPUT trace shows each message as it passes between a TSO command processor and TSO/VTAM. See TGET/TPUT trace for TSO/VTAM for more information.
  - The IDS 3270 trace shows the content of inbound and outbound messages buffers that might be involved in a possible 3270 data stream error. See "Buffer contents trace for 3270 IDS incidents" on page 149 for more information.
  - A specialized Generalized Trace Facility (GTF) formatting exit to format 3270 data streams. See "3270 data stream formatting" on page 151 for more information.

The VTAM internal trace (VIT) is discussed in z/OS Communications Server: SNA Diagnosis Vol 2, FFST Dumps and the VIT.

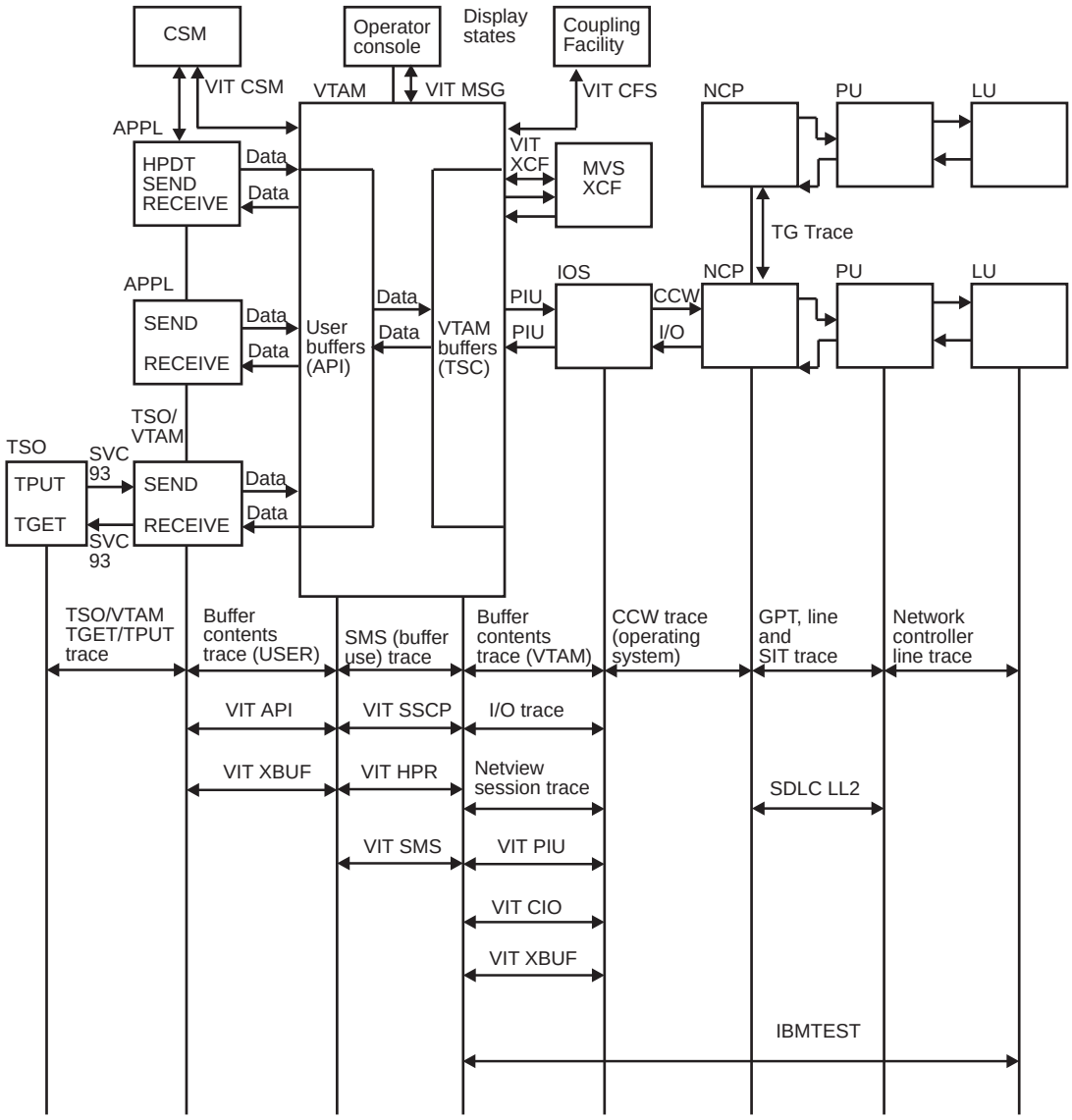


Figure 1. Network traces provided by VTAM

Formatting and printing trace records

Table 4 on page 148 indicates which traces can be formatted and printed by each of the formatting programs.[1] Descriptions of the programs appear later in the topic. In this table:

- FP indicates that the trace is both formatted and printed (for VTAM records only).
- UP indicates that the trace is printed but not formatted.
- A blank entry indicates that the trace is not formatted or printed.

1. This is not a complete list of programs that process external trace data.

Table 4. Processing externally recorded trace data

Trace	ACF/TAP	IPCS
Buffer contents trace	FP	FP
Generalized PIU trace	FP	
I/O trace	UP	FP
Line trace [2]	FP	FP [1]
Network controller line trace	FP	FP [1]
Scanner interface trace	FP	
SME buffer trace		FP
SMS (buffer use) trace	UP	FP
TGET/TPUT trace	UP	UP
Transmission group trace	FP	FP [1]
VTAM internal trace [3]	UP	FP
3270 IDS trace		FP
3270 data stream formatting		FP

Note:

1. Only scanner type 1, 2, and 3 records are processed. All others must be processed using ACF/TAP.
2. ACF/TAP must be used except for 3705 traces. See Line trace operation for more information.
3. ACF/TAP allows you to specify some formatting parameters if the VIT is running in external mode.

Using IPCS with the GTF trace option

To format and print VTAM traces, set *USR(symnum 1[,symnum2]...[,symnum6]|ALL)* on the GTFTRACE option.

For *symnum*, use either a symbolic name or a number representing the trace that you want formatted and printed. If you specify USR(ALL), IPCS formats and prints all user and subsystem traces recorded by the GRF. For information on starting the GRF, see Starting the generalized trace facility (GTF).

Table 5 lists the valid symbols and numbers for the VTAM traces.

Table 5. Symbols and numbers for formatting and printing VTAM traces

Symbol	Number	Trace
INT1[2]	FE1	VTAM internal trace, I/O trace
TPIO	FEF	VTAM buffer contents trace (TSC component) Trace output says "VTAM."
CL01	FF1	SME buffer trace
CL01	FF1	VTAM buffer contents trace (API component) Trace output says "USER."
CL02	FF0	SMS (buffer use) trace
LINE	FF2	NCP 37xx line or TG trace

Table 5. Symbols and numbers for formatting and printing VTAM traces (continued)

Symbol	Number	Trace
APTH	FE2	TSO/VTAM TGET/TPUT trace
APTD	FE4	Line PIU, generalized PIU, or network controller line trace
	F90	IDS 3270 buffer trace

Note: The symbol and the number can be used interchangeably, for example, USR(LINE) or USR(FF2); however, when starting the GTF, use the number.

See Related information on problem topics in other libraries to determine what document describes how to use the GTF and IPCS.

VTAM trace record formats

This information shows the trace record formats for the following traces:

- APPN route selection trace
- Buffer contents trace for the VTAM application programming interface (API) and the transmission subsystem component (TSC)
- Buffer contents trace for the Common Management Information Protocol (CMIP) services management information base (MIB) API
- Line trace
- Buffer contents trace for 3270 IDS incidents

Buffer contents trace for 3270 IDS incidents

The 3270 intrusion detection system (IDS) writes GTF trace records for the saved outbound messages and the inbound message that caused the incident to be detected. The maximum number of saved outbound messages is determined by the DSCOUNT parameter specified on the VTAM start options or on the GROUP or APPL resource definition statements. Up to DSCOUNT outbound trace records are written followed by an inbound trace record for each incident.

3270 IDS trace operation:
The traces are collected if the DSMONITR option is YES or APPL and the inbound 3270 data steam contains data that might cause a VTAM application to behave in unanticipated ways. The DSMONITR and DSCOUNT parameters are described in z/OS Communications Server: SNA Resource Definition Reference.

Make sure that the GTF with the TRACE=USR option and USR(F90) is active. See Starting the generalized trace facility (GTF). To print these trace records, use IPCS and specify USR(F90) on the GTFTRACE option. For more information on printing trace output, see "Formatting and printing trace records" on page 147.

