



H210IPZ NetEx/IP[®] and TNP210
for IBM z/OS Operating Systems

Release 7.4

Operator Reference Manual

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Preface

This manual describes how to use and install the H210IPZ NETwork EXecutive (NetEx®) software for the IBM z/OS operating systems. It also describes the general NetEx® program architecture, session concepts, and Application Program Interfaces (API's). Readers are not expected to be familiar with NetEx before using this manual. However, writing programs to the NetEx API's requires an understanding of programming in the supported languages; usage of NetEx requires an operational understanding of the host operating system.

The previous H210IP Release 6.1 Reference Manual was split into the following manuals for H210IPZ:

H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual

H210IPZ NetEx/IP for IBM z/OS Operating Systems Operator Reference Manual

H210IPZ NetEx/IP for IBM z/OS Operating Systems Programming Reference Manual

The following manual had been previously split out and still remains for H210IPZ:

H210IPZ NetEx/IP for IBM z/OS Operating Systems Messages & Abend Codes Reference Manual

The *Programming Reference Manual* is intended for those responsible for using the NetEx/IP API's.

The *Installation Reference Manual* is intended for those responsible for installing, configuring, and maintaining H210IPZ on z/OS.

The *Operator Reference Manual* is intended for those responsible for daily operations of H210IPZ on z/OS, and contains the following information:

- “H210IPZ NetEx/IP Overview” introduces NetEx/IP and is intended for all readers.
- “Operator Commands” describes the operator interface and is intended for the operator.
- “Appendix A. The Print Function” describes how to capture all NetEx/IP messages.
- “Appendix B: NetEx Tools” documents the NetEx Tools.
- “Appendix C. Glossary” lists and describes commonly used terms and acronyms in this document.

Reference Material

Reference material may be found in the following publications:

Number	Title and Description
MAN-M&A-H210IPZ	H210IPZ NetEx/IP for IBM z/OS Operating Systems Messages and Abend Codes
MAN-INS-H210IPZ	H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual
MAN-API-H210IPZ	H210IPZ NetEx/IP for IBM z/OS Operating Systems Programming Reference Manual
460195	H211 Bulk File Transfer (BFX™) Utility for IBM MVS Software Reference Manual
460201	H212R Print File Transfer (PFX™) Receiver Utility for IBM MVS Systems Installation and User Guide
460345	H212T Print File Transfer (PFX) Utility for IBM MVS Systems Software Reference Manual
MAN-REF-EFT213	eFT213 for IBM z/OS User Guide
MAN-CNET-CONFIG-MGR	“C” Configuration Manager and NetEx Alternate Path Retry (APR) User Guide

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Always include the complete title of the document with your comments.

Document Conventions

The following notational conventions are used in this document.

Table 1. Documentation Conventions	
Format	Description
displayed information	Information displayed on a CRT (or printed) is shown in this font .
<i>user entry</i>	<i>This font</i> is used to indicate the information to be entered by the user.
UPPERCASE	The exact form of a keyword that is not case-sensitive or is issued in uppercase.
MIXedcase	The exact form of a keyword that is not case-sensitive or is issued in uppercase, with the minimum spelling shown in uppercase.
bold	The exact form of a keyword that is case-sensitive and all or part of it must be issued in lowercase.
lowercase	A user-supplied name or string.
<u>value</u>	Underlined parameters or options are defaults.
<label>	The label of a key appearing on a keyboard. If "label" is in uppercase, it matches the label on the key (for example: <ENTER>). If "label" is in lowercase, it describes the label on the key (for example: <up-arrow>).
<key1><key2>	Two keys to be pressed simultaneously.
No delimiter	Required keyword/parameter.

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H210IPZ NetEx/IP Overview

General

The NETwork Executive (NetEx®) software allows two or more application programs (which may be on different host computers) to communicate with each other at multi-megabit speeds. The NetEx family of software consists of different versions of NetEx for use with different operating systems. All of these versions provide a common Application Programming Interface (API) to simplify programming and portability. Application programs are also available for use with NetEx, such as Bulk File Transfer (BFX™) which provides the capability to move bulk sequential file data from one computer system to another; Print File Transfer (PFX™) which automatically monitors and transfers print files from one system's print spool (queue) to another; and eFT™/USER-Access®, which provides a powerful remote access, file transfer and scripting capability.

NetEx software resides as a subsystem within each IBM host involved in the communication. NetEx allows communications to take place at any time during host operations, independent of other functions in the system.

The following sections describe the characteristics of NetEx and how it uses the International Standards Organization (ISO) guidelines for open systems interconnection.

New Features

Refer to the “*H210IPZ NetEx/IP and TNP210 for IBM z/OS Operating Systems Installation Reference Manual*” for a description of new features.

NetEx Characteristics

NetEx centralizes network considerations in a single piece of software. The following sections describe the characteristics of NetEx:

- External Interface
- Internal Interaction
- NetEx Connections
- Design Efficiency and Flexibility
- Block Segmenting
- Alternate Path Retry
- Remote Operator Interface
- User Exits
- Basic I/O Flow

External Interface

The NetEx external interface for the application programmer is common for all versions of NetEx. NetEx provides requests for use in the programs that call NetEx. These calling programs may be written in FORTRAN, COBOL, C or Assembler languages. NetEx programs written in high-level languages may be transported from one host to another, with some changes to account for different word sizes and other machine architecture variations.

NetEx also provides an operator interface that may be used to monitor and control certain NetEx functions.

Internal Interaction

The internal operations of all supported versions of NetEx are consistent and allow the different versions to interact freely. Thus, any program using NetEx may communicate with any other similar program on the network that is also using NetEx.

To facilitate communication between hosts of different manufacture, NetEx supports character code conversion.

NetEx Connections

To communicate using NetEx, two calling programs first form a connection using a handshake protocol. NetEx then allows this pair of programs to communicate.

NetEx can establish multiple connections at one time, and can allow one program to have multiple connections simultaneously.

NetEx also supports communications within a single host. A calling program may connect to another calling program in the same host and exchange information just as if network communications were taking place.

Design Efficiency and Flexibility

The NetEx design enables many applications on the same processor to share the use of the network facility. Programs calling NetEx can be written without regard to the other programs calling NetEx.

Once NetEx accepts data from the caller, NetEx must deliver the data to its destination. The NetEx subsystem on each host handles flow control, error recovery, and alternate path routing, and is able to tolerate long delays inherent in communication paths over satellite links.

NetEx optimizes data transfer throughput using a high degree of parallelism. That is, under normal circumstances, simultaneous I/O, NetEx buffer management, and user file I/O all take place concurrently. This means that the effective data transfer rate is as fast as possible (in the multi-megabit range).

Block Segmenting

NetEx provides block segmenting at the transport layer. NetEx divides data into segments of a specified size for transmission across the network and reassembles the segments on the remote host before delivering the data to the session layer calling program on the remote NetEx. This segmenting is transparent to the session user, but provides control of the transmitted block segment size. This is especially useful for satellite communication.

Alternate Path Retry

Alternate Path Retry (APR) provides the capability for connections to automatically reroute on different network paths when a failure on a path is detected. This rerouting takes place with no loss of data. For more information on APR, refer to the “C” Configuration Manager and NetEx Alternate Path Retry (APR) User Guide.

Remote Operator Interface

NetEx provides a remote operator interface that allows users to issue NetEx operator commands to other defined NetEx hosts on the network. Security features are provided.

User Exits

NetEx provides user exits at well-defined points for security, accounting, or other user-defined purposes. These exits are routines that are essentially do-nothing and may be replaced by user modules at installation time. Because there is a wide variety of user requirements, NetEx does not provide generalized security and accounting needs. User Exits can be implemented to satisfy these requirements.

Basic I/O Flow

The following figure shows the basic I/O flow between two programs using host based NetEx. The calling program communicates with NetEx through the user interface. NetEx then uses the network to communicate with the calling program on the other processor.

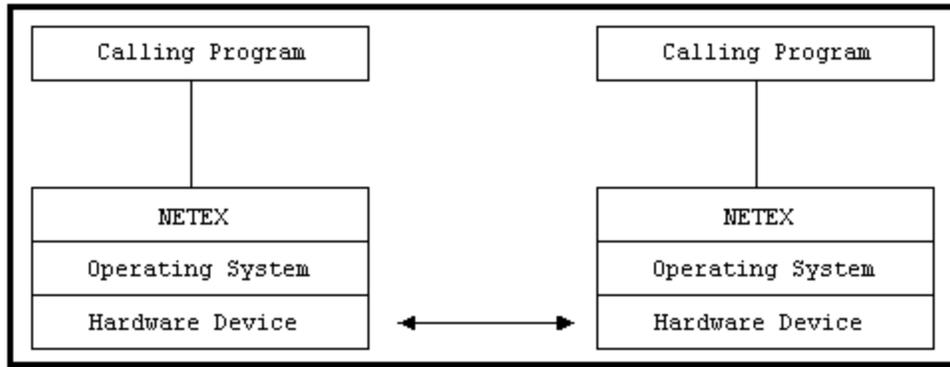


Figure 1. Basic I/O Flow

NetEx and the ISO Model

NetEx follows the guidelines set by the International Standards Organization (ISO) for Open Systems Interconnection (OSI). Open Systems Interconnection refers to the exchange of information among terminal devices, computers, people, and networks, that are open to communication with one another.

The ISO model is composed of seven layers. Each layer interacts only with adjacent layers in the model (see figure). By using this modular structure, the internal function of each layer is self-contained and does not affect the functioning of other layers.

Table 2. ISO Model	
Layer	Major Functions
Application	High level description of data to be transferred and the destination involved
Presentation	Select data formats and syntax
Session	Establish session connection, report exceptions, and select routing
Transport	Manage data transfer and provide NetEx-to-NetEx message delivery
Network	Point-to-point transfer, error detection, and error recovery
Data Link	Data link connection, error checking, and protocols
Physical	Mechanical and electrical protocols and interfaces

Although each layer physically interacts only with adjacent layers, each layer appears to communicate directly with the corresponding layer of the other model. Figure 2 illustrates this concept.

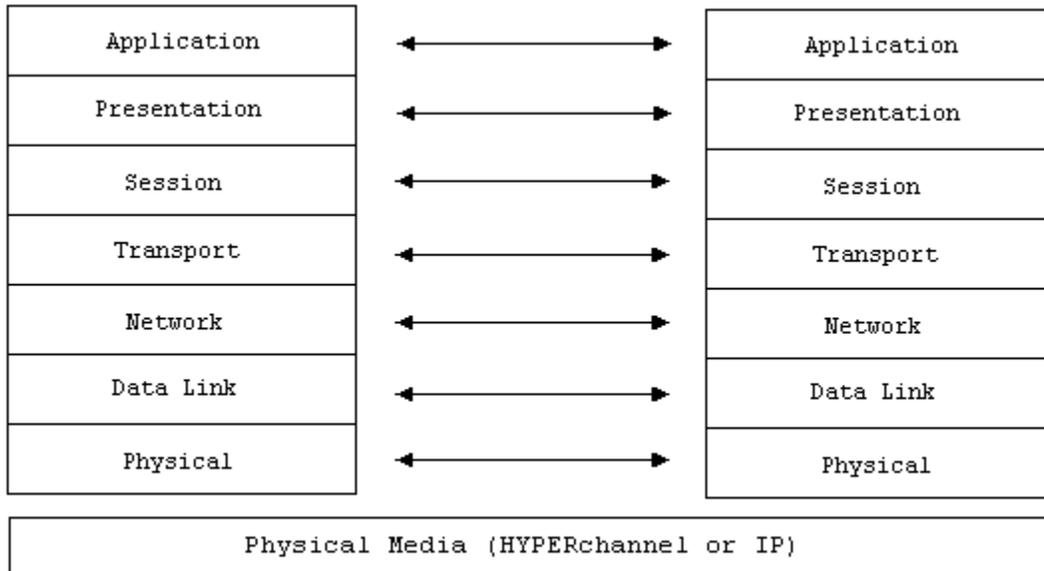


Figure 2. ISO Model Communication

Note: The corresponding layers appear to communicate directly as indicated by the lines with arrows, but actually they communicate only by progressing down through the layers of one model, through the physical media, and up through the layers of the other model.

The figure below shows the correspondence between NetEx and application software to the ISO model. NetEx software provides complete session, transport, and network layer interfaces. This leaves the user free to write the application programs that use NetEx or to use applications provided by Network Executive Software.

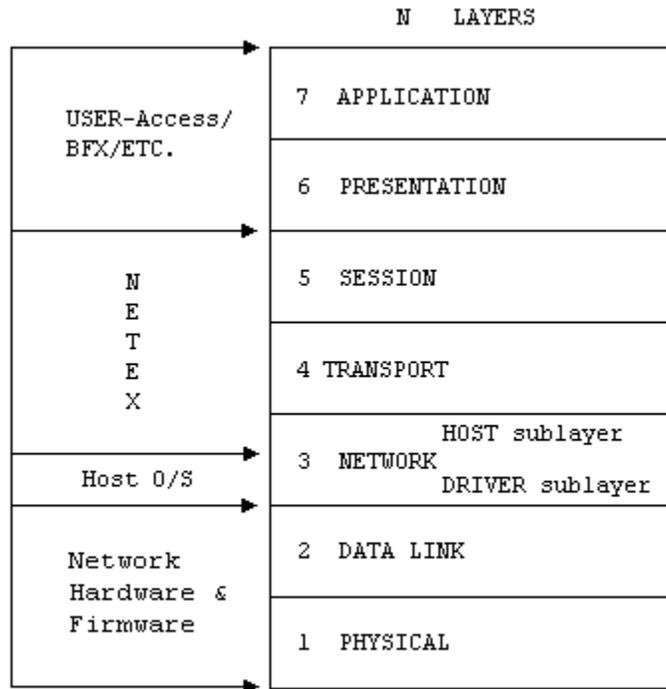


Figure 3. NetEx and the ISO Model

Session Layer Services

As the highest layer within NetEx (referring to the ISO model in Figure 2), the NetEx session layer software provides the general interface to the user's application/utility program. The NetEx session layer services include: program-to-program connection using the best available network path, reading data, writing data, disconnection, and statistics gathering. The user requests these services by using a standard NetEx Request Block (NRB) (containing parameters), and issuing the requests described in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Programming Reference Manual*. The session layer software processes user requests by requesting services from the underlying transport layer.

Transport Layer Services

The transport layer provides the actual data movement services for NetEx. This is an internal layer used only by the session service code, not the end user. It transmits and receives user data, along with internal protocol information, to provide fast, efficient communications over the network. The transport layer accomplishes its function by performing services for the session layer software above it and by requesting services of the network layer below it.

The transport software manages the network path chosen by the session software. The session user does not need to be concerned with the actual hardware and software used to transmit data, nor with NetEx-to-NetEx message delivery. The transport layer sets up hardware and software tables, provides buffering, and establishes linkages to manage the flow of information. Also, the protocol used by the transport layer software provides true full-duplex communications between subsystems, permitting asynchronous reads and writes. Because the transport layer provides a full-duplex operation, data can flow continuously, as long as data is available. This keeps the communications link as busy as possible and assures timely arrival of data to the user.

Network Layer Services

The network layer software provides link independence for the higher layers of NetEx and assumes responsibility for keeping the network interfaces busy. This is an internal layer used only by the internal transport service, not the end user. The network layer formats the message proper to route the data through the network. If the protocol information overflows the message proper, the network layer splits the data transmissions into two driver requests. The network layer also multiplexes network connections over common driver connections and manages those driver connections.

Driver Sublayer Services

The driver sublayer software is the interface between the network sublayer and the physical network device. The driver converts network sublayer I/O for a particular network path into a form which is understandable to the devices. The driver delivers and receives network messages and associated data to and from the network adapters. The driver also allows retry and error recovery for network adapters, and supports code conversion options if requested by the user's data mode parameter.

Operator Commands

General

The operator interface allows limited manual control and display of NetEx resources such as local Network Adapters, remote hosts, or particular types of NetEx services. The NetEx operator facility accepts commands interactively.

A single character operator command prefix identifies NetEx commands. The user may select this character using the CPMX parameter on the NTCROOTG installation macro, or the CMDPRE initialization statement.

All operator commands in this section appear in alphabetical order.

NetEx Operator Commands

There are five main types of NetEx operator commands. These commands are described below:

DISPLAY Commands

These commands display current status of the NetEx services.

SET Commands

These commands control the number of applications that can access the levels of NetEx services, control various aspects of the connections, and control the type of information that NetEx presents to the operator or trace file during the course of execution.

START Commands

These commands restarts drained NetEx resources.

DRAIN/HALT/KILL Commands

These commands provide the orderly shutdown or immediate stopping of NetEx resources.

Miscellaneous Operator Commands

These commands set the NetEx configuration or can be used for issuing commands to another NetEx/IP.

DISPLAY Commands

The NetEx DISPLAY commands show the current status of NetEx services. These commands allow you to view NetEx parameter settings, unit allocations, and session, transport, or driver service users on the operator terminal.

This section describes the following DISPLAY commands:

DISPLAY ALIAS

Lists the current alias host names.

DISPLAY DRIVER

Lists and describes driver connections pending or in progress.

DISPLAY HALTED

Lists components and resources halted by NetEx.

DISPLAY HOST

Lists one or more hosts defined on the network.

DISPLAY IP

Lists the current GNA-to-IP mapping definitions

DISPLAY KEY

Displays the current operating key.

DISPLAY LEVEL

Lists the current release and service level of NetEx.

DISPLAY MEMORY

Lists the current memory allocations within NetEx.

DISPLAY NETWORK

Lists one or more network connections currently pending or in progress.

DISPLAY PARMS

Lists current parameter settings.

DISPLAY SESSION

Lists one or more sessions currently pending or in progress.

DISPLAY TRANSPORT

Lists one or more transport connections currently pending or in progress.

DISPLAY UNIT

Lists each subchannel address used by NetEx and shows the status of selected addresses.

DISPLAY ALIAS

This command displays the status of each alias host name assigned to NetEx that is currently in use.

The DISPLAY ALIAS command has the following format:

Command
C Display ALIAS

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

Example

Figure 4 shows the results of a DISPLAY ALIAS command on the operator terminal.

Host	ZOS5	Alias Names	
		Aka Name	Real Name
		-----	-----
		ZOSPROD	LPAR1
		APPL	LINUX1
		DEVLNTX	NETXMFG
		NONSTOP	TANDEM
		VAXSYS2	VMSVAX

Figure 4. DISPLAY ALIAS Display

The following fields appear in Figure 4.

HOST

Shows the current host running on the system.

ALIAS NAMES

Shows the list of AKA and real names currently in use and assigned to this NetEx.

Related Topics

- “ALIAS” on page 135.
- “DEALIAS” on page 136.

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “ALIAS”
- “CMDPRE”

DISPLAY DRIVER

This command displays the status of all subchannels assigned to NetEx that are currently in use.

The DISPLAY DRIVER command has the following format:

Command
C Display Driver

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

Example

Figure 5 shows the results of a DISPLAY DRIVER command on the operator terminal.

Host ZOS5		Active Driver Units							
Cuu	Dref	Status	User	#Que	Cuu	Dref	Status	User	#Que
01E3	30E3	ALLOC	NETWRDR	1	04E3	31E3	ALLOC	NETWRDR	1
04E0	31E0	ALLOC	NETWOUT	1					

Figure 5. DISPLAY DRIVER Display

The following fields appear in Figure 5.

Host xxxxxxxx Active Driver Units

Shows the host name (xxxxxxx) of the operator's host.

Cuu

Shows the channel sub-address for the user of this DRef.

Dref

Shows the driver reference for all active drivers. The first 2 digits are the network address for the adapter, the second 2 digits are the last 2 digits in the subchannel.

Status

Shows the current status of the subchannel (FREE, OFFLINE, ONLINE, or ALLOC). An '*' in front of the status indicates that the adapter which owns this subchannel is currently halted.

User

Shows the NetEx user identifier for the user of this DRef.

#Que

Shows the number of requests queued for this DRef.

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- "CMDPRE"

DISPLAY HALTED ADA

This command displays resources or components that have been halted by NetEx.

The DISPLAY HALTED ADAPTER command has the following format:

Command
C Display HALted ADAPTERs

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

HALted

Specifies a display of halted adapters. HALTED can be specified as either HAL or HALTED.

ADAPTERS

Selects all adapters which are halted on NetEx. Adapters are listed in the order in which they have been halted. Adapters can be specified as either 'A' or 'ADA'.

Example

Figure 6 shows the results of a DISPLAY HALTED ADAPTERS command.

Host	NTXHOSTJ	Halted Adapters		
	Netaddr	Halt Type	Proximity	
	-----	-----	-----	
	30	INIT	LOCAL	
	10	COMMAND	LOCAL	
	31	COMMAND	NON-LOCAL	

Figure 6. DISPLAY HALTED Display

The following fields appear in Figure 6:

Host xxxxxxxx Halted Adapters

Shows the host name (xxxxxxx) of the operator's host.

Netaddr

Shows the network address of an adapter that has been halted.

Halt Type

Shows the adapters may be halted with an operator COMMAND or they may be considered halted at INITIALization if they are not available to NetEx at that time.

Proximity

Shows the whether the adapter is attached to the CPU on which NetEx is running (LOCAL) or if it can only be accessed through another adapter (NON-LOCAL).

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- "CMDPRE"

DISPLAY HOST

This command shows list of hosts defined in the local Physical Address Map (PAM) file. Specifying a host name limits the information to the specified host and provides more detailed information.

The DISPLAY HOST command has the following format:

Command	Optional Parameters
C Display Host	HOSTNAME

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

HOSTNAME

Specifies the name of the host or group to be displayed. By omitting this parameter, information about all hosts and groups is displayed.

Examples

Figure 7 shows the results of a DISPLAY HOST command on the operator terminal.

```
Host ZOST      has paths to the following NTX groups
NtxHost  #Hosts State
-----  -
AIX          2
LINUX       3
SOLARIS     4
ZOS         2
Host ZOST      has paths to the following NTX hosts
NtxHost  #Paths DrainedPaths State
-----  -
AIX2       4
AIX3       4
ALT1       2
ALT2       2
BULLZOST   2
DICKPC     2
```

Figure 7. DISPLAY HOST Display (No Host Name Specified)

The columns in Figure 7 are as follows:

NTXhost

The name of each host or group on the network. The names correspond to the names used on the NCT data file HOST statement.

#Hosts

This column is only under the Groups and indicates the number of hosts in the NTXhost group as defined in the NCT data file HOST definitions.

DrainedHosts

This column is only under the Groups and indicates the number of drained NTXhosts in the group. Hosts are drained by NTXOper command DRAIN Host.

#Paths

This column is only under the Hosts and indicates the number of paths defined by the Configuration Manager to reach the NTXhost.

State

If a group/host is currently drained, DRAINED appears for that NTXhost name.

Figure 8 shows the results of a DISPLAY HOST AIX2 command on the operator terminal. Multiple routes to a destination host only exist for hosts defined as supporting type 2 protocol. The first route displayed defines the primary route, and is always used first for each connection attempt. Subsequent routes define alternate paths, and are only used upon failure of the preceding routes.

Host ZOST	Paths to AIX2		
AIX2	Protocol: 2		
	Options: AltFirst		
	NextPath	FrGNA	ToGNA State
	-----	-----	-----
	->	8200	9701
		8200	9801
		0100	9701
		0100	9801

Figure 8. DISPLAY HOST Display (Host Name Specified)

Host ZOST	Paths to NTXLCL		
NTXLCL	Protocol: 2,4		
	Options:		
	NextPath	FrGNA	ToGNA State
	-----	-----	-----
00		8200	8200
01		8200	0100
02		0100	8200
03		0100	0100

Figure 9. DISPLAY HOST Display (Host Name NTXLCL Specified)

Host ZOST	Paths to AIX		
AIX3	Protocol: 2		
	Options: AltFirst		
	NextPath	FrGNA	ToGNA State
	-----	-----	-----
	->	8200	9901
		8200	9A01
		0100	9901
		0100	9A01
AIX2	Protocol: 2		
	Options: AltFirst		
	NextPath	FrGNA	ToGNA State
	-----	-----	-----
	->	8200	9701
		8200	9801
		0100	9701
		0100	9801

Figure 10. DISPLAY HOST Display (Group name specified)

The following fields appear in Figure 8, Figure 9, and Figure 10 as follows:

Host

This field shows the NETEX name of the local host.

Paths to

This field shows the NETEX name of the destination host.

Protocol

This field shows what NETEX protocol is supported.

Options

This field shows the possible options supported:

NOAPR, ALTFIRST, LONGMSG

Next Path

When ALTFIRST is specified, this column will indicate the next path to be used with an arrow (->).

FrGNA

This column shows the GNA(s) on the local host for each path.

ToGNA

This column shows the GNA(s) on the remote host for each path.

INTRA indicates the path is internal to this host.

State

This column will indicate if a path is DRAINED.

Special note on Hostname NTLCL:

The NTLCLxx host names denote a form of “loopback” host names that identify paths both starting and ending on the same local host. A specific local hostname consists of NTLCLxx, where the “xx” identifies the particular numeric code shown in the first column of the NTLCL display. For example, hostname NTLCL03 identifies the ZOST path that starts at GNA 0100 and ends at GNA 0100; hostname NTLCL02 identifies the ZOST path that starts at GNA 0200 and ends at GNA 8200, etc. The NTLCLxx names can be used wherever a Netex hostname is required – e.g. as a parameter on an operator command or as a hostname in a Netex application.



Related Topics

- “HALT ADAPTER” on page 131
- “HALT SREF” on page 132

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “HOST”

DISPLAY IP

This command displays the internal GNA-to-IP mapping table.

The DISPLAY IP command has the following format:

Command
C Display IP

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

Example

Figure 11 shows the results of a DISPLAY IP command on the operator terminal.

Host	ZOS5	GNATOIP	Mappings
GNA	IP		FL
----	-----		-----
0200	10.1.5.12		80
3100	10.1.5.26		80
3800	10.1.5.64		80
5700	10.1.6.27		80
A164	10.1.7.33		80

Figure 11. DISPLAY IP Display

DISPLAY KEY

This command displays the current operating key.

The DISPLAY KEY command has the following format:

Command
C Display KEY

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

Example

Figure 11 shows the results of a DISPLAY KEY command on the operator terminal.

```
Host ZOS5      License Key
Key = xxxx-xxxx-xxxx-xxxx-xxxx-xxxx-xxxx-xxxx
Not Operational Date = yyyyymmdd
Expiration Date = yyyyymmdd
SesLim = 0xNN
Protocols: OSA TNP
```

Figure 12. DISPLAY KEY Display

DISPLAY LEVEL

This command displays the current release and service level of NetEx.

The DISPLAY LEVEL command has the following format:

Command
C Display Level

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

Example

Figure 13 shows the results of a DISPLAY LEVEL command on the operator terminal.

```
NXMOPR000I NETEX Z/OS Release yyy Level zzzz NESi Part Number nnnnnnnn
```

Figure 13. DISPLAY LEVEL Display

The following fields appear in Figure 13.

yyy

Shows the NetEx release number.

zzzz

Shows the NetEx service level.

nnnnnnn

Shows the product's NESi part number.

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

DISPLAY MEMORY

This DISPLAY MEMORY command displays the current memory use within NetEx.

The DISPLAY MEMORY command has the following format:

Command
C Display Memory

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

Example

Figure 14 shows the results of a DISPLAY MEMORY command on the operator terminal.

Host	ZOS5	Memory Subpools						
Subpool	Size	Num-Free	Num-Alloc	Tot-Blk	X	Hi-Block	Waiting	NumQd
SP16	16	2445	115	2560		116	0	0
SP32	32	1235	45	1280		47	0	0
SP64	64	460	180	640		185	0	0
SP128	128	316	4	320	*	8	0	0
SP256	256	673	79	752		84	0	0
SP512	512	403	13	416		16	0	0
SP1K	1024	4169	3	4172		6	0	0
SP4K	4096	1022	2	1024		6	0	0
SP8K	8192	513	0	513		3	0	0
SP16K	16384	254	15	269		28	0	0
SAVES	256	3618						
NITS	64	1257						

Figure 14. DISPLAY MEMORY Display

The following fields appear in Figure 14.

Host xxxxxxxx Memory Subpool Display

Shows the host name (xxxxxxx) of the operator's host.

Subpool

Shows the subpool identifier.

Size

Shows the size (in bytes) of blocks contained in the identified subpool.

Num-Free

Shows the current number of free blocks in the identified subpool.

Num-Alloc

Shows the current number of allocated blocks in the identified subpool.

Tot-Blk

Shows the total number of blocks contained in the identified subpool.

X

An asterisk in this column indicates that the identified subpool has been extended into one (or more) pages of storage specified by the PAGEXTRA initialization statement. If this happens consistently, the identified subpool should be increased by using the PAGExxx initialization statement.

Hi-Block

Shows the highest number of blocks that have ever been allocated from the identified subpool. This number serves as a “high water mark” in providing information regarding NetEx memory use.

Waiting

Shows the number of tasks currently waiting for memory allocation from the identified subpool. Tasks are queued when memory from the subpool and the PAGEXTRA pages is exhausted, and does not get re-dispatched until memory is freed. This represents a serious performance bottleneck for NetEx. Additional storage should be given to NetEx using the PAGExxx initialization statements.

NumQd

Shows the number of times tasks waited for memory requests to be satisfied.

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

DISPLAY NETWORK

This command shows a list of the network connections that are currently pending or in progress on the operator's host. Specifying an NREF limits the display to only the specified network connection and provides more detailed information, such as the physical path established for the connection.

The DISPLAY NETWORK command has the following format:

Command	Optional Parameters
C Display Network	NREF

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

NREF

Specifies the network reference number for the network connection to be described by the display. By omitting this parameter, information about all network connections is displayed.

Examples

Figure 15 shows the results of a DISPLAY NETWORK command on the operator terminal.

Host	ZOS5	Active Networks								
Nref	User	Tref	State	RNref	Prot	Type	Lcl Dref	Rmt Dref		
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
1	USER1	2	CONNECTED	3	2		0200	A164		
3	USER2	4	CONNECTED	22	2		5800	3100		
10	USER3	8	CONNECTED	8	2		0200	A164		
-1	SESSMGR2	10	OFFERED		2					

Figure 15. DISPLAY NETWORK Display (No Nref Specified)

The following fields appear in Figure 15.

Host xxxxxxxx Active Networks

Shows the NetEx name of the operator's host.

Nref

Shows the unique identifier that distinguishes this network connection from all other active network connections to this NetEx. This reference identifier must be used in operator commands that modify a network connection, and may be used with this command to get detailed information about this network connection.

User

Shows the name of the process requesting network services.

Tref

Shows the NetEx transport reference identifier. This Tref may be used with the DISPLAY TRANSPORT operator command to get detailed information about this transport connection.

State

Shows the current status of the network connection. Use this field to track the progress of a connection, particularly for finding "hung" connections. The possible states are described below:

ASSIGNED

A user has been identified as a network user. This is a state internal to NetEx. The user's offer or connect is in progress.

CONNECTED

Connection completed and users may exchange data.

CONNECTING

Connect request issued by user, waiting for confirm.

CONFIRMING

In process of completing connection.

DISCONNECT

Disconnect detected but not yet complete.

OFFERED

Offer has been issued by user, waiting for connect.

Rnref

Shows the destination (or remote) host's Nref for this network connection. If a connection does not currently exist, this column is blank.

Prot Type

Shows the protocol type of the connection.

Lcl Dref

Shows the local Dref of the connection.

Rmt Dref

Shows the remote Dref of the connection.

Figure 16 shows the results of a DISPLAY NETWORK 1 on the operator terminal.

```
Host ZOS5      Nref    1 at 02E988
Name=  BFX      State=DATA      Dest/Nref=    5 Type=2  Tref=2
Local Dref=1047 Remote Dref=31F7 TRK=11
Maxrate= 50000 Delay=    0
```

Figure 16. DISPLAY NETWORK Display (Nref Specified)

The following fields appear in Figure 16.

Host

Shows the NetEx name of the operator's host.

Nref

Shows the unique identifier that distinguishes this network connection from all other active network connections to this NetEx.

At

Shows the address of the Network User Block.

Name

Shows the name of the process requesting network services.

State

Shows the current status of the network connection. Use this field to track the progress of a connection, particularly for finding “hung” connections. The possible states are listed below:

ASSIGNED

A user has been identified as a network user. This is a state internal to NetEx. The user’s offer or connect is in progress.

CONFIRMING

Confirm request issued by user.

CONNECTING

Connect request issued by user, waiting for confirm.

DATA

Connection completed and users may exchange data.

DISCONNECTING

Disconnect detected but not yet complete.

OFFERED

Offer has been issued by user, waiting for connect.

Dest/Nref

Shows the destination (or remote) host’s network reference number for this connection. If the connection does not currently exist, this column is blank.

Type

Shows the protocol type of this connection.

Tref

Shows the NetEx transport reference identifier for this connection.

Local Dref

Shows the local adapter being used for this connection.

Remote Dref

Shows the remote adapter being used for this connection.

TRK

Shows the trunk mask to and from for this connection.

Maxrate

Shows the maximum transmission rate (in 1000’s of bits per second) in use for this connection.

Delay

Shows the transmission delay (in milliseconds) in use for this connection.

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

DISPLAY PARMS

This command displays most parameter values controlled by the SET command and initialization parameters.

The DISPLAY PARMS command has the following format:

Command
C Display Parms

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

Example

Figure 17 shows the results of a DISPLAY PARMS command on the operator terminal.

Host ZOS5	Parameters				
Contime= 30	Deadtime= 60	Idletime= 5	Readtime= 60		
Maxbi= 61440	Maxbo= 61440	Defbi= 4096	Defbo= 4096		
Lim Ses= 64	Lim Tran= 0	Max Tnp = 0	Lim Driv= 8		
Max Ses= 64	Max Tran= 0	Cur Tnp = 0	Max Driv= 8		
Avg Ses= 64	Avg Tran= 32	Avg Netw= 32	Avg Driv= 2		
Cur Ses= 2	Cur Tran= 2	Cur Netw= 1	Cur Driv= 0		
Maxddbq= 6	Bitmint= 3600	Maxdread= 2	Maxdwrit= 2		
Smwtm= 15	Cfotm= 30	Admtm= 900	Mihtm= 15		
Maxseg= 32767	Wdogint= 2	Msglvl= 8	Msgxl= OFF		
Maxodata= 3072	Twopart= 0	NCTVersion= 176	Msgtm= OFF		
Backoff= 50	TrunkMask= FF	Inactive= OFF	Inactime= 6,240		
LoadBal= OFF	Lbrotate= OFF	I/O Count= OFF	MultiHost= ON		
PrefProt= 2	MaxKBS= 0	Mbfi= 5	Mbfo= 5		
Exits OFF					
Ssnm= NETB	Tsuser= NONE	LogCmd= YES			
Route Codes=2					
Desc Codes=5					
Trace OFF	Num Bufs= 4	Buf Size= 8176			
Status= NORMAL	RmtOp= ON	Class=A C G			
RsMgr=NXMTERMO	Status= ACTIVE	Uif= NXMUIF00	Asidx= 0011		

Figure 17. DISPLAY PARMS Display

The following fields appear in Figure 17.

Host xxxxxxxx Parameters

Shows the name (xxxxxxx) of the local host.

Contime

Shows the maximum number of seconds that NetEx wait for a transport connect message to generate a response from the remote host. This parameter may be changed using the SET CONTIME operator command or the CONTIME initialization statement. See *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*, or “SET CONTIME” on page 55 for more information.

Deadtime

Shows the maximum number of seconds that NetEx wait before it disconnects a transport connection (or attempts an alternate path) because there was no response from a remote host. This parameter may be changed using the SET DEADTIME command or the DEADTIME initialization statement.

See *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*, or “SET DEADTIME” on page 57 for more information.

Idletime

Shows the number of seconds that NetEx transport waits before sending an idle message to verify the continued existence of a party at the other end of a logical connection. This parameter may be changed using the SET IDLETIME command or the IDLETIME initialization statement.

See *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual* or “SET IDLETIME” on page 73 for more information.

Readtime

Shows the number of seconds that NetEx transport retains user data while waiting for the receiver to issue a read request. This parameter may be changed using the SET READTIME command or the READTIME initialization statement. See *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*, or “SET READTIME” on page 103 for more information.

Maxbi

Shows the maximum buffer input (MAXBI) size (in bytes) that a user may specify for data coming in to this host in a single message. This parameter may be changed using the SET MAXBI command or the MAXBI initialization statement. See *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*, or “SET MAXBI” on page 79 for more information.