3270 IDS trace output:
The trace records that the 3270 IDS trace creates contain a 12-byte GTF header and a 192-byte trace header that is followed by the data portion of the PIU in unformatted hexadecimal. The entire RU is traced. If the RU is longer than 7796 bytes, it spans several trace entries. Figure 2 on page 150 shows an example of 3270 IDS trace output. The trace fields are explained in Table 6 on page 150.

2. I/O trace is now done using VIT.

```
USRFD F90 ASCB 00F7B200           JOBN USER1
                                        **** 3270 Data Stream Error ****
          3270    NETA.L7201A      /NETA.TSO0001         LRC(000,000)    OUTBOUND    COMPLETE SEGMENT
          Time    UTC 2015/12/18 15:28:22.092304  LOC 2015/12/18 10:28:22.092304
          Event   Token 0000000022  SID EAABEEC3 2C910672  Buffer 10 of 11
          Overlap Row 001  Col 001  Offset 00000
          OUT     SEQ X'000B'  Offset 00005  Length 00001
                                  1D                                                *.                  *
          IN      SEQ X'0006'  Offset 00002  Length 00001
                                  00                                                *.                  *
          Buffer  UTC 2015/12/18 15:28:16.950696  LOC 2015/12/18 10:28:16.950696
          VTAM    TH=40000000 00000000 00000001 00010001 1800003A 0076000A 000F  RH=038000
                  SEQ 000A-000A           F3000640 00F1C300 0501FF02                *3.. .1C.....       *
              GMT-12/18/2015 15:28:22.092346  LOC-12/18/2015 10:28:22.092346

USRFD F90 ASCB 00F7B200           JOBN USER1
                                        **** 3270 Data Stream Error ****
          3270    NETA.TSO0001     /NETA.L7201A          LRC(000,000)    INBOUND     COMPLETE SEGMENT
          Time    UTC 2015/12/18 15:28:22.092304  LOC 2015/12/18 10:28:22.092304
          Event   Token 0000000022  SID EAABEEC3 2C910672
          Overlap Row 001  Col 001  Offset 00000
          OUT     SEQ X'000B'  Offset 00005  Length 00001
                                  1D                                                *.                  *
          IN      SEQ X'0006'  Offset 22660  Length 00001
                                  00                                                *.                  *
          Buffer  UTC 2015/12/18 15:28:22.092306  LOC 2015/12/18 10:28:22.092306
          VTAM    TH=40000000 00000000 00010001 00000001 1C000076 003A0006 0006  RH=030000
                  SEQ 0006-0006           F100AE                                    *1..                *
              GMT-12/18/2015 15:28:22.092350  LOC-12/18/2015 10:28:22.092350
```

Figure 2. Example of 3270 IDS trace output

Table 6 describes the trace fields. In addition to the 3270 IDS trace fields, operating system dependent fields might appear. For a description of those fields, see Fields in VTAM trace output.

Table 6. Fields in the 3270 IDS trace

Field header	Meaning
3270 *destname*/ *origname*	The destination (*destname*) and origin (*origname*) node name. In Figure 2, the destination is L7202A and the origin is TSO0001.
LRC(*xxx*,*yyy*)	The number of records that are lost since the last trace record was written because the trace facility could not get a VTAM buffer. *xxx* is the destination's lost record count, and *yyy* is the source's lost record count.
INBOUND or OUTBOUND	The direction of the inbound or outbound traced data of the host subarea.
position SEGMENT	Indicates whether this trace record is FIRST, MIDDLE, or LAST in a series of trace records that are generated for a trace invocation. If only one trace record is needed, the value is COMPLETE.
SEQ(*xxx*)	A sequence number indicating the sequence in which trace records were generated. The sequence number appears only when a series of trace records is generated for a single trace invocation. The sequence number does not appear when one trace record shows a complete buffer. The sequence number starts at 1 and wraps to 0 when the number reaches 255. A gap in sequence numbers could indicate lost trace records.
Time UTC, LOC	Indicates the time when the incident was discovered with UTC and local time offsets.
Event Token	A unique number that is assigned to the incident. All trace records for this incident have the same token value.
Event SID	Session identifier.
Buffer *nn* of *tt*	The sequence of saved DSCOUNT buffers. This field is for outbound buffers only.
Overlap Row Col Offset	The row and column numbers where a problem was detected in the 3270 data stream. The offset is an alternate method to express the location of the problem.
OUT SEQ	The sequence number of the outbound RU that wrote to the field.
OUT Offset	The offset in the outbound RU that wrote to the field.