Maxbo

Shows the maximum buffer output size (in bytes) that a user may specify for data going out from this host in a single message. This parameter may be changed using the SET MAXBO command or the MAXBO initialization statement. See *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*, or “SET MAXBO” on page 80 for more information.

Defbi

Shows the default buffer input (DEFBI) size (in bytes) that a user may specify for data coming in to this host in a single message. This parameter may be changed using the SET DEFBI command or the DEFBI initialization statement. See *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*, or “SET DEFBI” on page 58 for more information.

Defbo

Shows the default buffer output (DEFBO) size (in bytes) that a user may specify for data going out from this host in a single message. This parameter may be changed using the SET DEFBO command or the DEFBO initialization statement. See *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*, or “SET DEFBO” on page 59 for more information.

Lim Ses

Shows the number of session connections or OFFERs permitted at one time. This parameter may be changed using the SESLIM initialization statement. See *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*,.

Lim Tran

Shows the number of direct transport connections or OFFERs permitted at one time. This parameter is always 0 because direct transport connections are not supported.

Max Tnp

Shows the maximum number of TNP connections permitted in the current key.

Lim Driv

Shows the number of direct driver connections that may be active at one time. This parameter is always 0 because direct driver connections are not supported.

Max Ses

Shows the number of session connections or OFFERs permitted at one time. This parameter may be changed using the SET SESMAX command or the SESMAX initialization statement. It can never exceed the value specified for SESLIM. See *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*, or “SET SESMAX” on page 111 for more information.

Max Tran

Shows the number of direct transport connections or OFFERs permitted at one time.

Cur Tnp

Shows the current number of TNP connections in progress.

Max Driv

Shows the number of direct driver connections that may be active at one time. This parameter is always 0 because direct driver connections are not supported.

Avg Ses

Shows the average number of session connections or OFFERs outstanding at one time. This number is used at NetEx initialization for internal control block allocations. It does not limit the number of session connections. This parameter may be changed using the SESAVG initialization statement. See *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*.

Avg Tran

Shows the average number of transport connections or OFFERs outstanding at one time, including connections initiated through session requests. This number is used at NetEx initialization for internal control block allocations. It does not limit the number of transport connections.

Avg Netw

Shows the average number of network connections or OFFERs outstanding at one time, including connections initiated through session or transport requests. This number is used at NetEx initialization for internal control block allocations. It does not limit the number of network connections.

Avg Driv

Shows the average number of driver connections outstanding at one time, including connections initiated through session, transport, or network requests. This number is used at NetEx initialization for internal control block allocations. It does not limit the number of driver connections.

Cur Ses

Shows the number of session connections in progress or being OFFERed.

Cur Tran

Shows the number of transport connections in progress or OFFERED at this time, including connections initiated through session requests.

Cur Netw

Shows the number of network connections in progress or OFFERED at this time, including connections initiated through session or transport requests.

Cur Driv

Shows the number of driver connections in progress at this time, including connections initiated through session, transport, or network requests.

Maxddbq

Shows the maximum number of Driver Interface Data Blocks (DDBs) that can be queued waiting for a DREAD before incoming DDBs are rejected.

Bitmint

Shows the parameter defines the time interval between resetting of the output subchannel mask in the DEVBLOCKs

Maxdread

Shows the parameter specifies the number of concurrent Driver Service DREAD requests for a given connection.

Maxdwrit

Shows the parameter specifies the number of concurrent Driver Service DWRITE requests for a given connection.

Smwtm

Shows the session manager read for disconnect time in seconds. Allowed values are 1-60; the default is 15.

Cfotm

Shows the time (in seconds) the configuration receiver offers before a timeout. Allowed values are 1-999; the default is 30 seconds.

Admtm

NetEx administrator is obsolete; therefore, this value may be disregarded.

Mihtm

Shows the missing interrupt handler interval in seconds. Allowed values are 0-32767; the default is 15. Any new interval value takes effect only after the previous interval completes. If MIHTM is set to 0, the missing interrupt handler exits, and can only be restarted by bringing up NetEx again.

Maxseg

Shows the maximum segment size ever used for any connection from this host. This parameter may be changed using the SET MAXSEG command or the MAXSEG initialization statement. See *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*, or “SET MAXSEG” on page 85 for more information.

Wdogint

Shows the number of seconds that the watchdog timer waits before checking NRB timeout values. The parameter may be set using the SET WDOGINT command. See *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*, or “SET WDOGINT” on page 123 for more information.

Msglvl

Shows the minimum message severity level that will be displayed to the operator. NetEx uses priorities from 0 to 15 (decimal). All messages of greater or equal priority are displayed to the operator. The MSGLVL parameter may be changed using the SET MSGLVL command or the MSGLVL initialization statement. See *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*, or “SET MSGLVL” on page 91 for more information.

Msgxl

Shows the uppercase translation option of NetEx initiated messages and command responses. The MSGXL parameter may be changed using the SET MSGXL command or the MSGXL initialization statement. See *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*, or “SET MSGXL” on page 94 for more information.

Maxodata

Shows the maximum amount of ODATA a user may send across the network in a message. The value is established by the MAXODATA initialization statement, and/or the SET MAXODATA

command. The default value is 3072. See *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*, or “SET MAXODATA” on page 84 for more information.

TwoPart

Shows the parameter specifies the amount of time (in seconds) to delay between the first and second parts of a split network message. Leave this at 0 unless otherwise recommended by Network Executive Software personnel. See *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*, or “SET TWOPART” on page 122 for more information.

NCTVersion

Shows the version number specified in the configuration file.

Msgtm

Shows whether timestamps precedes NetEx-initiated messages. The SET MSGTGM command and the MSGTGM initialization statement are used to set this option ON or OFF. The default is OFF. See *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*, or “SET MSGTGM” on page 93 for more information.

Backoff

Shows the length of time in milliseconds to delay before retrying a 1080 or 10C0 I/O error. This time is multiplied by the retry number to get the actual delay time. The SET BACKOFF command and the BACKOFF initialization statement are used to set this value. See *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*, or “SET BACKOFF” on page 52 for more information.

TrunkMask

Shows the mask to “AND” with the trunks-to-try byte in outgoing messages.

Inactive

Shows the whether the inactive IDLE scheme is enabled or not.

Inactime

Shows the two time values used with the inactive IDLE scheme, separated with a comma. The first is the multiple of the resulting IDLETIME to get DEADTIME (SET DDMAXMLT). The second is the maximum IDLETIME (SET IDLEMAX).

See the following for more information:

- “SET DDMAXMLT” on page 56
- “SET DEADTIME” on page 57
- “SET IDLETIME” on page 73

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “DEADTIME”
- “IDLETIME”
- “INACTIVE”

Loadbal

Shows the load balancing feature is ON or OFF.

Lbrotate

Shows the path chosen when there is more than one local adapter with equal count.

I/O Count

Indicates whether the IOCOUNT statement for SMF record reporting is enabled or disabled. The IOCOUNT parameter initializes or disables tracking relative to the I/O activity performance events.

See *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual* for more information on this statement.

Multihost

Indicates whether multihost is on or off. Multihost on means that incoming connects much match an offer's name AND host. For use with TNP.

PrefProt

Shows the preferred protocol to use (2 or 4) when supported on both sides of a connection.

MaxKBS

Shows the maximum transfer rate limit, specified in terms of KiloBytes per second.

Mbfi

Shows the maximum number of input blocks that can be outstanding for a connection.

Mbfo

Shows the maximum number of output blocks that can be outstanding for a connection.

Exits

Shows the presence of NetEx user exits. Table 3 lists the possible exits. User exits can only be set using the Xexit initialization statements.

Table 3. Exit Points	
Exit Point	Description
IN	NetEx Initialization Exit
TM	NetEx Termination Exit
OF	User Offer Exit
CN	User Connect Exit
CX	User Connection Exit
DI	User Data In Exit
DO	User Data Out Exit
DC	User Disconnect Exit

Ssnm

Shows the subsystem name of this NetEx. This parameter can only be changed using the SUBSYS initialization statement.

Tsuser

Shows the ATSO userid where NetEx messages are sent (in addition to the normal console routing). See "SET TU" on page 121 for information on changing this TU parameter.

Route Codes

Shows the MVS console route codes to use for directing NetEx initiated messages. This parameter may be changed using the SET ROUTCD command or the ROUTCD initialization statement.

Desc Codes

Shows the MVS console descriptor codes to use for directing NetEx initiated messages. This parameter may be changed using the SET DESCDD command or the DESCDD initialization statement.

Trace

Shows the trace options selected. The trace may be OFF, ON MEMORY or ON TAPE, and ON for either specified EVENTS or CLASSES of events.

Num BuFs

Shows the number of buffers used by the trace facility.

Buf Size

Shows the size of the trace buffers (in bytes).

Events

Shows the selected trace events. Table 4 lists the possible trace events. Table 5 lists the possible classes of events.

Table 4. Trace Events	
Trace Event	Description
ALL	All events listed in this table.
DI	Driver input
DO	Driver output
DS	Dispatch
ED	Enter dispatcher
IC	I/O completion
IH	Halt I/O
II	I/O initiation
MC	Module call
MF	Memory free
MG	Memory get
MR	Module return
QD	Queue dequeue
QQ	Queue queue
SP	Spawn
ST	STimer
SU	Suspend
UR	User request in
US	User request out
XM	Cross-memory request

Table 5. Classes of Trace Events	
Trace Class	Description
ALL	All classes listed in this table.
CALL	Call (Events MC, MR, SP, SU, ED, DS)
IO	I/O (Events DO, DI, II, IH, IC)
MEM	Memory (Events MG, MF)
MSG	Message (Events DO, DI)
QUE	Queue (Events QQ, QD)
TIME	Time (Event ST)
UREQ	User requests (Events UR, US)
XMEM	Cross-memory (Event XM)

Status

Shows the one of the following:

DRAINED

A DRAIN command has been issued and no sessions are active.

DRAINING

A DRAIN command has been issued, but some sessions are still active.

NORMAL

The system is not being drained.

Rmtop

Shows whether the remote operator service is ON or OFF. The remote operator status may be changed using the SET NTXOPER command.

Class

Shows the class of remote operator service. (The class of the remote operator service may be changed by the SET ROPCLASS command).

A

Allows remote HALT, KILL, and DRAIN commands.

C

Allows remote SET, START, and > (remote) commands.

G

Allows remote DISPLAY commands. Network Executive Software recommends specifying CLASS=G.

RsMgr

Shows the name of the NetEx/IP resource manager being used by this NetEx.

Status

In the context of Resource Manager (RsMgr), shows one of the following:

ACTIVE

Shows the indicated resource manager is functioning properly.

DISABLED

Shows the indicated resource manager has terminated, and is no longer in a functional state. NetEx/IP should be restarted as soon as possible.

Uif

Specifies the name of the user interface module being used by this NetEx

Asidx

Address space identifier currently being used by this NetEx

Related Topics

- “SET NTXOPER” on page 96
- “SET ROPCLASS” on page 104
- “SET ROUTCD” on page 105
- “SET TU” on page 121

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “ROUTCD
- “IOCOUNT”

DISPLAY SESSION

This command shows a list of the sessions that are currently pending or in progress on the operator's host. Specifying SREF limits the display to only the specified session and provides more detailed information.

The DISPLAY SESSION command has the following format:

Command	Optional Parameters
C Display Session	SREF

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SREF

Specifies the session reference number for the session to be described by the display. By omitting this parameter, information about all sessions is displayed.

Examples

Figure 18 shows the results of a DISPLAY SESSION command on the operator terminal.

Host	ZOS5	Active Sessions							
Sref	User	Tref	State	Name	Host	RNref	Msg In	Msg Out	
1	BFX	5	Offered	BFXJS			0	0	
2	XYZ	INTRA	Connected	ABC	ZOS5		10	12	
3	ABC	INTRA	Connected	XYZ	ZOS5		12	10	
4	USER2	37	Connected	USER4	Linux1	12	337	672	
7	USER3	41	Connected	USER7	Sol10	24	1244	98	
8	MILNER	44	Connected	AAAAA	ZOS8	5	276	255	

Figure 18. DISPLAY SESSION Display (No Sref Specified)

The following fields appear in Figure 18.

Host xxxxxxxx Active Sessions

Shows the NetEx name (xxxxxxx) of the operator's host.

Sref

Shows the unique identifier that distinguishes this session from all other active session connections to this NetEx. This reference identifier must be used in operator commands that modify a session, and may be used with this command to get detailed information about this session.

User

Shows the name of the process requesting session services.

Tref

Shows the NetEx transport reference identifier. For type 1 connections established within a host, the Tref is identified as INTRA. For NetEx connections established between hosts, or for type 2 connections established within a host, this Tref may be used with the DISPLAY TRANSPORT command to get detailed information about this transport connection.

State

Shows the current status of the session connection. Use this field to track the progress of a connection, particularly for finding "hung" connections. The possible states are described below:

CLOSE RCVD

Shows the unique identifier that distinguishes this session from all other active session connections to this NetEx. This reference identifier must be used in operator commands that modify a session.

At

Shows the address of the Session User Block.

Name

Shows the name of the process requesting session services.

State

Shows the current status of the session connection. Use this field to track the progress of a connection, particularly for finding “hung” connections. The possible states are described below:

CLOSE RECEIVED

Indicates the user received a close. No additional data can be received, but additional data may be sent.

CLOSE SENT

Indicates the user issued a close. No additional data may be sent, but additional data may be received.

CLOSED

Indicates the user sent and received a close. No additional data can be exchanged.

CONNECTING

Connect request issued by user, waiting for confirm.

DATA

Connection completed and users may exchange data.

DISCONNECTING

Disconnect detected but not yet complete.

OFFERED

Offer has been issued by user, waiting for connect.

WAIT CONFIRM CALL

Connect message received by user, waiting for confirm.

WAIT CONFIRM MSG

Connect request issued by user, waiting for confirm.

A label also appears in this column. This label is the identifier that the program issued to allow the connection to take place. This name that must be supplied by the NetEx user whenever an SCONN or SOFFR is issued.

Dest

Shows the destination (or remote) hosts NetEx name. If a connection does not currently exist, this column is blank. If the remote Dref is known, it follows the destination host name.

Tref

Shows the NetEx transport reference identifier. If a connection does not currently exist, this column is blank.

Mxbi

Shows the maximum block size for incoming transmissions. This value is negotiated in the NRB when the session is established.

Mxbo

Shows the maximum block size for outgoing transmissions. This value is negotiated in the NRB when the session is established.

Usect

Shows the use count is the number of Session Request Blocks outstanding against this SUB.

Class

Shows the class of service for this session (from the NRB). A one (1) in this field indicates type 1 protocol, a two (2) indicates type 2 protocol.

Rate

Shows the rate (specified in the NRB) that the adapters can transmit data (in 1000's bits per second).

Reads

Shows the number of READs issued through this session manager during this session.

Writes

Shows the number of WRITES issued through this session manager during this session.

Readq

Shows the number of READs queued at the present time. Except for intra-host sessions, this field is always 0.

Writeq

Shows the number of WRITES queued at the present time. Except for intra-host sessions, this field is always 0.

Flags

Shows the status flags from the Session User Block (SUB). Table 6 shows the meanings of the status flags.

Table 6. Status Flags	
Flag Bits	Description
. . . 1 . 1 1	Disconnect issued against SUB
. . . 1 . . 1	Waiting for CONFIRM
. . . 1 . . . 1	Session connect pending
. 1 . . 1	Close issued
. 1 1 1	Close received
. 1 1	Disconnected
. 1 . 1	Closed
. 1	T-CONNECT pending
. 1 1	DATA mode
. 1	Waiting for Confirm message
. 1	Waiting for CONNECT
. 1	Session user interface
. 1	Intra-host connection

Related Topics

- “SET RSETPATH” on page 106
- “HALT SREF” on page 132

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

DISPLAY TRANSPORT

This command displays the current state and progress of all transport services requested directly by user processes (not yet implemented) and indirectly by user requests of session services. Specifying TREF limits the display to the specified transport and provides detailed information from the Transport User Block (TUB).

The DISPLAY TRANSPORT command has the following format:

Command	Optional Parameters
C Display Transport	TREF

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

TREF

Specifies the transport reference for the transport connection described in the display. If this parameter is omitted, information about all transport connections is displayed.

Examples

Figure 20 shows the results of a DISPLAY TRANSPORT command on the operator terminal.

Host	ZOS5	Active Transports						
Tref	Username	Segsz	State	RTref	Blksin	Rexmit	Blkout	Rexmit
37	USER2	12000	DATA	12	422	6	755	12
41	USER3	8192	DATA	48	1444	33	131	9
44	MILNER	32767	DATA	9	301	7	307	14
49	SESSMGR2	256	OFFERED		0	0	0	0
-1	SESSMGR1		OFFERED		0	0	0	0

Figure 20. DISPLAY TRANSPORT Display

The following fields appear in Figure 20.

Host xxxxxxxx Active Transports:

Shows the NetEx name (xxxxxxx) of the operator's host.

Tref

Shows the NetEx transport reference identifier.

Username

Shows the process name of the local program that issued the transport OFFER or CONNECT.

Segsz

Shows the maximum segment size used for this connection. All blocks of data transmitted during this connection is less than or equal to the segment size.

State

Shows the current status of the connection. Use this field to track the progress of a connection, particularly for finding "hung" connections. The possible states are listed below:

ASSIGNED

Shows the pending transport connection identified to transport.

CLOSDONE

Indicates a transport connection currently has a CLOSE in progress. A CLOSE has been received and sent by the user, but NetEx has not yet completed the CLOSE processing.

CLOSE RECD

Indicates a transport connection currently has a CLOSE in progress. The local user has received a CLOSE, but has not yet sent a CLOSE. Data can continue to be sent, but not received.

CLOSE SENT

Indicates a transport connection currently has a CLOSE in progress. The local user has sent a CLOSE, but has not yet received a CLOSE. Data can continue to be received, but not sent.

CLOSED

Indicates a transport connection currently has a CLOSE in progress. A CLOSE has been received and sent by the user, but NetEx has not yet completed the CLOSE processing.

CLOSPEND

Indicates a transport connection currently has a CLOSE in progress. A CLOSE has been sent and received by NetEx, but the user has not yet received the CLOSE.

CLOSPNOR

Indicates a transport connection currently has a CLOSE in progress. A CLOSE has been sent by NetEx, but a CLOSE has not yet been received.

CONFIRMING

Confirm request issued by user.

CONNECTOUT

Connect request issued by user, waiting for confirm.

DATA

Connection is completely established.

DSCONNECTING

Disconnect detected but not yet complete.

NRECNSNT

Indicates a transport connection currently has a CLOSE in progress. NetEx has not yet completed the CLOSE processing.

NRECUSNT

Indicates a transport connection currently has a CLOSE in progress. NetEx has not yet completed the CLOSE processing.

NRECVCL

Indicates a transport connection currently has a CLOSE in progress. The local NetEx has received a CLOSE, but the local user has not yet received it. In addition, the local user has not yet sent a CLOSE.

NSENTCL

Indicates a transport connection currently has a CLOSE in progress. The local user has issued a CLOSE, but a CLOSE has not yet been received. Data can continue to be received, but not sent.

OFFERED

Offer has been issued by user, waiting for connect.

URECNSNT

Indicates a transport connection currently has a CLOSE in progress. NetEx has not yet completed the CLOSE processing.

URECUSNT

Indicates a transport connection currently has a CLOSE in progress. NetEx has not yet completed the CLOSE processing.

RTref

If a connection has been established, this shows the Tref of the remote process.

Blksin

Shows the number of network messages received during this transport connection. This number includes all overhead, acknowledgment, and idle messages.

Rexmit

Shows the number of retransmitted messages received during this transport connection.

Blkout

Shows the number of network messages transmitted during this transport connection. This figure includes all overhead, acknowledgment, and idle messages.

Rexmit

Shows the number of retransmitted messages send during this transport connection.

Figure 21 shows the results of a DISPLAY TRANSPORT -1 command on the operator terminal.

```

Host IBM9762  Tref   -1 at 033400
Name= USER1   State=DATA          Prot=4  Dref=0000T/0000R  #Nits=   5
Rmttrks=    00  Rmtacc=0000  Rmtdref=0000  Rmttref=    0  Tubtion=  0
SLStrks=    00  SLSacc=0000  SLSdref=0000  Rate=0000.0 Kb  Maxdly=000
Maxtblok=    3  Mblko= 4096  Trte=50000.0  MemQ=  0  TranQ=  0  AckQ=  0
Maxrblok=    3  Mblki= 4096  Rrte=    0.0  TimQ=  1  ReadQ=  1  DataQ=  0
PipeB= 160000  MsRTD=   12  CrOB= 160000  RKBS=    0  RmRKBS=  0
RdQB=    0  RQH=    0  MnRTD=    0  MxRTD=    0  CrPmRt=  0
RateP=    100  EquipP=  850
Transmitter:
Curblock=    1  Tlrn=   338  Clrn=   341  Tpbna=  337
Rexmt=    0  Tack=  0000  Tto=    5  Ackcr=   2
Receiver:
Curblock=    0  Plrn=    2  Rlrn=    5  Rpbna=   10  Rpbnl=   1
Rpbnr=    1  Pbna=    1  Rack=  0000  Rto=   10  Ackcr=   2

```

Figure 21. DISPLAY TRANSPORT Display (Tref Specified)

The following fields appear in Figure 21.

Host

Shows the NetEx name of the operator's host.

Tref

Shows the NetEx transport reference identifier.

At

Shows the real address of the TUB.

Name

Shows the name of the process requesting transport services.

State

Shows the current status of the connection. Use this field to track the progress of a connection, particularly for finding “hung” connections. The possible states are described below:

ASSIGNED

The pending transport connection identified to transport.

CLOSDONE

Indicates a transport connection currently has a CLOSE in progress. A CLOSE has been received and sent by the user, but NetEx has not yet completed the CLOSE processing.

CLOSE RECD

Indicates a transport connection currently has a CLOSE in progress. The local user has received a CLOSE, but has not yet sent a CLOSE. Data can continue to be sent, but not received.

CLOSE SENT

Indicates a transport connection currently has a CLOSE in progress. The local user has sent a CLOSE, but has not yet received a CLOSE. Data can continue to be received, but not sent.

CLOSED

Indicates a transport connection currently has a CLOSE in progress. A CLOSE has been received and sent by the user, but NetEx has not yet completed the CLOSE processing.

CLOSPEND

Indicates a transport connection currently has a CLOSE in progress. A CLOSE has been sent and received by NetEx, but the user has not yet received the CLOSE.

CLOSPNOR

Indicates a transport connection currently has a CLOSE in progress. A CLOSE has been sent by NetEx, but a CLOSE has not yet been received.

CONFIRMING

Confirm request issued by user.

CONNECTOUT

Connect request issued by user, waiting for confirm.

DATA

Connection is completely established.

DSCONNECTING

Disconnect detected but not yet complete.

NRECNSNT

Indicates a transport connection currently has a CLOSE in progress. NetEx has not yet completed the CLOSE processing.

NRECUSNT

Indicates a transport connection currently has a CLOSE in progress. NetEx has not yet completed the CLOSE processing.

NRECVCL

Indicates a transport connection currently has a CLOSE in progress. The local NetEx has received a CLOSE, but the local user has not yet received it. In addition, the local user has not yet sent a CLOSE.

NSENTCL

Indicates a transport connection currently has a CLOSE in progress. The local user has issued a CLOSE, but a CLOSE has not yet been received. Data can continue to be received, but not sent.

OFFERED

Offer has been issued by user, waiting for connect.

URECNSNT

Indicates a transport connection currently has a CLOSE in progress. NetEx has not yet completed the CLOSE processing.

URECUSNT

Indicates a transport connection currently has a CLOSE in progress. NetEx has not yet completed the CLOSE processing.

Dref xxxxT/yyyyR

Shows the local DREFs used for transmitting (xxxT) and receiving (yyyyR). These fields are 0, as the routing management is handled by the Network layer.

#Nits

Shows the number of NetEx internal tasks (NITs) in use this connection.

Rmttrks

Shows the trunks to try on the remote host.

Rmtacc

Shows the remote host access code.

Rmtdref

Shows the remote host's driver connection number.

Rmttref

Shows the remote host's transport reference number.

Tubtion

Shows the number of I/Os started (including write wait).

SLStrks

Shows the trunks to try on the SLS adapter (appears only if an SLS exists in the network).

SLSac

Shows the SLS adapter access code (appears only if an SLS exists in the network).

SLSdref

Shows the SLS adapter's driver connection number (appears only if an SLS exists in the network).

Rate

Shows the SLS adapter's transmission rate (in Kbytes) (appears only if an SLS exists in the network).

Maxdly

Shows the maximum satellite delay (in seconds) (appears only if an SLS exists in the network).

Maxtblok

Shows the maximum number of transmitting buffers.

Mblk

Shows the maximum output block size (bytes).

Trte	Shows the maximum transmission rate.
MemQ	Shows the number of write NetEx internal tasks (NITs) queued waiting for memory.
TranQ	Shows the queue waiting to be started.
AckQ	Shows the number of NetEx internal tasks (NITs) queued waiting for acknowledgment.
Maxrblok	Shows the maximum number of receiving buffers.
Mblki	Shows the maximum input block size in bytes.
Rrte	Shows the maximum reception rate.
TimQ	Shows the number of NITs queued for transmitter low resolution timer.
ReadQ	Shows the number of NITs queued waiting for data.
DataQ	Shows the number of NITs queued waiting for read requests.
RtimeQ	Shows the number of NITs queued for receiver low resolution timer.
AsgnQ	Shows the number of NITs on the assign queue.
PipeB	Shows the current network capacity (bytes).
MsRTD	Shows the current round trip time on the network (milliseconds).
CrOB	Shows the current amount of unacknowledged data on the network (bytes).
RKBS	Shows the current receive rate in KBS (Kilobytes per second).
RmRKBS	Shows current remote receive rate in KBS (Kilobytes per second).
RdQB	Shows the current size (in bytes) of the NetEx DataQue for this connection.
RQH	Shows the size (in bytes) that represents the high water mark of the NetEx DataQue for this connection.
MnRTD	Shows the minimum round trip time (in milliseconds) that has been calculated for this connection in the last 60 second time interval.

MxRTD

Shows the maximum round trip time (in milliseconds) that has been calculated for this connection in the last 60 second time interval.

CrPmRt

Shows the current rate in Kbs (kilobits per second) found in the PAM.

RateP

Shows the current value of the percentage factor used to increase or decrease the send rate for this connection. The value displayed represents a percentage multiplied by a factor of 10. For example, a value of 100 means the send rate will be adjusted by 10.0%.

EquivP

Shows the current value of the percentage factor used to determine equivalence of the send and receive rates for this connection. These rates are assumed to be equal if they fall within this percentage of each other. The value specified represents a percentage multiplied by a factor of 10. For example, a value of 850 means the send and receive rates are determined to be equivalent if they are within 85.0% of each other.

Transmitter:

Curblock

Shows the current blocks for transmission.

Tlrn

Shows the last LRN assigned.

Clrn

Shows the last transmitter credit received.

Tpbn

Shows the last PBN assigned.

Tpbna

Shows the last PBN returned in an ACK.

Rexmt

Shows the number of retransmissions.

Tack

Shows the ACK/NAK information, bit signal received.

Tto

Shows the transmit timeout (idle time).

Acker

Shows the outgoing ACK credit (number of messages before an idle ACK).

Receiver:

Curblock

Shows the current blocks for reception.

Plrn

Shows the next LRN given to the user.

Rlrn

Shows the most recent credit (proceed) sent.

Rpbn	Shows the last PBN received.
Rpbnl	Shows the last PBN to which an ACK was sent.
Rpbnr	Shows the last PBN reported as sent in an ACK.
Pbna	Shows the PBN associated with this ACK/NAK information.
Rack	Shows the ACK/NAK information, bit signal to be sent.
Rto	Shows the receive timeout (communications lost).
Ackcr	Shows the incoming ACK credit.

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

DISPLAY UNIT

This command displays all or selected sub-addresses used by NetEx.

The DISPLAY UNIT command has the following format:

Command	Optional Parameters (Select One)
C Display Unit	ALL ALLOcate Free Online OFFline CUU XX

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

ALL

Displays all NetEx sub-addresses.

ALLOCATED

Displays only sub-addresses allocated by NetEx.

FREE

Displays only sub-addresses that are available for allocation.

ONLINE

Displays only sub-addresses that are currently online.

OFFLINE

Displays only sub-addresses that are offline and unavailable.

CCUU XX

Specifies the sub-address (CCUU) and the next sub-addresses (XX). Where XX is a decimal number.

Examples

Figure 22 shows the results of a DISPLAY UNIT ALL command to appear on the operator terminal.

Host	ZOS5	All Units			
ccuu	Username	Dref	I/O	Retry	Type
----	-----	----	-----	-----	----
0244	NETWRDR	1044*	34	0	OSA1
0245	FREE	1045	44	0	OSA1
5400	NETWRDR	1100*	76	0	OSA1
5401	FREE	1101	145	0	OSA1
5600	NETWRDR	1200*	26	0	OSA1
5601	FREE	1201	57	0	OSA1

Figure 22. DISPLAY UNIT ALL Example

The following fields appear in Figure 22.

Host xxxxxxxx Unit Status

Shows the NetEx name (xxxxxxx) of the operator's host.

ccuu

Shows the sub-address.

Username

Shows the NetEx name of the user of this sub-address. An asterisk ('*') in front of the username indicates that the adapter is currently halted.

Dref

Shows the driver reference number for this ccuu. The first 2 digits are the adapter network address. The second 2 digits are the last 2 digits of the sub-address. An asterisk ('*') indicates this sub-address is permanently assigned.

I/O

Shows the number of I/Os issued to this sub-address from the time NetEx was started.

Retry

Shows the number of I/Os retried to this sub-address from the time NetEx was started.

Type

Shows the adapter model type:

OSA1 indicates an OSA interface

Figure 23 shows the results of a DISPLAY UNIT ALLOC command on the operator terminal.

Host	ZOS5	Unit	Status			
ccuu	Username	Dref	I/O	Retry	Type	
----	-----	----	-----	-----	-----	----
0244	NETWRDR	1044*	34	0	OSA1	

Figure 23. DISPLAY UNIT ALLOC Example

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

SET Commands

The SET commands modify specific events or settings within NetEx.

SET BACKOFF

Defines the initialization delay between I/O error retries.

SET BITMINT

Specifies the time interval between resetting of the output subchannel mask in the DEVBLOCK.

SET CFOTM

Specifies the amount of time (in seconds) that the configuration receiver waits for the configuration sender to connect.

SET CONTIME

Specifies the maximum number of seconds that NetEx wait for a transport connect message to generate a response from the remote host.

SET DDMAXMLT

Specifies the number of idle messages that may be lost before the session gives up and disconnects when using the INACTIVE session idle scheme.

SET DEADTIME

Specifies the maximum number of seconds that NetEx wait before it disconnects a transport connection because there was no response from a remote host.

SET DEFBI

Specifies the default buffer input size (in bytes) that a user may specify for data coming in to this host in a single message.

SET DEFBO

Specifies the default buffer output size (in bytes) that a user may specify for data going out from this host in a single message.

SET DRIVMAX

Specifies the maximum number of concurrent Driver Interface connections supported by NetEx.

SET DESCDD

Specifies the default message Descriptor Code used for WTO messages.

SET DFRT

Specifies the default send rate per network connection.

SET DIRE

Specifies the delay increment receive equivalence percent parameter for type-4 NetEx/IP connections.

SET DISE

Specifies the delay increment send equivalence percent parameter for type-4 NetEx/IP connections.

SET DOWD

Specifies the default one-way delay per network connection.

SET DQHB

Specifies the high-water mark data queue size per network connection.

SET DQLB

Specifies the low-water mark data queue size per network connection.

SET FMSML

Use this command to force or not force multiline WTOs on remote operator displays.

SET FUBS

Specifies whether or not to free unused buffer space from buffer allocations.

SET GTRACE

This command enables/disables the GTRACE macro.

SET IDLEMAX

Specifies the maximum interval between idle message transmission if using the inactive idle scheme.

SET IDLETIME

Specifies the number of seconds that NetEx transport wait for before sending an idle message to verify the continued existence of a party at the other end of a logical connection.

SET INACTIVE

Enables or disables the inactive idle scheme.

SET IP

Defines a GNA-to-IP mapping.

SET LBROTATE

Varies the path chosen when there is more than one local adapter with equal use count. Use this command with the SET LOADBAL command.

SET LOADBAL

Enables or disables the adapter load balancing feature.

SET LOGCMD

Enables or disables the logging of operator commands in the NetEx/IP log.

SET MAXBI

Specifies the maximum buffer input size (in bytes) that a user may specify for data coming in to this host in a single message.

SET MAXBO

Specifies the maximum buffer output size (in bytes) that a user may specify for data going out from this host in a single message.

SET MAXDDBQ

Specifies the maximum number of Driver Interface Data Blocks (DDBs) that can be queued waiting for a DREAD.

SET MAXDREAD

Specifies the maximum number of concurrent Driver Interface DREAD requests for a given connection.

SET MAXDWRT

Specifies the maximum number of concurrent Driver Interface DWRITE requests for a given connection.

SET MAXODATA

Specifies the maximum size of an ODATA block that can be sent across the network.

SET MAXSEG

Specifies the maximum segment size (in bytes) that the local NetEx allows for data going out of or data coming into this host a single message.

SET MBFI

Specifies the maximum number of input blocks that NetEx/IP will allow to be outstanding for each connection.

SET MBFO

Specifies the maximum number of output blocks that NetEx/IP will allow to be outstanding for each connection.

SET MFCP

Specifies whether or not to copy small input buffers into smaller buffers of the correct size.

SET MIHTM

Specifies the time interval (in seconds) that the missing interrupt handler wait between checks of the device blocks.

SET MKBS

Specifies the maximum send rate for a network connection, expressed as kilobits per second.

SET MSGLVL

Specifies the minimum level of severity of messages that are displayed to the operator.

SET MSGML

Specifies if messages are in single or multiple line format.

SET MSGTM

Specifies whether timestamps are to precede NetEx-initiated messages.

SET MSGXL

Specifies if the operator messages are presented in upper or mixed-case.

SET NTXOPER

Enables or disables the remote operator service and sets the class of commands allowed.

SET OUTCLASS

Specifies the SYSOUT class to use for the NTXLOG dataset.

SET OUTLIM

Specifies the number of records to be written to the NTXLOG DD for this device before closing (CLOSE) and re-opening (OPEN) the DCB.

SET PRFP

Specifies the default protocol type to use for NetEx/IP connections.

SET PRINT

Controls the print function. A series of new console messages will inform the operator of print function status.

SET RDDP

Specifies the rate delay decrement percentage parameter for type-4 NetEx/IP connections.

SET RDII

Specifies the rate delay increase seconds parameter for type-4 NetEx/IP connections.

SET READTIME

Specifies the number of seconds that NetEx transport retains user data while waiting for the receiver to issue a read request.

SET ROPCLASS

Specifies the class of commands that the remote operator may issue.

SET ROUTCD

Specifies the console route codes that NetEx uses when generating messages.

SET RQPH

Specifies the rate equivalence percent high parameter for type-4 NetEx/IP connections.

SET RQPL

Specifies the rate equivalence percent low parameter for type-4 NetEx/IP connections.

SET RQPS

Specifies the rate equivalence percent parameter for type-4 NetEx/IP connections.

SET RRCI

Specifies the receive rate calculation interval parameter for type-4 NetEx/IP connections.

SET RSETPATH

Reset a specific session or all sessions

SET SESMAX

Specifies the number of session connections or OFFERs permitted at one time.

SET SMWTM

Specifies the amount of time (in seconds) that the NetEx session manager wait for a disconnect message after sending a confirm message.

SET SRCI

Specifies the send rate calculation interval parameter for type-4 NetEx/IP connections.

SET SRPH

Specifies the the send rate equivalence percent high parameter for type-4 NetEx/IP connections.

SET SRPL

Specifies the the send rate equivalence percent low parameter for type-4 NetEx/IP connections.

SET SRPS

Specifies the the send rate equivalence percent parameter for type-4 NetEx/IP connections.

SET SRUI

Specifies the the send rate update interval parameter for type-4 NetEx/IP connections.

SET STRP

Specifies the the start send rate percentage for type-4 NetEx/IP connections.