Table 6. Fields in the 3270 IDS trace (continued)

Field header	Meaning
OUT Length	The length of the data in the outbound RU that wrote the field. Up to 32 bytes of the data from the outbound field are displayed below this line.
IN SEQ	The sequence number of the inbound RU that wrote to the field.
IN Offset	The offset in the inbound RU that wrote to the field.
IN Length	The length of the data in the inbound RU that wrote the field. Up to 32 bytes of the data from the outbound field are displayed below this line.
Buffer	Indicates the time of the buffer when it was first processed with UTC and local time offsets.
VTAM	Indicates where the message buffers were traced. VTAM means that the buffers were traced in TSC, and therefore the TH and the RH are included in the trace record.
TH	The transmission header portion of the path information unit (PIU).
RH	The request header portion of the PIU.
SEQ	The sequence numbers of the chain of PIUs that were combined for this buffer.
Note: The rest of the trace record shows the contents of the buffer as displayed in Figure 2 on page 150.	

3270 data stream formatting

VTAM trace records that contain 3270 data streams can be formatted by using the Generalized Trace Facility (GTF) exit IST32FMT. The IST32FMT exit can format the following types of trace records:

- Buffer trace records, when EID is FEF.
- TGET/TPUT trace records, when EID is FE2.
- 3270 IDS incident trace records, when EID is F90.

To collect the buffer trace records, use the Modify TRACE command with TYPE=BUF and AMOUNT=FULL. For more information about activating these traces and optional operands, see z/OS Communications Server: SNA Resource Definition Reference and z/OS Communications Server: SNA Operation.

Example: `F <VTAM procedure>,TRACE,TYPE=BUF,ID=resource,AMT=F`

3270 IDS incident trace records are written when an incident occurs.

To invoke the IST32FMT exit to display the 3270 data stream, use the following IPCS GTFTRACE command:

```
GTFTRACE  USR EXIT(IST32FMT) [EOF]
```

The `USR` parameter is required and the `EOF` parameter is optional. Other selection parameters are ignored.