SET TRACE

Specifies what, if any, trace events or classes of events are to be saved and where they are to be stored.

SET TU

Specifies the TSO user to receive NetEx generated messages. This routing is in addition to the normal console routing.

SET TWOPART

Specifies the length of time in milliseconds to delay between the first and second parts of a two-part message.

SET WDOGINT

Specifies the watchdog timeout value used when timing out NRB requests.

SET BACKOFF

This command defines the initial delay in milliseconds between 1080 and 10C0 I/O error retries. Each retry delay is calculated by multiplying the retry number by this value.

The SET BACKOFF command has the following format:

Command	Required Parameters (Select One)
C SET BACKOFF	<i>DELAY-TIME</i> 50

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

DELAY-TIME

Specifies the delay in milliseconds (0-2000). The default is 50 milliseconds.

Example

```
/ SET BACKOFF 100
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “BACKOFF”

SET BITMINT

This command specifies the time interval between resetting the output subchannel mask in the DEVBLOCK.

The SET BITMINT command has the following format:

Command	Required Parameters (Select One)
C SET BITMINT	SECONDS 3600

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SECONDS

Specifies the number of seconds (0-999) that NetEx waits before clearing the bit mask.

Example

```
/ SET BITMINT 30
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “BITMINT

SET CFOTM

This command specifies the amount of time (in seconds) that the configuration receiver waiting for the configuration sender to connect.

The SET CFOTM command has the following format:

Command	Required Parameters (Select One)
C SET CFOTM	SECONDS 30

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SECONDS

Specifies the time (in seconds) the configuration receiver (NTXPAMRC) waits before a timeout. Allowed values are 1-999; the default is 30 seconds.

Example

```
/ SET CFOTM 60
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “CFOTM”

SET CONTIME

This command specifies the maximum number of seconds that NetEx wait for a transport connect message to generate a response from the destination host. If this time is exceeded, the transport assumes the destination host is “down” and returns appropriate status to the user. The transport connect message is resent every IDLETIME seconds until CONTIME seconds have passed.

The SET CONTIME command has the following format:

Command	Required Parameters (Select One)
C SET CONTime	SECONDS 30

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SECONDS

Specifies the number of seconds (0-999) that NetEx waits for a transport connect message to generate a response from the destination host.

Example

```
/ SET CONTIME 60
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “CONTIME”

SET DDMAXMLT

This command specifies the number of idle messages that may be lost before the session gives up and disconnects. Use this command only when the inactive idle scheme is operational. See “SET INACTIVE” on page 74) for more information.

The SET DDMAXMLT command has the following format:

Command	Required Parameters (Select One)
C SET DDMAXMLT	<i>MULTIPLIER</i> 6

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

MULTIPLIER

Specifies the number of idle messages (1-99) that may be lost before timing out. The default is 6.

Example

```
/ SET DDMAXMLT 10
```

Related Topics

- “SET INACTIVE” on page 74

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “DDMAXMLT”

SET DEADTIME

This command specifies the amount of time the transport waits until it disconnects a connection because there was no response from the remote host. The remote host normally generates an idle message every IDLETIME seconds based on its own IDLETIME parameter. Receipt of any message from the remote host keeps the DEADTIME timer from expiring.

The SET DEADTIME command has the following format:

Command	Required Parameters (Select One)
C SET DEADTIME	SECONDS 60

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SECONDS

Specifies the number of seconds (0-999) that NetEx waits until it disconnects a connection because there was no response from the remote host.

Example

```
/ SET DEADTIME 30
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “DEADTIME”

SET DEFBI

This command specifies the default maximum input buffer size for a connection. NetEx uses the default value if the user does not specify a maximum input buffer size in the CONNECT or OFFER request.

The SET DEFBI command has the following format:

Command	Required Parameters (Select One)
C SET DEFBI	SIZE SIZEK 4096

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SIZE

Specifies the default maximum input buffer size in bytes or Kbytes for *SIZEK* (for example, 4096 or 4K). DEFBI may be from 2048 bytes to the MAXBI value. Network Executive Software recommends specifying 32K.

An error indicating the value is out of range will occur if attempting to set DEFBI larger than the current MAXBI.

Example

```
/ SET DEFBI 2048
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “DEFBI”

SET DEFBO

This command specifies the default maximum output buffer size for a connection. NetEx uses the default value if the user does not specify a maximum output buffer size in the CONNECT or OFFER request.

The SET DEFBO command has the following format:

Command	Required Parameters (Select One)
C SET DEFBO	SIZE SIZEK 4096

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SIZE

Specifies the default maximum output buffer size in bytes or Kbytes for *SIZEK* (for example, 4096 or 4K). DEFBO may be from 2048 bytes to the MAXBO value.

An error indicating the value is out of range will occur if attempting to set DEFBO larger than the current MAXBO.

Example

```
/ SET DEFBO 2048
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “DEFBO”

SET DESC CD

This command specifies the default descriptor code that NetEx/IP uses when issuing messages to the console (WTO messages).

The SET DESC CD command has the following format:

Command	Required Parameter
C SET DESC CD	MESSAGE-DESCRIPTOR-CODE

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

MESSAGE-DESCRIPTOR-CODE

Specifies the message descriptor code used by NetEx/IP when issuing messages to the console. The Descriptor Code must be specified in the range of 1-16. Refer to any IBM System Messages manual for a description of the meaning of message Descriptor Codes.

Example

```
/ SET DESC CD 6
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- "CMDPRE"
- "DESC CD"

SET DFRT

This command specifies the starting throughput rate at which NetEx/IP will attempt to deliver data to the network for each network connection. This value is only used for connections to hosts that do not have a 'rate' value specified in the PAM or NRB.

The SET DFRT command has the following format:

Command	Required Parameter
C SET DFRT	<i>DEFAULT-START-RATE</i>

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

DEFAULT-START-RATE

Specifies the starting throughput rate for a NetEx/IP connection. If zero is specified, data will be delivered with no internal throttling. This value is specified in Kbits per second. For example, a value of 50 means 50Kbs; a value of 50000 means 50Mbps (i.e. 50,000 Kbps).

Example

```
/ SET DFRT 20
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- "CMDPRE"
- "DFRT"

SET DIRE

This command specifies the delay increment receive equivalence value, which is used in protocol-4 throughput calculations. The value specified represents a percentage multiplied by a factor of 10.

The SET DIRE command has the following format:

Command	Required Parameter
C SET DIRE	<i>DELAY-INCREMENT-RECEIVE-EQUIVALENCE-PERCENTAGE</i> 750

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

DELAY-INCREMENT-RECEIVE-EQUIVALENCE-PERCENTAGE

Specifies the delay increment percentage when receiving data. If this statement is not coded, the default is DIRE=750.

Example

```
/ SET DIRE 800
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “DIRE”

SET DISE

This command specifies the delay increment send equivalence value, which is used in protocol-4 throughput calculations. The value specified represents a percentage multiplied by a factor of 10.

The SET DISE command has the following format:

Command	Required Parameter
C SET DISE	<i>DELAY-INCREMENT-SEND-EQUIVALENCE-PERCENTAGE</i> 750

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

DELAY-INCREMENT-SEND-EQUIVALENCE-PERCENTAGE

Specifies the delay increment percentage when sending data. If this statement is not coded, the default is DISE=750.

Example

```
/ SET DISE 800
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “DISE”

SET DOWD

This command specifies the one-way propagation delay of the network, expressed in milliseconds. For Type-2 protocol connections, this value represents a fixed propagation delay that never changes. For Type-4 protocol connections, this value represents a starting point that is used for internal bandwidth capacity calculations. The delay is continuously measured during each session, and if it changes, the updated value is used for subsequent internal bandwidth capacity calculations.

The SET DOWD command has the following format:

Command	Required Parameter
C SET DOWD	<i>DEFAULT-ONEWAY-DELAY</i> <i>0</i>

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

DEFAULT-ONEWAY-DELAY

Specifies the default one-way propagation delay for a NetEx/IP connection. If this statement is not coded, the default is DOWD=0.

Example

```
/ SET DOWD 10
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “DOWD”

SET DQHB

This command specifies the high-water data queue size for incoming data.

The SET DQHB command has the following format:

Command	Required Parameter
C SET DQHB	HIGH-WATER-MARK

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

HIGH-WATER-MARK

Specifies the high-water mark queue size for incoming data. This value is expressed in terms of Bytes.

Example

```
/ SET DQHB 10000000
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “DQHB”

SET DQLB

This command specifies the low-water data queue size for incoming data.

The SET DQLB command has the following format:

Command	Required Parameter
C SET DQLB	LOW-WATER-MARK

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

LOW-WATER-MARK

Specifies the low-water mark queue size for incoming data. This value is expressed in terms of Bytes.

Example

```
/ SET DQLD 10000000
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “DQLB”

SET DRIVMAX

This command specifies the number of concurrent Driver Interface connections supported by NetEx. This count reflects only the number of connects (DCONNECT) in effect. If a new DCONNECT is issued when DRIVMAX sessions are in progress, the DCONNECT request is rejected with an error.

The SET DRIVMAX command has the following format:

Command	Required Parameters (Select One)
C SET DRIVMAX	NUMBER 8

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

NUMBER

Specifies the maximum number of sessions supported.

Example

```
/ SET DRIVMAX
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “DRIVMAX”

SET FMSML

This command specifies whether or not NetEx/IP should force multiline WTOs on remote operator displays. If set OFF, the display will be output using single line WTOs if any of the lines in the display are longer than 70 characters.

The SET FMSML command has the following format:

Command	Required Parameters (Select One)
C SET FMSML	<u>OFF</u> ON

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

PARAMETER

Specify either OFF or ON.

Example

```
/ SET FMSML OFF
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

SET FUBS

This command specifies whether or not NetEx/IP should free unused space in buffer memory allocations. Normally, this value should be specified as OFF. Enabling this feature will result in buffer memory fragmentation.

The SET FUBS command has the following format:

Command	Required Parameters (Select One)
C SET FUBS	<u>OFF</u> ON

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

PARAMETER

Specify either OFF or ON.

Example

```
/ SET FUBS ON
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “FUBS”

SET GTRACE

This command enables/disables the NetEx/IP GTF trace mechanism.

The SET GTRACE command has the following format:

Command	Required Parameters (Select One)
C SET GTRACE	ON OFF

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

ON

Enables NetEx/IP user record (type USR) GTF tracing. At specific processing points, NetEx/IP issues the GTRACE macro to “MC” (Monitor Call) put USR data to GTF. The USR entries will appear as hexadecimal-format entries in a GTF data set. The specific USR Event Identifiers (EID) used by NetEx/IP are listed in Table 7.

NOTE: GTF must be active, tracing the NetEx address space, and enabled for “USR” event recording, or optionally by USRP recording for specific EIDs. GTRACE recording should only be used when requested by NetEx support personnel.

OFF

Disables NetEx/IP user record GTF tracing. The default is OFF.

Example

```
SET GTRACE ON
```

Module containing USR trace points	Event Identifiers
NXMASY	230-23F
NXMINI	3E0-3EF
NXMLOG	990-99F
NXMODN	4E0-4EF
NXMSRB01	650-65F
NXMUIF00	810-81F
NXMURD	820-82F
NXMUSRPC	830-83F
NXMXME	8A0-8AF
NXMXMEPC	8B0-8BF

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “GTRACE”

SET IDLEMAX

This command specifies the maximum interval between idle message transmission if using the inactive idle scheme.

The SET IDLEMAX command has the following format:

Command	Required Parameters (Select One)
C SET IDLEMAX	SECONDS 240

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SECONDS

Specifies the maximum idletime in seconds (0-999).

Example

```
SET IDLEMAX 60
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “IDLEMAX”

SET IDLETIME

This command specifies the amount of time that the transport waits before sending an idle message to verify the continued existence of a party at the other end of a logical connection. The transmission of any message resets the timer.

The SET IDLETIME command has the following format:

Command	Required Parameters (Select One)
C SET IDLEtime	SECONDS 5

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SECONDS

Specifies the number of seconds (0-999) that NetEx waits before sending an idle message to the remote host.

Example

```
/ SET IDLETIME 60
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “IDLETIME”

SET INACTIVE

This command enables/disables the inactive idle scheme. If this command is enabled idle messages are sent less frequently the longer a session remains inactive (data not being sent or received). (See “SET IDLEMAX” on page 72 and “SET DDMAXMLT” on page 56.)

The SET INACTIVE command has the following format:

Command	Required Parameters (Select One)
C SET INACTIVE	ON OFF

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

ON

Enables the inactive idle scheme for all sessions.

OFF

Disables the normal idle scheme for all sessions. OFF is the default for this command.

Example

```
/ SET INACTIVE ON
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “INACTIVE”

SET IP

This command specifies the IP address mapping for a GNA address.

The SET IP command has the following format:

Command	Required Parameters
C SET IP	GNA IP

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

GNA

Specifies the 4 hex-character GNA address (NETADDR and SMGDREF, as specified in the NCT) that maps to the specified IP address.

IP

Specifies the IP address (in dotted decimal notation) that maps to the specified GNA address.

Example

```
/ SET IP 0300 10.1.5.2
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

SET LBROTATE

This command is associated with the load balancing feature. When operational, the SET LBROTATE command varies the path chosen when there are two or more local adapters with an equal use count.

The SET LBROTATE command has the following format:

Command	Required Parameters (Select One)
C SET LBROTATE	ON OFF

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

ON

Enables the load balancing rotate feature.

Set the SET LOADBAL=ON command before you set the SET LBROTATE=ON.

OFF

Disables the load balancing rotate feature. OFF is the default for this command.

Example

```
/ SET LBROTATE ON
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

SET LOADBAL

If SET LOADBAL is set ON, every session connect will choose the path to the remote host which involves the least used local adapter. “Use” is based on the number of sessions currently using that adapter. If this option is operational, the “First Path Rotation” feature, will not be used. For more information on “First Path Rotation”, see OPTIONS=ALTFIRST, in the HOST Statement section of the Configuration Manager and NetEx Alternate Path Retry (APR) User Guide for more information.

The SET LOADBAL command has the following format:

Command	Required Parameters (Select One)
C SET LOADBAL	ON OFF

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

ON

Enables the load balancing feature.

Set the SET LOADBAL=ON command before you set the SET LBROTATE=ON.

OFF

Disables the load balancing feature. OFF is the default for this command.

Example

```
/ SET LOADBAL ON
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

SET LOGCMD

This command specifies whether or not to log the actual NetEx/IP operator commands into the NTXLOG SYSOUT file. (The NetEx/IP command output is always logged). If set ON, all NetEx/IP operator commands are logged into NTXLOG.

The SET LOGCMD command has the following format:

Command	Required Parameters (Select One)
C SET LOGCMD	ON OFF

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

ON

Enables the logging of NetEx/IP commands in addition to the output to the NTXLOG data set.

OFF

Logs only the output of NetEx/IP commands to the NTXLOG data set.

Example

```
/ SET LOGCMD OFF
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “LOGCMD”

SET MAXBI

This command specifies the maximum input buffer size that a user may specify on SCONNECT or SOFFER calls. This parameter sets a system wide maximum user buffer size. Its value and the size of the user buffer region determine possible fragmentation of the region and the maximum number of connections that can be supported.

The SET MAXBI command has the following format:

Command	Required Parameters (Select One)
C SET MAXBI	<i>SIZE</i> <i>SIZEK</i> 65535

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SIZE

Specifies the maximum input buffer size in bytes or Kbytes for *SIZEK* (for example, 4096 or 4K) that users are able to specify on a CONNECT or OFFER call. Size may be from 2048 to 65535 bytes.

Example

```
/ SET MAXBI 2048
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “MAXBI”

SET MAXBO

This command specifies the maximum output buffer size that a user may specify on SCONNECT or SOFFER calls. This parameter sets a system wide maximum user buffer size. Its value and the size of the user buffer region determine possible fragmentation of the region and the maximum number of connections that can be supported.

The SET MAXBO command has the following format:

Command	Required Parameters (Select One)
C SET MAXBO	SIZE SIZEK 65535

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SIZE

Specifies the maximum output buffer size in bytes or Kbytes for *SIZEK* (for example, 4096 or 4K) that users is able to specify on a CONNECT or OFFER call. Size may be from 2048 to 65535 bytes.

Example

```
/ SET MAXBO 2048
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “MAXBO”

SET MAXDDBQ

This command specifies the maximum number of Driver Interface Data Blocks (DDBs) that can be queued waiting for a DREAD before the incoming DDBs are rejected.

The SET MAXDDBQ command has the following format:

Command	Required Parameters (Select One)
C SET MAXDDBQ	NUMBER 6

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

NUMBER

Specifies the maximum number of DDBs that can be queued before incoming DDBs are rejected. Number may be 0 to 32767.

Example

```
/ SET MAXDDBQ 12
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “MAXDDBQ”

SET MAXDREAD

This command specifies the maximum number of concurrent Driver Interface DREAD requests for a given connection.

The SET MAXDREAD command has the following format:

Command	Required Parameters (Select One)
C SET MAXDREAD	NUMBER 2

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

NUMBER

Specifies the maximum number of concurrent DREADs for a given connection. Number may be 0 to 32767.

Example

```
/ SET MAXDREAD 4
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “MAXDREAD”

SET MAXDWRT

This command specifies the maximum number of concurrent Driver Interface DWRITE requests for a given connection.

The SET MAXDWRT command has the following format:

Command	Required Parameters (Select One)
C SET MAXDWRT	NUMBER 2

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

NUMBER

Specifies the maximum number of concurrent writes (DWRITE) for a given connection. Number may be 0 to 32767.

Example

```
/ SET MAXDWRT 4
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “MAXDWRT”

SET MAXODATA

This command specifies the maximum amount of octet-mode data that can be sent across the network in a single block.

If SET MAXODATA is not set, MAXODATA=3072 is assumed.

The SET MAXODATA command has the following format:

Command	Required Parameters (Select One)
C SET MAXODATA	<i>BLOCK-SIZE</i> 3072

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

BLOCK-SIZE

Specifies the maximum block size for sending ODATA across the network. The accepted range of values is 64 to 32603. When issuing the command, the value set cannot be less than the current MAXODATA value.

Example

```
/ SET MAXODATA 3200
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “MAXODATA”

SET MAXSEG

This command specifies the maximum segment size that the local NetEx uses when establishing connections with remote NetEx(es). This value serves as an upper limit for the local host. The actual segment size used on any particular route is the minimum value of the following: the MAXSEG size of the local host, the MAXSEG size of the remote host, the MAXSEG size of the local NTCROUTE definition, and the MAXSEG size of the remote NTCROUTE definition.

The MAXSEG value cannot be set lower than its current value if there are any active connections or OFFERS. However, it may not always be possible to set it to a small value (e.g. less than 4096) even when there are no active connections or OFFERS. If a value of less than 4096 is required, the MAXSEG statement should be specified in the initialization file.

The SET MAXSEG command has the following format:

Command	Required Parameters (Select One)
C SET MAXSEG	SIZE SIZEK 32767

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SIZE

Specifies the maximum segment size (in bytes or Kbytes for **SIZEK**) that NetEx uses when establishing connections. Size may be from 1024 (1K) to 65535 (65K-1) bytes.

NOTE: If MAXSEG needs to be set to a low value (i.e. to avoid fragmentation) set MAXODATA to a value 164 bytes below the desired MAXSEG.

Example

```
/ SET MAXSEG 1K
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “MAXSEG”

SET MBFI

This command specifies the maximum number of input blocks that NetEx/IP will allow to be outstanding for each user. This may have to be increased for long latency or high bandwidth networks, particularly if small segment sizes are specified (e.g. if maxseg is specified as 4K or less). If your network falls into this category, please contact support@netex.com for guidance on setting proper values for this parameter.

CAUTION: Usage of this command requires H210IPZ to be at the Release 7.0.5 level or higher.

The SET MBFI command has the following format:

Command	Required Parameters (Select One)
C SET MBFI	<i>NUMBER</i> 5

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

NUMBER

Specifies the maximum number of input buffers.

Example

```
/ SET MBFI 8
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “MBFI”

SET MBFO

This command specifies the maximum number of output blocks that NetEx/IP will allow to be outstanding for each user. This may have to be increased for long latency or high bandwidth networks, particularly if small segment sizes are specified (e.g. if maxseg is specified as 4K or less). If your network falls into this category, please contact support@netex.com for guidance on setting proper values for this parameter.

CAUTION: Usage of this command requires H210IPZ to be at the Release 7.0.5 level or higher.

The SET MBFO command has the following format:

Command	Required Parameters (Select One)
C SET MBFO	<i>NUMBER</i> 5

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

NUMBER

Specifies the maximum number of output buffers.

Example

```
/ SET MBFO 8
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “MBFO”

SET MFCP

This command specifies the Memory Free Copy ratio, and is used to determine how to process buffer size requirements for data coming in from the network.

The SET MFCP command has the following format:

Command	Required Parameters (Select One)
C SET MFCP	<i>NUMBER</i> 0

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

NUMBER

Specifies the the denominator of the fraction “1/mfcp”. When an incoming data buffer is less than or equal to (1/mfcp x SEGSIZE), data is copied into a new buffer of the correct size. When used, this value should be specified between 2 and 16. If 0 is specified, data is not copied.

Example

```
/ SET MFCP 2
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “MFCP”

SET MIHTM

This command specifies the time (in seconds) that the missing interrupt handler waits between checks of the device blocks. On average, if an I/O does not complete within $MIHTM + MIHTM/2$, the I/O is halted.

The SET MIHTM command has the following format:

Command	Required Parameters (Select One)
C SET MIHTM	SECONDS 15

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SECONDS

Specifies is the missing interrupt handler in seconds. Allowed values are 0-32767; the default is 15. Any new interval value takes effect only after the previous interval completes. If MIHTM is set to 0, the missing interrupt handler exits, and can only be restarted by bringing up NetEx again.

Example

```
/ SET MIHTM 30
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “MIHTM”

SET MKBS

This command specifies the maximum rate at which NetEx/IP will deliver data to the network for each network connection. If zero is specified, data will be delivered with no internal throttling. This value is only used for connections to hosts that do not have a 'rate' value specified in the PAM. This value is specified in Kbits per second. For example, a value of 50 means 50Kbs; a value of 50000 means 50Mbs (i.e. 50,000 Kbs).

The SET MKBS command has the following format:

Command	Required Parameters (Select One)
C SET MKBS	<i>RATE</i> 0

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

RATE

Specifies the maximum rate, in kilobits per second, at which NetEx/IP will deliver data to the network. For Type 4 protocol connections, the rate will be dynamically adjusted to match the network capability.

Example

```
/ SET MKBS 10000
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- "CMDPRE"
- "MKBS"

SET MSGLVL

This command controls the severity of messages printed on the operator's console. The operator messages are grouped from 0-15 (decimal). All messages with the specified level of severity or greater are displayed. Table 8 describes the message levels.

Message Level	Description
12	Messages that require immediate action by the operator. Examples: I/O error, NetEx/IP termination.
8	Messages that are of great interest to the operator and may require operator action. Examples: beginning and end of all sessions, intermittent failures of NetEx-related equipment or communications media used by NetEx-related equipment.
6	Messages that reflect temporary error conditions not requiring operator intervention. Examples: offer time out, read time out, message out of sequence, temporary I/O error (UCK).
4	Messages regarding events that are of interest in closely monitored environments. Examples: memory shortage conditions, receipt of unsolicited messages from the network, display of statistics at the end of connections.
0	Messages that are intended for diagnostic or debugging purposes. These messages are generally only of interest when a system programmer is attempting to diagnose a NetEx problem.

The SET MSGLVL command has the following format:

Command	Required Parameters (Select One)
C SET MSGlvl	NUMBER 8

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

NUMBER

Specifies the minimum level of severity of messages displayed on the operator console. The number specified must be from 0-15. See Table 8.

Example

```
/ SET MSGLVL 12
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “MSGLVL”

SET MSGML

This command specifies if NetEx issues WTO messages in multiple or single-line format.

The SET MSGML command has the following format:

Command	Required Parameters (Select One)
C SET MSGML	<u>ON</u> OFF

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

ON

Issues WTO messages are in multiple-line format.

OFF

Issues WTO messages are in single-line format.

Example

```
/ SET MSGML ON
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “MSGML”

SET MSGTM

This command specifies whether timestamps are attached to messages.

The SET MSGTM command has the following format:

Command	Required Parameters (Select One)
C SET MSGTM	ON OFF

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

ON

Displays NetEx operator messages with timestamps.

OFF

Displays NetEx operator messages without timestamps.

Example

```
/ SET MSGTM OFF
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “MSGTM”

SET MSGXL

This command selects operator messages displayed in upper or mixed case. Messages are displayed in mixed case by default.

The SET MSGXL command has the following format:

Command	Required Parameters (Select One)
C SET MSGXL	ON OFF

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

ON

Displays the NetEx operator messages in uppercase.

OFF

Displays the NetEx operator messages in mixed-case.

Example

```
/ SET MSGXL OFF
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “MSGXL”

SET MULTIH

The SET MULTIH command is used with the TNP feature. The NetEx/IP Requester hostnames that are specified in the Requester configuration files are used with the NetEx requests. MULTIH should be set to ON if there are multiple NetEx/IP Requester hosts using H210IPZ with TNP, and the Requester hosts are defined in the NCT. MULTIH can be set to OFF if there is only one Requester host, or if all SOFFERs will have unique names. Typically, SET MULTIH should be set to ON in TNP configurations.

The SET MULTIH command has the following format:

Command	Required Parameters (Select One)
C SET MULTIH	ON OFF

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

ON

Allows NetEx to distinguish between SOFFERs of the same application name from multiple locally attached hosts.

OFF

The host names of Requester hosts are not used.

Example

```
/ SET MULTIH ON
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

SET NTXOPER

This command specifies if the remote operator service is enabled or disabled. This statement may also specify the class of operator commands that the remote operator is allowed to issue. The default is set by the NTXOPER initialization command.

There is one remote operator session for every SET NTXOPER statement issued.

The SET NTXOPER statement has the following format:

Command	Parameters (Select One)
C SET NTXOPER	ON CLASS=A ON CLASS=C ON CLASS=G OFF

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

ON

Enables the remote operator service.

CLASS

(use only if ON is selected) This parameter specifies the level of operator command that is accepted from the remote host. Class may also be selected using the SET ROPCLASS command.

A

Accepts all commands (HALT, KILL, DRAIN included) issued from the remote host.

C

Accepts only privileged class commands (SET, START, > (remote command)) and general class commands issued from the remote host.

G

Accepts only general class commands (DISPLAY) issued from the host. Network Executive Software recommends specifying CLASS=G.

OFF

Disables the remote operator service for all remote operators.

Example

```
/ SET NTXOPER ON CLASS=C
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “NTXOPER”

SET OUTCLASS

This command specifies the SYSOUT class to use for the NTXLOG data set.

The SET OUTCLASS statement has the following format:

Command	Required Parameters (Select One)
C SET OUTclass	OUTPUT-CLASS A

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

OUTPUT-CLASS

Specifies the SYSOUT class to use for the NTXLOG data set.

Example

```
/ SET OUTCLASS L
```

Related Topics

- Appendix A. The Print Function on page 141
-

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “OUTCLASS”

SET OUTLIM

This command specifies the number of records to be written to the NTXLOG DD for this device before closing (CLOSE) and re-opening (OPEN) the DCB.

The SET OUTLIM statement has the following format:

Command	Required Parameters (Select One)
C SET OUTlim	RECORDS 50000

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

RECORDS

Specifies the maximum number of records (1024 to 524,288) that can be written to the NTXLOG DD.

Example

```
/ SET OUTLIM 1024
```

Related Topics

- Appendix A. The Print Function on page 141
-

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

SET PRFP

This command specifies the default preferred protocol type (2 or 4) to use when connecting to hosts that support multiple NetEx/IP protocol types. Network throughput for protocol type-2 connections is controlled by static parameters, while network throughput for protocol type-4 connections is controlled by dynamic parameters, based on the characteristics of the network.

Caution: both sides of a NetEx/IP connection must be at comparable protocol type-4 levels for the protocol type-4 capability to be supported.

The SET PRFP statement has the following format:

Command	Required Parameters (Select One)
C SET PRFP	<i>PROTOCOL-TYPE</i> <u>2</u> 4

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

PROTOCOL-TYPE

Specifies the NetEx/IP protocol type.

Example

```
/ SET PRFP 2
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “PRFP”

SET PRINT

This command controls the print function. A series of new console messages will inform the operator of print function status.

The SET PRINT statement has the following format

Command	Required Parameters (Select One)
C SET PRINT	ON OFF

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

ON

Starts the print function.

OFF

Stops the print function. The default is OFF.

Example

```
/ SET PRINT ON
```

Related Topics

- Appendix A. The Print Function on page 141

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

SET RDDP

This command specifies the rate delay decrement percentage, used for protocol type-4 NetEx/IP connections. This is the percentage factor used to decrease the sending rate of a network connection if the round-trip delay increases. This recalculation is performed after the expiration of each interval specified by the RDII parameter. The value specified represents a percentage multiplied by a factor of 10.

The SET RDDP statement has the following format:

Command	Required Parameters (Select One)
C SET RDDP	<i>RATE-DELAY-DECREMENT-PERCENTAGE</i> 250

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

PERCENTAGE

Specifies the rate delay decrement percentage. The value specified represents a percentage multiplied by a factor of 10.

Example

```
/ SET RDDP 400
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “RDDP”

SET RDII

This command specifies the round trip delay increase interval (in seconds), used for protocol type-4 NetEx/IP connections. This is the interval (in seconds) used by the sending side of a network connection after which a check is made for an increase in the round trip delay.

The SET RDII statement has the following format:

Command	Required Parameters (Select One)
C SET RDII	<i>ROUNDTRIP-DELAY-INCREASE-INTERVAL</i> 60

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

ROUNDTRIP-DELAY-INCREASE-INTERVAL

Specifies the number of seconds (0-999) that must transpire before a roundtrip time will be increased because of a new calculation. If this statement is not coded, the default is RDII=60.

Example

```
/ SET RDII 30
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “RDII”

SET READTIME

This command specifies the number of seconds that NetEx transport retains user data waiting for the receiver to issue a READ request. When this timer expires a disconnect is flagged and sent to the remote process connected. The local process receives a disconnect message for READTIME seconds, if there is not already one there. When a disconnect times out, the transport connection is cleared out and the Tref becomes invalid for future user requests.

The SET READTIME command has the following format:

Command	Required Parameters (Select One)
C SET Readtime	SECONDS 60

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SECONDS

Specifies the number of seconds (1-9999) that NetEx transport retains user data waiting for a READ issued from the receiver. The default is 60. Network Executive Software recommends specifying 300.

NOTE: Using the value of zero could produce an unpredictable result.

Example

```
/ SET READTIME 120
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “READTIME”

SET ROPCLASS

This command specifies the class of operator commands accepted from operators on the remote host.

The SET ROPCLASS statement has the following format:

Command	Required Parameters (Select One)
C SET ROPCLASS	A C G

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

A

Accepts all commands (HALT, KILL, DRAIN, SET, START included) issued from the remote host.

C

Accepts only privileged class commands (SET, START, > (remote command)) and general class commands issued from the remote host.

G

Accepts only general class commands (DISPLAY) issued from the remote host. Network Executive Software recommends specifying CLASS=G.

Example

```
/ SET ROPCLASS C
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

SET ROUTCD

This command specifies the console routings to use for NetEx generated messages.

The SET ROUTCD command has the following format:

Command	Required Parameters
C SET ROUTCD	(RC1 , RC2 , . . . , RCN)

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

RC1,RC2,...RCN

Specifies the single route code, or multiple route codes, that NetEx should use when generating messages. Values must be in the range of 1 through 16 and completely replace the current settings.

Example

```
/ SET ROUTCD ( 1 , 2 )
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “ROUTCD”

SET RSETPATH

This command resets a specific session or all sessions.

The SET RSETPATH command has the following format:

Command	Required Parameters (Select One)
C SET RSETPATH	SREF

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SREF

Specifies the sref for the session being halted. Use the DISPLAY SESSION command to determine the SREF.

Example

```
/ SET RSETPATH 2000
```

Related Topics

- “DISPLAY SESSION” on page 33
- “HALT SREF” on page 132

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

SET RQPH

This command specifies the receive rate percentage high, used for protocol type-4 NetEx/IP connections. This value represents the high bound of the send and receive equivalence adjustment (see RQPS). The value specified represents a percentage multiplied by a factor of 10.

The SET RQPH statement has the following format:

Command	Required Parameters (Select One)
C SET RQPH	<i>RECEIVE-RATE-PERCENTAGE-HIGH</i> 855

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

RECEIVE-RATE-PERCENTAGE-HIGH

Specifies the high bound of the send and receive equivalence percentage. If this statement is not coded, the default is RQPH=855.

Example

```
/ SET RQPH 400
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “RQPH”

SET RQPL

This command specifies the receive rate percentage low, used for protocol type-4 NetEx/IP connections. This value represents the low bound of the send and receive equivalence adjustment (see RQPS). The value specified represents a percentage multiplied by a factor of 10.

The SET RQPL statement has the following format:

Command	Required Parameters (Select One)
C SET RQPL	<i>RECEIVE-RATE-PERCENTAGE-LOW</i> 500

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

RECEIVE-RATE-PERCENTAGE-LOW

Specifies the low bound of the send and receive equivalence percentage. If this statement is not coded, the default is RQPL=500.

Example

```
/ SET RQPL 400
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “RQPL”

SET RQPS

This command specifies the receive rate percentage equivalence, used for protocol type-4 NetEx/IP connections. This value represents the percentage factor used to determine equivalence of the send and receive rates for each network connection. These rates are assumed to be equal if they fall within this percentage of each other. This is the initial value used for each network connection, and can be dynamically adjusted based on activity and performance of the network. The value specified represents a percentage multiplied by a factor of 10.

The SET RQPS statement has the following format:

Command	Required Parameters (Select One)
C SET RQPS	<i>RECEIVE-RATE-PERCENTAGE-EQUIVALENCE</i> <u>750</u>

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

RECEIVE-RATE-PERCENTAGE-EQUIVALENCE

Specifies the send and receive equivalence percentage. If this statement is not coded, the default is RQPS=750.

Example

```
/ SET RQPS 700
```

Related Topics

- See the following initialization statements in H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual:
- “CMDPRE”
- “RQPS”

SET RRCI

This command specifies the receive rate calculation interval (in seconds) , used for protocol type-4 NetEx/IP connections. This value represents the time interval (in seconds) after which the receive rate for a network connection is recalculated. The receive rate refers to the rate at which the application is receiving data from NetEx.

The SET RRCI statement has the following format:

Command	Required Parameters (Select One)
C SET RRCI	<i>RECEIVE-RATE-CALCULATION-INTERVAL</i> 2

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

RECEIVE-RATE-CALCULATION-INTERVAL

Specifies the number of seconds (0-999) that must transpire, after which time the receive rate for a network connection is recalculated. If this statement is not coded, the default is RRCI=2.

Example

```
/ SET RRCI 10
```

Related Topics

- See the following initialization statements in H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual:
- “CMDPRE”
- “RRCI”

SET SESMAX

This command controls the number of session connections or OFFERs permitted at one time. If the current number of sessions is greater than the new value specified, the command does not affect sessions in progress but denies any new requests until sessions are disconnected. If the current number of sessions is less than the new value then there is no immediate effect.

NOTE: Changing SESMAX requires NetEx to reallocate resources. Network Executive Software does not recommend using this command when increasing SESMAX. Network Executive Software recommends changing SESMAX in the startup configuration file which requires stopping NetEx and restarting NetEx.

The SET SESMAX command has the following format:

Command	Required Parameters (Select One)
C SET SESmax	NUMBER 32

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

NUMBER

Specifies the number of connections and OFFERs to allow at one time (from 2 to the SESLIM value).

Example

```
/ SET SESMAX 2
```

Related Topics

- “START NETEX” on page 126
- “DRAIN NETEX” on page 129
- “KILL NETEX” on page 133
- See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:
- “CMDPRE”
- “SESMAX”

SET SMWTM

This command specifies the amount of time (in seconds) that the NetEx session manager waits for a disconnect message after sending a confirm message. The default should be used unless otherwise recommended by Network Executive Software personnel.

The SET SMWTM command has the following format:

Command	Required Parameters (Select One)
C SET SMWTM	<i>SECONDS</i> 15

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SECONDS

Specifies the session manager read for disconnect time in seconds. Allowed values are 1-60; the default is 15.