3270 data stream output:
Figure 3 on page 152 and Figure 4 on page 153 show an example of 3270 data stream output. The example output are explained in "Explanation of the 3270 data stream" on page 153.

```
<1> USRFD EF90 ASCB 00FC9E00           JOBN USER1
<2>                                              **** 3270 Data Stream Error ****
<3>           3270    NETA.L7201A      NETA.TSO0001          LRC(00,00)       OUTBOUND   COMPLETE SEGMENT
              TIME    UTC 2016/03/21 14:49:40.727408  LOC 2016/03/21 10:49:40.727408
              EVENT   Token 0000000001  SID EAABEEC3 3B586D97  Buffer 03 of 12
              Overlap Row 001  Col 001  Offset 00000
              OUT     SEQ X'000B'  Offset 00005  Length 00001
                                      1D                                                *.                  *
              IN      SEQ X'0007'  Offset 00000  Length 00001
                                      4C                                                *<                  *
            Buffer  UTC 2016/03/21 14:48:38.852423  LOC 2016/03/21 10:48:38.852423
<4>         VTAM    TH=40000000 00000000 00000001 00010001 1C00003A 00760003 0453  RH=038000
                    SEQ 0003-0003
<5> 000000 F5C31140 403C4040 40114040 1DE86060  60606060 60606060 60606060 60606060 |5C.  .   .  .Y------------------|
    000020 60606060 60606060 60606060 6040E3E2  D661C540 D3D6C7D6 D5406060 60606060 |------------ TSO/E LOGON ------|
    000040 60606060 60606060 60606060 60606060  60606060 60606060 60606060 606011C1 |-----------------------------.A|
    000060 501DE840 40404040 40404040 40404040  40404040 40404040 40404040 40404040 |&.Y                              |
    000080 40404040 40404040 40404040 40404040  40404040 40404040 40404040 40404040 |                                 |
    0000A0 40404040 40404040 40404040 40404040  40404011 C2601DE8 40404040 40404040 |                   .B-.Y         |
    0000C0 40404040 40404040 40404040 40404040  40404040 40404040 40404040 40404040 |                                 |
    0000E0 to 0000FF (X'000020' bytes) -- All bytes contain X'40', C' '
    000100 40404040 40404040 115B601D E8D7C6F1  61D7C6F1 F3407E7E 6E40C885 93974040 |        .$-.YPF1/PF13 ==> Help   |
    000120 4040D7C6 F361D7C6 F1F5407E 7E6E40D3  96879686 86404040 40D7C1F1 407E7E6E |  PF3/PF15 ==> Logoff    PA1 ==>|
    000140 40C1A3A3 8595A389 96954040 4040D7C1  F2407E7E 6E40D985 A28896A6 115CF01D | Attention    PA2 ==> Reshow.*0.|
   .
   .
   .
    000420 40404040 1DF011C7 C21D7C40 E2858393  81828593 40404040 407E7E7E 6E11C7D5 |    .0.GB.@ Seclabel     ===>.GN|
    000440 1D7C4040 40404040 40401DF0 11C9C313                                     |.@        .0.IC.                |

<6> 3270: 1104
    0000 OUT          Erase/Write F5C3 Restore Reset
<7> Buff  3270 Row Col Order Parameters
<8> 0002     0   1   1 SBA   4040           Row:   1  Col:   1
    0005     0   1   1 RA    404040         Row:   1  Col:   1  Char: 40
    0009     0   1   1 SBA   4040           Row:   1  Col:   1
<9> 000C     0   1   1 SF    E8             P     D   White
<10>000E     1   1   2 080   "------------------------------ TSO/E LOGON -----------------------------------"
    005E    81   2   2 SBA   C150           Row:   2  Col:   1
    0061    80   2   1 SF    E8             P     D   White
    0063    81   2   2 080   "                                                                            "
    00B3   161   3   2 SBA   C260           Row:   3  Col:   1
    00B6   160   3   1 SF    E8             P     D   White
    00B8   161   3   2 080   "                                                                            "
    0108   241   4   2 SBA   5B60           Row:  23  Col:   1
    010B  1760  23   1 SF    E8             P     D   White
    010D  1761  23   2 079   "PF1/PF13 ==> Help    PF3/PF15 ==> Logoff    PA1 ==> Attention    PA2 ==> Reshow"
    015C  1840  24   1 SBA   5CF0           Row:  24  Col:   1
   .
   .
   .
```

Figure 3. Example of 3270 data stream output - part 1

```
     03D4  18  20 080  "
     0424  19  20 SF   F0              P S H     Blue
     0426  19  21 SBA  C7C2            Row:   6  Col:  51
     0429   6  51 SF   7C              P S       NoDsp
     042B   6  52 018  " Seclabel     ===>"
     043D   6  70 SBA  C7D5            Row:   6  Col:  70
     0440   6  70 SF   7C              P S       NoDsp
     0442   6  71 008  "         "
     044A   6  79 SF   F0              P S H     Blue
     044C   6  80 SBA  C9C3            Row:   8  Col:  20
     044F   8  20 IC
<11>Orders:    95, Size:   229, Data:    96, Size:   873
    Print Screen from Row 1 to 24. The cursor is at row 8 column 20.
<12>Screen dimensions: Rows: 24  Cols: 80  Size: 1920
<13>----|----1----|----2----|----3----|----4----|----5----|----6----|----7----|----8
<14>.================================================================================
     |%------------------------------ TSO/E LOGON ----------------------------------|   1
     |%                                                                             |   2
     |%                                                                             |   3
     |   %Enter LOGON parameters below:                 %RACF LOGON parameters:     |   4
     |                                                                              |   5
     |  + Userid    ===>%USER1  +                      + Seclabel     ===>+        +|   6
     |                                                                              |   7
<15> |  + Password  ===>$_.......+                     + New Password ===>$........+|   8
     |                                                                              |   9
     |  + Procedure ===>!OS390R5 +                     + Group Ident  ===>!........+|  10
     |                                                                              |  11
<16> |  + Acct Nmbr ===>!007.....................................+                   |  12
     |                                                                              |  13
     |  + Size      ===>!156000.+                                                   |  14
     |                                                                              |  15
     |  + Perform   ===>!...+                                                       |  16
     |                                                                              |  17
     |  + Command   ===>!                                                           |  18
     |                  +                                                           |  19
     |   %Enter an 'S' before each option desired below:+                           |  20
     |       %.! +-Nomail+   %.! +-Nonotice+  %.!S+-Reconnect+  %.! +-OIDcard +    |  21
     |                                                                              |  22
     |%PF1/PF13 ==> Help    PF3/PF15 ==> Logoff    PA1 ==> Attention    PA2 ==> Reshow|  23
     |%You may request specific help information by entering a '?' in any entry field|  24
     .==============================================================================.
<17>              GTF-UTC 2016/03/21 14:49:40.727464  LOC 2016/03/21 10:49:40.727464
     ....
<18>AHL10009I No records of the requested type were found.
    End of File
<19> 441 Total records
      62 Selected records
       1 Sessions

    PLU Name          SLU Name          First                       Last                        Token    In   Out
<20>NETA.TSO0001     /NETA.L7201A       2016/03/21 14:49:39.318593 2016/03/21 14:49:42.039704       1     1    12
```