Example

```
/ SET SMWTM 30
```

Related Topics

- See the following initialization statements in H210IPZ NetEx/IP for IBM z/OS Operating Systems Initialization Reference Manual:
- “CMDPRE”
- “SMWTM”

SET SRCI

This command specifies the send rate calculation interval (in seconds), used for protocol type-4 NetEx/IP connections. This value represents the time interval (in seconds) after which the send rate for a network connection is recalculated. The send rate refers to the rate at which the application is sending data from NetEx.

The SET SRCI statement has the following format:

Command	Required Parameters (Select One)
C SET SRCI	<i>SEND-RATE-CALCULATION-INTERVAL</i> 4

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SEND-RATE-CALCULATION-INTERVAL

Specifies the number of seconds (0-999) that must transpire, after which time the send rate for a network connection is recalculated. If this statement is not coded, the default is SRCI=4.

Example

```
/ SET SRCI 10
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “SRCI”

SET SRPH

This command specifies the send rate percentage high, used for protocol type-4 NetEx/IP connections. This value represents the high bound of the SRPS adjustment for each network connection. The value specified represents a percentage multiplied by a factor of 10.

The SET SRPH statement has the following format:

Command	Required Parameters (Select One)
C SET SRPH	<i>SEND-RATE-PERCENTAGE-HIGH</i> 500

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SEND-RATE-PERCENTAGE-HIGH

Specifies the high bound of the send and receive equivalence percentage. If this statement is not coded, the default is SRPH=500.

Example

```
/ SET SRPH 400
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “SRPH”

SET SRPL

This command specifies the send rate percentage low, used for protocol type-4 NetEx/IP connections. This value represents the low bound of the SRPS adjustment for each network connection. The value specified represents a percentage multiplied by a factor of 10.

The SET SRPL statement has the following format:

Command	Required Parameters (Select One)
C SET SRPL	<i>SEND-RATE-PERCENTAGE-LOW</i> 100

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SEND-RATE-PERCENTAGE-LOW

Specifies the low bound of the send and receive equivalence percentage. If this statement is not coded, the default is SRPL=100.

Example

```
/ SET SRPL 400
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “SRPL”

SET SRPS

This command specifies the send rate percentage equivalence, used for protocol type-4 NetEx/IP connections. This value represents the percentage factor used to increase or decrease the send rate for each network connection. The send rate may be increased after the expiration of the interval specified by RDII. The send rate may be decreased after the expiration of the interval specified by SRUI. The value specified represents a percentage multiplied by a factor of 10.

The SET SRPS statement has the following format:

Command	Required Parameters (Select One)
C SET SRPS	<i>SEND-RATE-PERCENTAGE-EQUIVALENCE</i> 200

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SEND-RATE-PERCENTAGE-EQUIVALENCE

Specifies the send and receive equivalence percentage. If this statement is not coded, the default is SRPS=200.

Example

```
/ SET SRPS 300
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “SRPS”

SET SRUI

This command specifies the send rate update interval (in seconds) , used for protocol type-4 NetEx/IP connections.

The SET SRUI statement has the following format:

Command	Required Parameters (Select One)
C SET SRUI	<i>SEND-RATE-UPDATE-INTERVAL</i> 20

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SEND-RATE-UPDATE-INTERVAL

Specifies the number of seconds (0-999) that must transpire, after which the send rate may be updated. If this statement is not coded, the default is SRUI=20.

Example

```
/ SET SRUI 30
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “SRUI”

SET STRP

This command specifies the starting rate percentage, used for protocol type-4 NetEx/IP connections. This value represents a percentage factor used to calculate the initial send rate of each network connection. This value is applied against the maximum rate for the connection, as specified in the PAM, NRB, or by the DFRT parameter. During the course of the connection, the actual send rate may be adjusted, based on network activity. The value specified represents a percentage multiplied by a factor of 10.

The SET STRP command has the following format:

Command	Required Parameters (Select One)
C SET STRP	<i>STARTING-RATE-PERCENTAGE</i> 750

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

STARTING-RATE-PERCENTAGE

Specifies the starting rate percentage, applied against either the maximum rate for the connection, or against the DFRT parameter. If this statement is not coded, the default is STRP=750.

Example

```
/ SET STRP 300
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “STRP”

SET TRACE

This command specifies the trace options selected. The trace may be off, on memory or on tape, and on for either specified events or classes of events.

The SET TRACE command has the following format:

Command	Required Parameter (Select One)	Optional Parameters (Select One)	Optional Parameters (Select One)
C SET TRAcE=	ON	MEMORY MEMORY EVENTS MEMORY EVENTS=ALL MEMORY EVENTS=EVENTS TAPE=CCUU	CLASS CLASS=ALL CLASS=CLASS
	OFF		

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

ON

Enables the trace. Specify either ON or OFF.

OFF

Disables the trace. Specify either ON or OFF.

MEMORY

Enables trace memory for the trace file. MEMORY EVENTS=ALL is the default for C SET TRACE=ON.

EVENTS

(default between CLASS and EVENTS) This parameters specifies which trace events to save. You may select one or more trace events (shown in Table 9). If you do not select any events, the default is EVENTS=ALL.

TAPE=CUU

Sends trace to the tape unit specified by CUU.

CLASS

Specifies which class of events to save. You may select one or more trace classes (shown in Table 10). If you do not select any classes, the default is CLASS=ALL.

ALL

Saves all events.

CLASS

This parameter may be one or more trace classes.

Examples

```
C SET TRACE=ON MEMORY
C SET TRACE=ON MEMORY EVENTS=(DI,DO)
C SET TRACE=ON MEMORY EVENTS=(DI,DO) CLASS=MSG
C SET TRACE=ON TAPE=0290 CLASS=(CALL, MEM, MSG)
```

Table 9. Trace Events	
Trace Event	Description
ALL	All events listed in this table.
DI	Driver input
DO	Driver output
DS	Dispatch
ED	Enter dispatcher
IC	I/O completion
IH	Halt I/O
II	I/O start
MC	Module call
MF	Memory free
MG	Memory get
MR	Module return
QD	Queue dequeue
QQ	Queue queue
SP	Spawn
ST	STimer
SU	Suspend
UR	User request in
US	User request out
XM	Cross-memory request

Table 10. Classes of Trace Events	
Trace Class	Description
ALL	All classes listed in this table.
CALL	Call (Events MC, MR, SP, SU, ED, DS)
IO	I/O (Events DO, DI, II, IH, IC)
MEM	Memory (Events MG, MF)
MSG	Message (Events DO, DI)
QUE	Queue (Events QQ, QD)
TIME	Time (Event ST)
UREQ	User requests (Events UR, US)

Table 10. Classes of Trace Events	
Trace Class	Description
XMEM	Cross-memory (Event XM)

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “TRACE”

SET TU

This command specifies the name of a TSO user that will receive NetEx generated messages. This routing is in addition to the normal console routing. Only one name can be in effect at any time. The TSO user does not receive responses to NetEx commands.

The SET TU command has the following format:

Command	Required Parameters (Select One)
C SET TU	NAME OFF

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

NAME

Specifies the name of a TSO user to receive NetEx generated messages.

OFF

Disables this facility.

Example

```
/ SET TU OFF
```

Related Topics

See the following initialization statement in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

SET TWOPART

This command specifies the length of time in milliseconds to delay between the first and second parts of a two-part message.

The SET TWOPART command has the following format:

Command	Required Parameters (Select One)
C SET TWOPART	<i>DELAY-TIME</i> 0

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

DELAY-TIME

Specifies the delay in milliseconds. The range for this value is 0 to 9999. The default is 0.

Example

```
/ SET TWOPART 100
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “TWOPART”

SET WDOGINT

This command specifies the number of seconds that elapse between NetEx's checking for timed-out conditions in the NRB requests. Thus, if a READ has a timeout value specified as 10 seconds, and the WDOGINT is also 10 seconds, the READ actually time-outs in the range 10-20 seconds.

The SET WDOGINT command has the following format:

Command	Required Parameters (Select One)
C SET WDOgint	SECONDS 2

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SECONDS

Specifies the number of seconds (0-999) that NetEx uses as a base unit for checking timeout values.

Example

```
/ SET WDOGINT 5
```

Related Topics

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- "CMDPRE"
- "WDOGINT"

START Commands

The START command starts components that have been halted by NetEx or drained.

START ADAPTER

Starts an adapter that has been halted by NetEx.

START HOST RMTHOST

Starts a remote host which has been drained.

START NETEX

Restarts NetEx after it has been drained.

START PATH

Restarts the path after it has been drained.

START ADAPTER

The operator may start an adapter that has been halted by NetEx.

The START ADAPTER command has the following format:

Command	Required Parameters
C Start Adapter	NN

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

NN

Specifies the two character network address of the “adapter” to be started.

Example

```
/ START ADAPTER C3
```

Related Topics

See the following initialization statement in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

START HOST RMTHOST

The operator may start a remote host which had been drained.

The START HOST rmthost command has the following format.

Command	Required Parameters
C Start HOST	RMTHOST

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

RMTHOST

Specifies the name of the remote host to be started.

Example

```
/ START HOST VAX3
```

Related Topics

See the following initialization statement in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

START NETEX

The operator may restart NetEx after it has been DRAINED using the START NETEX command.

NOTE:If NTXOPER was ON prior to DRAINing NETEX, it does not restart automatically. It must be started again by issuing the SET NTXOPER ON command.

The START NETEX command has the following format:

Command
C START NETEX

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

Example

```
/START NETEX
```

Related Topics

- “DRAIN NETEX” on page 129
- “KILL NETEX” on page 133

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “START NETEX” step during installation

START PATH

The operator may restart the path after it has been DRAINED using the START PATH command.

The START PATH command has the following format:

Command	Required Parameters
C START PATH	frGNA toGNA

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

frGNA

Specifies the local GNA of the path to be restarted.

toGNA

Specifies the remote GNA of the path to be restarted.

Example

```
/START PATH 0200 7f01
```

Related Topics

- “DRAIN PATH” on page 130

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “START PATH” step during installation

DRAIN / HALT / KILL Commands

These commands are used to stop NetEx or NetEx resources. There are six commands.

DRAIN HOST RMTHOST

Disables new connections to the remote host.

DRAIN NETEX

Does not allow new sessions to be established, but it does not effect existing sessions.

DRAIN PATH

Does not allow new sessions to be established from this NetEx; it does not effect existing sessions.

HALT ADAPTER

Stops the NetEx use of an adapter.

HALT SREF

Immediately stops a NetEx session.

KILL NETEX

Immediately stops all NetEx resources.

DRAIN HOST RMTHOST

Connections from local host to a remote host can be prevented using the DRAIN HOST RMTHOST command. Users attempting to establish a connection with a DRAINED remote host receives a 3507 NRBSTAT code.

The DRAIN HOST rmthost command has the following format:

Command	Required Parameters
C DRAIN HOST	RMTHOST

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

RMTHOST

Specifies the name of remote host. If no RMTHOST is specified, the local his it drained as if you issued a DRAIN NetEx command.

Example

```
/ DRAIN HOST ORTRMT
```

Related Topics

- “DRAIN NETEX”

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

DRAIN NETEX

The operator can prevent new sessions from being established using the DRAIN NETEX command. This command terminates all NetEx activity. When all sessions have completed, a message appears indicating that NetEx is drained. NetEx awaits a START command to resume normal operation.

Connections in progress are not effected. Offers are taken down with a 3522. Local users attempting to establish a connection receive a 0505 NRBSTAT code. Remote users attempting to establish a connection receive a 3522 NRBSTAT code.

NOTE: Some sessions such as Bulk File Transfer Job Submitter (BFXJS), USER-Access Multiplex Server, TNP, and Print File Transfer (PFX) will not terminate with a DRAIN NETEX. Sites running these products or other NetEx applications that do not terminate need to set up procedures to terminate these sessions, and terminate these sessions before issuing DRAIN NETEX command.

The NTXOPER (remote operator) application also terminates with a 3522 NRBSTAT code.

The DRAIN NETEX command has the following format:

Command
C DRAIN NETEX

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

Example

/ DRAIN NETEX

Related Topics

- “START NETEX” on page 126
- “KILL NETEX” on page 133

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

DRAIN PATH

Connections from local host to a remote host on specific paths can be prevented using the DRAIN PATH command. Users attempting to establish a connection on a DRAINEd Path to a remote host receives a 4508 NRBSTAT code.

The DRAIN PATH command has the following format:

Command	Required Parameters
C DRAIN PATH	frGNA toGNA

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

frGNA

Specifies the local GNA of the path to be drained.

toGNA

Specifies the remote GNA of the path to be drained.

Example

```
/ DRAIN PATH 0100 7f01
```

Related Topics

- “START PATH” on page 127

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

HALT ADAPTER

The operator can halt an adapter defined to NetEx by using this command. Adapter refers to the network address (NCT NETADDR).

Link or gateway adapters may only be halted if they have been defined using the Configuration Manager.

When a local adapter is halted, NetEx immediately stops writing to or reading from the halted adapter. This is true regardless of the state of connections using the adapter.

Non-local adapters are those that are not channel attached to the CPU on which this NetEx is running. After non-local adapters are halted, all new connections are established using routes through other adapters. If a remote host attempts to establish a new connection on a route through a halted adapter, this NetEx ignores the messages sent by the remote host. Once a session connection is established through a remote adapter, that adapter continues even after a HALT command has been entered for it.

When a local adapter is halted, the subchannel addresses for it are deallocated and can be varied offline or used by another job.

The HALT ADAPTER command has the following format:

Command	Required Parameter
C HALT ADAPTER	NN

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

NN

Specifies a two digit hexadecimal number corresponding to an adapter.

Example

```
/ HALT ADAPTER 11
```

Related Topics

See the following initialization statement in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

HALT SREF

The operator can immediately terminate a session using the HALT SREF command.

Local users with a read up receive a 2307 NRBSTAT code or a 3100 code on the next write request. An outstanding OFFER is terminated with a 3422 NRBSTAT. Remote users also receive a 3422 NRBSTAT code.

NOTE: The session cannot be restarted with the NetEx operator START command. Consult with your systems administrator before using this command.

The HALT SREF command has the following format:

Command	Required Parameters
C HALT SREF	SREF

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

SREF

Specifies the sref for the session being halted. Use the DISPLAY SESSION command to determine the SREF.

Example

```
/ HALT SREF 1
```

Related Topics

- “DISPLAY SESSION” on page 33
- “SET RSETPATH” on page 106

See the following initialization statement in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

KILL NETEX

The operator can immediately stop NetEx resources using the KILL NETEX command. This command immediately terminates all NetEx activity. Connections in progress are terminated and a 0512 return code is inserted into all active NRBs.

NOTE: This is the preferred way to stop NetEx. Do not issue a P NETEX command. See the caution in “Emergency Override Procedure” in the Installation Reference Manual.

The KILL NETEX command has the following format:

Command	Optional Parameters (Select One)
C KILL NETEX	DUMP=ALL DUMP=TRACE

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

DUMP=ALL

Dumps the whole NetEx address space. If DUMP is omitted, no dump is taken.

DUMP=TRACE

Dumps only the NetEx trace table (if it exists). If DUMP is omitted, no dump is taken.

Example

```
/ KILL NETEX DUMP=TRACE
```

Related Topics

- “START NETEX” on page 126
- “DRAIN NETEX” on page 129

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- Emergency Override Procedure

Miscellaneous Operator Commands

There are four miscellaneous commands.

ALIAS

Specifies an alternate name for a configured remote host.

DEALIAS

Removes an alias host name that has been added by an ALIAS command.

LOAD NCT

Transfers PAM files, data structures describing paths to remote hosts, created by the Configuration Manager, to NetEx.

LOAD KEY

Loads the license key.

CLEAR IP

Remove a GNA to IP mapping.

Remote Operator

Provides intercommunication with other remote NetExes throughout the network.

ALIAS

The ALIAS command specifies an alternative name for a configured remote host. This command may be repeated as necessary.

The ALIAS command has the following format:

Command	Required Parameters
C ALIAS	AKA= <i>ALIASNAME</i> REAL= <i>HOSTNAME</i>

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

AKA

Also known as. Specifies another name for the host.

ALIASNAME

Specifies the alternate name for the host.

REAL

Specifies the actual name for the configured host.

HOSTNAME

Specifies the real name for the host.

Example

```
/ ALIAS AKA = TWAIN REAL = CLEMENS
```

Related Topics

- “DISPLAY ALIAS” on page 11
- “DEALIAS” on page 136

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “ALIAS”

DEALIAS

This command removes an alias host name that has been added by an ALIAS command.

The DEALIAS command had the following format:

Command	Required Parameters
C DEALIAS	<i>ALIASNAME</i>

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

ALIASNAME

Specifies the alternate name of the host.

Example

```
/ DEALIAS TWAIN
```

Related Topics

- “DISPLAY ALIAS” on page 11
- “ALIAS” on page 135

See the following initialization statements in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”
- “ALIAS”

LOAD NCT

This command loads a new copy of the Physical Address Map (PAM) file created by the Configuration Manager to NetEx.

NetEx attaches a subtask which reads the file specified on the PAMFILE DD statement in the NetEx procedure and sends it to the local NetEx through an intrahost connection. Local adapter information may not be changed by using this command. If local adapter information was changed, NetEx must be restarted.

CONFIG=YES must be specified in the NetEx initialization statement, or the LOAD NCT command is rejected as invalid by NetEx.

The LOAD NCT command has the following format:

Command
C LOAD NCT

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

Example

```
/ LOAD NCT
```

LOAD KEY

This command loads the license key. The loaded key will take effect only if it is not incompatible with the current running key.

The LOAD KEY command has the following format:

Command
C LOAD KEY

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

Example

```
/ LOAD KEY
```

CLEAR IP

This command removes the specified GNA to IP mapping which was added via the 'SET IP' command.

The CLEAR IP command has the following format:

Command
C CLEAR IP uuuu

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

uuuu

Specifies the gna which is mapped to an IP address.

Example

```
/ CLEAR IP 7C00
```

Related Topics

See the following initialization statement in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- "CMDPRE"

Remote Operator

H210IPZ NetEx provides a remote operator service that allows a user to request a NetEx operator display from other hosts on the network. This display may be requested from any NetEx that has the remote operator display feature enabled. Additionally, remote displays may be requested from other compatible software.

The remote operator command is enabled by using the NTXOPER initialization statement of the SET NTXOPER command. The class of commands that are available to the remote operator is either set with the NTXOPER or SET NTXOPER command, or may be set with the SET ROPCLASS command.

To use the remote operator feature, use the following command:

(Select One)	Required Parameters
C> HOSTNAME	COMMAND
C> HOSTNAME/APPLID	

C

Specifies a one character command prefix that identifies this command as a NetEx operator command. The prefix is installation dependent.

HOSTNAME

Specifies the remote host name as defined in the network configuration (NTCROUTE statements or Configuration Manager statements).

/APPLID

Specifies the application ID on the remote host. If requesting a remote NetEx operator display, this name is omitted. An example applid is MANAGER.

COMMAND

Specifies the command to be executed by the remote program.

Example

A blank space () is required between the C> and the HOSTNAME.

```
c> Linux1 DISPLAY SESSION
c> ZOS8/MANAGER DISPLAY STATS
```

The requested display is shown in the format defined by the remote program. For example, if requesting display from an H260 NetEx for VAX VMS, use an H260 command and receive an H260 display. (Refer to the reference manual for the remote program.)

Remote Operator Command Classes

The remote operator service classifies commands into three classes to provide the desired level of authority to remote operators.

- Class A commands severely affect the system. They include LOAD, HALT, KILL, and DRAIN commands.
- Class C commands are privileged commands. They include SET, START, and > (the remote operator command).
- Class G commands are for status only. They include the DISPLAY commands. Network Executive Software recommends using class G commands.

Related Topics

See the following initialization statement in *H210IPZ NetEx/IP for IBM z/OS Operating Systems Installation Reference Manual*:

- “CMDPRE”

Appendix A. The Print Function

General

H210IPZ messages appear on the operator console. You can direct H210IPZ messages to appear on other consoles. This allows the system operators to review NetEx activity history on their system without using the operator console and system log to observe NetEx activity. System operators can obtain a permanent record of this activity for evaluation without having to extract NetEx message information from the SYSLOG. The print function feature allows operators to send all H210IPZ displays and messages to a data set that is independent of message level filtering. Message level filtering reduces unnecessary console I/O.

When the print function is active, all H210IPZ display requests and messages will be QSAM-PUT to a SYSOUT data set dynamically allocated through SVC 99.

NetEx performance should be only minimally affected because the QSAM I/O will be done under control of a competing TCB. Although every display and message will be processed, incurring some increased degree of overhead, there will be no I/O activity synchronous to the NetEx main task. Further, since all messages may be viewed at a later time, the amount of operator console I/O may be reduced to near zero by setting the MSGLVL filtering variable to a very high value.

NetEx builds various print processing function control-block structures during initialization which remain in place until NetEx termination.

When the NetEx SET PRINT ON command starts the print processing function (see summary below), all formatted displays and messages will be copied into an output buffer. There are 16 buffers. Each buffer may contain 1000 128-byte messages. If there are storage constraints, each buffer may contain 100 128-byte messages.

When a buffer is full, NetEx sends the buffer to a “print” queue, and the asynchronous task executing the print function processing module “NXMLOGPR” will be posted (POST). NXMLOGPR will then QSAM-PUT-write each record in the buffer to the SYSOUT data set. The SYSOUT allocation will request the output class “A.” The print function must be explicitly started, and cannot be started by a SET PRINT ON initialization statement.

The S722 (JES OUTLIM exceeded) ABENDs are not retrievable from an Extended Specify Task Abnormal Exit (ESTAE). To prevent such ABENDs, NetEx must “know” the record-count capacity for the SYSOUT data set. This is specified to NetEx through the OUTLIM=NNNNNN initialization statement and/or SET OUTLIM=NNNNNN operator command. If NXMLOGPR determines that the SYSOUT data set has received the maximum number of records, the NTXLOG DCB will be closed (CLOSE), reallocated, and re-opened (OPEN) to retain the SYSOUT data set. If this is accomplished successfully, display and message recording will continue without losing any information. All records written to all SYSOUT JES data sets by all print processing tasks will be retained in discrete JES data sets. Changing the current OUTLIM value by invoking the SET OUTLIM=NNNNNN operator command will not take effect until the print function is recycled (if it is active); that is, OUTLIM cannot be changed immediately.

No JCL changes are required to use the print function.

Print Function Interfaces

Output Exceeded ABEND Prevention Parameter

The valid numeric range is 1024 through 524,288. The number of output records that can be written to the NTXLOG output device is specified by the NetEx/IP SET OUTLIM command.

Starting/Stopping the Print Function Processing TASK

The NetEx/IP SET PRINT operator command controls the print function. A series of new console messages will inform the operator of print function status. See “SET PRINT” on page 100 for an example of the command format.

Appendix B: NetEx Tools

This section documents the NetEx tools shipped with the product.

If you have any questions on running these tools please contact support@netex.com

NTXMGGEN

This tool will generate data for testing purposes.

```
//NTXMGGEN JOB CLASS=A,MSGCLASS=A,NOTIFY=&SYSUID,REGION=0M
//*
//*      NOTE: SUBSTITUTE THE APPROPRIATE VALUES IN THE
//*      FOLLOWING JCL
//*
//*  SYSIN Input:
//*      #SESSIONS BLOCKS SIZE ODATA LOOPS DMODE VALIDATE HOST OFR SSID
//*
//CPROG EXEC PGM=NTXMGGEN
//STEPLIB DD DISP=SHR,
//          DSN=NETEX.NTXCLOAD
//SYSPRINT DD SYSOUT=*
//STDOUT DD SYSOUT=*
//STDERR DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//STDIN DD * ,
1 1000 1000 10 1 0 Y NTXLCL01 NTXMEAT NETX
/*
//
```

- Sessions: The number of concurrent sessions to process. This must be equal to or less than the number of sessions used by NTXMEAT. No default.
- Blocks: The number of blocks of data to generate. No default.
- Size: The size of the blocks of data to generate in bytes. No default.
- OData: The number of bytes of ODATA to generate. Typically, this parameter can be set to 0.
- Loops: The number of times to send all of the blocks. No default.
- Dmode: The DATAMODE to use when sending the blocks. No default.
- Validate: Should the content of each received block be validated. No default.
- Hostname: The Netex hostname to send to. No default.
- OffrName: The NTXMEAT Offer to connect to send the data. No default.
- SSNM: The SubSystem Name for Netex - the default is NETX

NTXMEAT

This tool will read data generated by NTXMGEN.

```
/NTXMEAT JOB CLASS=A,MSGCLASS=A,NOTIFY=&SYSUID,REGION=0M
/**
/**      NOTE: SUBSTITUTE THE APPROPRIATE VALUES IN THE
/**      FOLLOWING JCL
/**
/**      SYSIN PARMS: #SESSIONS VALIDATE
/**      #Sessions Validate OffrName HostName SSNM
/**
//CPROG EXEC PGM=NTXMEAT
//STEPLIB DD DISP=SHR,DSN=NETEX.NTXCLOAD
//SYSPRINT DD SYSOUT=*
//STDOUT DD SYSOUT=*
//STDERR DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//STDIN DD *
1 Y NTXMEAT Host NETX
/*
//
```

- Sessions: The number of concurrent sessions to process. This must be equal to or greater than the number of sessions used by NTXMGEN.
- Validate: Should the content of each block be validated. No default.
- OffName: The OffrName NTXGEN will connect to for the test. No default.
- Hostname: The Netex hostname to receive from. No default. Use the connecting hostname.
- SSNM: The SubSystem Name for Netex - the default is NETX

Running NTXMEAT and NTXMGEN:

1. On the receiving side, submit NTXMEAT (this MUST be started before NTXMGEN).
You will need to CANCEL (or let the offer(s) time out) to stop the NTXMEAT application when your testing is completed.
2. On the sending host, submit NTXMGEN.

Once both processes are up and running, on the NTXMGEN side, you will see:

```
1 ses, 99995 blocks, 32000 bytes/blk, 0 odata bytes,  
1 loops, datamode 0, validate 0, to NTXMEAT at ZOSB, ssn NETB
```

On the NTXMEAT side you should see output similar information to:

```
Making 1 offers of NTXMEAT , validate 0, ssnm NETB, hostname ZOSB
```

When each loop completes, the NTXMGEN side will output the stats for the finished loop:

```
Thu Feb 19 10:32:25 2015: Connect: Status: 0, Ind: 0, Session: 1 Try: 1 Loop: 1  
Thu Feb 19 10:34:22 2015: Session 1: loop 1  
218.7946 Mbits/s, 27.3493 Mbytes/s, 854.6921 OPs/s, 117 Sec, 99999 Blks,  
3199872000 Bytes
```

On the NTXEAT side, the output when the test completes is similar to:

```
Thu Feb 19 10:25:48 2015: COffer: Status: 0, Ind: 1, Session: 1 Try: 0 Loop: 1  
Thu Feb 19 10:26:05 2015: Session 1: loop 1  
150.5732 Mbits/s, 18.8216 Mbytes/s, 588.4116 OPs/s, 17 Sec, 10003 Blks, 319968000  
Bytes
```


Appendix C. Glossary

This glossary contains terms that are used in this document. It includes frequently used acronyms and Network Executive Software product terminology.

ABEND

Abnormal end.

ACB

Access method control block.

ACK

Acknowledge.

adapter

A part that electronically or physically connects a device to a computer, another device or a communications line. A host interface connects to a computer, a link interface connects to a communications link.

address

A unique identifier assigned to a device connected to a network.

alternate channels

The ability to communicate to the same group of devices across multiple channel interfaces. In RDS and NetEx terms, it is the ability to communicate to the same group of devices across multiple RDIs.

alternate path

Another NetEx network path an operation can use after a failure on a suspect path. See also alternate path retry (APR).

alternate path retry (APR)

A facility that allows a failed operation to be retried on another NetEx network path from the device performing the I/O operation. Alternate path retry improves the operation of NetEx remote hosts by switching network activity from a suspect or failing path to an alternate network path automatically. Preferred path routing in NetEx/IP detects the recovery of a previously failing primary NetEx network path and automatically restores network activity to that path.

American Standard Code for Information Interchange (ASCII)

A standard that defines the codes for a character set to be used for information interchange between equipments of various manufactures and is the standard for digital communications.

APAR

Authorized program analysis report.

APF

Advanced function printing.

APR

Alternate path retry.

ASCII

American Standard Code for Information Interchange.

Asynchronous

A class of data transmission service whereby all requests for service contend for a pool of dynamically allocated bandwidth and response time.

ATTN

Attention.

BFX

Bulk file transfer.

BFXJS

Bulk file transfer job submitter.

BFXTI

Bulk file transfer initiator.

BFXTR

Bulk file transfer responder.

buffer

A contiguous block of memory allocated for temporary storage of information in performing I/O operations. Data is saved in a predetermined format. Data may be written into or read from the buffers.

buffer memory

Temporary storage areas. Data going to or coming from the chassis is temporarily stored here until transmission on the network is completed.

Bulk File Transfer (BFX)

A Network Executive Software application software package. BFX utility allows users of NetEx Communications software to move large quantities of data between similar or dissimilar types of processors on an IP network. Any one version of BFX is fully compatible with any other. BFX consists of three separate programs: BFX Transfer Initiator (BFXTI), BFX Transfer Responder (BFXTR) and BFX Job Submitter (BFXJS). BFX is a trademark of Network Executive Software.

channel

The channel subsystem facilities associated with a single channel path.

CMDPRE

Command prefix.

command list

A list of commands and statements designed to perform a specific task.

command prefix

A character that identifies a NetEx/IP subsystem. Use this character when issuing commands to a specific NetEx/IP subsystem.

Configuration Manager

A utility that parses a text NCT file into a PAM file.

control unit (CU)

A hardware unit that controls the reading, writing, or displaying of data for one or more input/output units.

CPU

Central processing unit.

CRC

Cyclic redundancy check.

CSW

Channel status word.

CTCB**CU**

Control unit.

CUA

Common user access or channel unit address.

CUE

Control unit end.

cyclic redundancy check (CRC)

An error detection scheme.

DDB

Driver interface data block.

DEFBI

Default buffer input.

DEFBO

Default buffer output.

DREF

Driver reference.

EBCDIC

Extended binary-coded decimal interchange code.

EOF

End of frame.

ESA

Enterprise system architecture.

ESTAE

Extended specify task abnormal exit.

ESTP

ESTAE parameter list.

FCB

Forms control block.

FCC

Federal Communications Commission.

firmware

A computer program or instruction that is used so frequently that it must be stored in a read-only memory instead of being included in software. Often used in computers that monitor production processes. Firmware may be marketed separately as PROMs.

FMID

Function module identifier.

frame

The unit of transmission on a Network Executive Software network. It consists of heading information and data. All data is sent on the network in this special envelope. A frame can be up to 4K bytes in length.

global network addressing (GNA)

A 32-bit network addressing scheme. It uses a 16-bit network address mated to the 16-bit unit address to uniquely identify units on a NetEx/IP network.

GNA

Global network addressing. A 32-bit network addressing scheme. It uses a 16-bit network address mated to the 16-bit unit address to uniquely identify units on a NetEx/IP network.

HCD

Hardware configuration definition.

header

Control information. It is transmitted at the beginning of a message, segment, datagram, packet, or block of data.

host

A data processing system that is connected to the network and with which devices on the network communicate. In the context of Internet Protocol (IP), a host is any addressable node on the network; an IP router has more than one host address.

host adapter

An interface connecting a host and a network.

IBM

International Business Machines.

ID

Identifier.

initial program load (IPL)

The process of starting (or restarting) the operating system.

Internet Protocol (IP)

A protocol suite operating within the Internet as defined by the *Requests For Comment* (RFC). This may also refer to the network layer (level 3) of the protocol stack (the layer concerned with routing datagrams from network to network).

I/O

Input/output.

IOCP

Input/output configuration program.

IPL

Initial program load.

IRB

Interrupt request block.

ISO

International standards organization.

JCL

Job control language.

JES, JES2, JES3

Job entry system.

JESCT

JES control table.

link

(1) A joining of any kind of local networks. (2) May refer to the communications facility used to interconnect two local networks.

logical partition (LPAR)

A facility that allows you to divide the resources of a processor so that multiple copies of an operating system may exist on the same physical processor.

LPAR

Logical partition.

MCH

Machine check handler.

message proper

A basic addressing mechanism (nine to 64 bytes of data) used by NetEx/IP. The first eight bytes are the message header and are common to all messages. These bytes indicate the source and destination addresses of both the physical adapters and the logical devices to which they are attached.

MIH

Missing interrupt handler.

MVS

Multiple virtual storage.

N/A

Not applicable.

NCT

Network configuration table.

NETEX

NETwork EXecutive.

NETEX Request Block (NRB)

An array of parameters that pass information between calling programs and NetEx.

network

(1) A collection of interconnected computer systems, terminals and front-end processors. (2) Refers to the portion of a GNA address represented by the second byte (byte 1 when reading left to right). This portion of the GNA address has a hexadecimal value in the range from X'01' to X'FF'. The combination of domain, network, unit, and subaddress represent the GNA address of a particular processor on a network.

Network Configuration Table (NCT)

An internal data structure that is used by the NetEx Configuration Manager program to store all the information describing the network.

NETwork EXecutive (NetEx)

A Network Executive Software family of software that allows two or more application programs to communicate. NetEx is tailored to each supported operating system, but can communicate with any other supported NetEx, regardless of operating system.

NetEx is a registered trademark of Network Executive Software.

NIT

NetEx internal task.

NRB

NetEx request block.

NREF

Network reference.

NUB

NetEx user block.

octet form

Information considered as a sequence of eight-bit bytes.

Open Systems Interconnection (OSI)

A seven-layer protocol stack defining a model for communications among components (computers, devices, people, and et cetera) of a distributed network. OSI was defined by the ISO.

path

A route that can reach a specific host or group of devices.

PDS

Partitioned data set.

PFX

Print file transfer.

POST

Power on self test. One particular mode of BIST, POST is initiated a power-up, and runs on the chassis under test without operator intervention, special codes, or the connection of extraneous test equipment. POST tests all major logic boards in the chassis as quickly as possible, with a high degree of failure detection, and isolation to the board level.

port

(1) The point of entry/exit for data transmission to/from various chassis. (2) Ports may be logical or physical. The physical point of entry/exit for I/O operations to/from chassis is located on the I/O panel. (3) I/O operations through some chassis occur through separate logical data paths sharing a single physical port. Each of these data paths operates independently, as if it were a separate physical path. The point of entry/exit to these data paths is the logical port.

PRB

Program request block.

prefixed storage area (PSA)

An area of storage used for mapping fixed hardware and software locations per processor.

Print File Transfer (PFX)

A utility software package. The PFX allows users of NetEx communications software to transfer print files between similar or dissimilar types of processors on networks. PFX contains the facilities to select files and to make the file format conversions necessary for proper printing on the receiving host. PFX is a trademark of Network Executive Software.

protocol

A formal set of rules governing the format, timing, sequencing, and error control of exchanged messages on a network. A protocol may be oriented toward data transfer over an interface, between two logical units directly connected, or an end-to-end basis between two users over a large, complex network.

PSA

Prefixed storage area.

PSAREG

Prefixed storage area register save area.

PUT

Program update tape.

RAM

Random access memory. A memory device which may be written into or read from, with the time required to do so being independent of the data storage location. Information in a RAM is lost when the RAM loses power.

RU

Request unit check with bus out.

SID

Session identifier.

SMF

System management facility.

SMP/E

System modification program extended.

SNA

System network architecture.

SRB

Service request block.

SREF

Session reference.

SSCVT

Subsystem communications vector table.

SSVT

Subsystem vector table.

TCP/IP

An acronym for Transmission Control Protocol/Internet Protocol. These communication protocols provide the mechanism for inter-network communications, especially on the Internet. The protocols are hardware-independent. They are described and updated through *Requests For Comment* (RFC). IP corresponds to the OSI network layer 3, TCP to layers 4 and 5.

TREF

Transport reference.

TUB

Transport user block.

UCB

Unit control block.

UCW

Unit control word.

UIM

Unit information module.

unit

The portion of a GNA address represented by the third byte (byte 2 when reading left to right). This portion of the GNA address has a hexadecimal value in the range from X'01' to X'FF'. The combination of domain, network, unit, and subaddress represent the GNA address of a particular processor on a network.

unit information module (UIM)

A software representation of a physical piece of hardware (for example, a control unit or a device) that describes the operating or connection rules for attaching that hardware to the processor for HCD.

WTO

Write to operator.

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