Figure 4. Example of 3270 data stream output - part 2

Explanation of the 3270 data stream:

Table 7 describes the example output in "3270 data stream output" on page 151.

Table 7. Explanation of the 3270 data stream

Line indicator	Explanation
1	A GTF record header that is formatted shows the ASCB address and job name.
2	For EID=F90 records, the intrusion event data is shown. For more information, see "Buffer contents trace for 3270 IDS incidents" on page 149.
3	The `3270`, `BUFF` or `TSO` line shows the names of the two LU partners and the buffer status.
4	The `VTAM` line displays the transmission header and request header.
5	The contents of the request unit is dumped.
6	The `3270:` line begins the interpretation of the 3270 commands and orders.

Table 7. Explanation of the 3270 data stream (continued)

Line indicator	Explanation
7	Each line shows the order or data: • `BUFF` is the offset in the VTAM RU. • `3270` is the screen offset in the display buffer. • `Row` is the row number in the display buffer. • `Col` is the column number in the display buffer. • `Order` is the 3270 order name or the length of data. • `Parameters` shows the parameters that are associated with the order or the data that is moved to the display buffer.
8	Each order line shows the offset in the display buffer, the display offset, the current row and column numbers with the name of the order and its operands.
9	The field attribute codes are explained below: **P** Protected **U** Unprotected **A** Alphanumeric **N** Numeric **S** Automatic skip **H** Highlighted or Intensified **D** Selector Pen Detectable **M** Modified Data Tag set **NoDsp** The field is not displayed **Blue** The default color is blue **Green** The default color is green **Red** The default color is red **White** The default color is white
10	Each data line shows the offset in the display buffer, the current row and column numbers, the length of the data, and the value of the data field.
11	The `Orders:` line summaries the number of orders and data fields that are found in the buffer.
12	The `Screen dimensions:` line shows the size of the current screen buffer that is used to format the screen. The dimensions might be incorrect if the trace data does not contain information about the actual screen size.
13	The ruler line shows the column offsets of the screen. If the displayed screen was wider than the current page length, each line is truncated.
14	The broken double line indicates the start and end of the screen. The displayed row number is shown on the right.

Table 7. Explanation of the 3270 data stream (continued)

Line indicator	Explanation
15	Special characters indicate the start field attributes: **Percent sign (%)** Protected text field, which is in high intensity. **Plus sign (+)** Protected text field, which is in low intensity. **Exclamation point (!)** Input field, which is unprotected and is in high intensity. **Number sign (#)** Input field, which is unprotected and is numeric input. **Dollar sign ($)** Input field, which is unprotected and non displayable. Other 3270 orders are with the following special characters: **Underscore (_)** Input cursor. **Less than (<)** Shift out, which is the start of a DBCS field. **Greater than (>)** Shift in, which is the end of a DBCS field. **Tip:** These characters might appear as part of the 3270 data stream.
16	Non displayable characters in the data stream are shown as periods, which include the null characters.
17	The GTF line shows the UTC and local time when GTF wrote the trace record.
18	Message AHL10009I is normally shown at the end of the report.
19	Summary statistics.
20	A listing of each session that is found in the input file shows the partner names, date and time of the first and last PIU, a token for each session, and the number of input and output records that are found.

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